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THE SPATIAL REPRESENTATION OF RESPONSES TOWARD JAZZ: APPLICATIONS OF CONSUMER ESTHETICS TO MAPPING THE MARKET FOR MUSIC

Introduction: Consumer Esthetics

Whether the jazz artist's objective is to achieve mass appeal or to expose an uncompromised art form to the most receptive audience possible, success depends upon the design of an effective marketing strategy. The development of such a strategy may be facilitated by the techniques of consumer esthetics. Some of these techniques, for instance, can be used to generate spatial representations of the jazz consumer's perceptions and preferences. In this article, such a model is described, categorized, extended, and illustrated by several examples based on empirical investigations of the market for jazz.

Consumer esthetics, an emerging area of study within the broader scope of marketing research, focuses on the buyer's cognitive, affective, and behavioral responses to media, entertainment, and the arts.[1] The arousal of interest in such phenomena stems from the growing realization that, like toothpaste or soda pop, artistic creations and performances are "products" whose commercial success in the marketplace depends directly on the way they are perceived and valued by consumers.[2] An analysis of consumer responses must therefore underlie any attempt to market esthetic products more successfully.

This viewpoint immediately raises the spectre—abhorrent to true devotees of any art form—of "going commercial" or "selling out." The inevitable anti-commercial reaction depends, in part, on the fairly plausible assumption that something complex and sophisticated cannot, by definition, be readily accessible to a mass audience—or else we would change our definitions of complexity and sophistication—so that,

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to achieve mass appeal, an artistic offering must perforce be watered down and rendered simplistic.[3] But this reaction assumes incorrectly that the purpose of marketing is to confer mass acceptance on every product it touches. In fact, the well-accepted principle of *market segmentation* suggests the converse: namely, that marketing strategy should be designed to direct a given offering at the necessarily restricted segment of buyers whose needs and wants are best satisfied by the particular configuration of appeals embodied by that offering.[4] Viewed ecologically, such a marketing orientation seeks the environmental "niche" that best reconciles the producer's strengths and weaknesses (in this case, the artist's talents, convictions, techniques, etc.) with external opportunities and threats (in this case, the limitations imposed by diverse patterns of audience tastes and preferences).[5] This means that the artist who wishes to create a deliberately esoteric and inaccessible product can at least aim that offering at the audience most apt to appreciate it. Meanwhile, the more commercially oriented artist can realize that no artwork can possibly appeal to everyone so that success on a large scale depends upon finding an especially large and receptive market segment and targeting one's marketing efforts accordingly.

Such considerations are particularly salient—and sometimes even poignant—in jazz, where the discrepancy between mass acceptance and relative oblivion is probably as great as in any artistic field of endeavor. By focusing on the determinants of success in the jazz marketplace, the field of consumer esthetics offers the performer, the producer, the record manufacturer, the concert promoter, or the program director insights into the nature and structure of the consumer responses that shape the fate of any jazz offering. Specifically, the techniques of consumer esthetics are well-adapted to the problem of analyzing and representing the patterns of perceptions and preferences that influence consumer acceptance. The purpose of the present paper is to offer brief descriptions of some of these techniques and to illustrate their application to studying the market for jazz. In particular, we shall focus on those procedures designed to provide spatial representations of the relationships between important consumer variables. Such techniques are especially interesting and useful because of the vividness and easy interpretability with which they portray consumer perceptions and preferences in jazz.

A Taxonomy of Techniques for Spatial Representation in Consumer Esthetics

In general, spatial representations of esthetic responses depict the psychological closeness between artistic objects—or between consumers and artists—by their distance from each other in a space of two or more dimensions. Interpretation of the meaning of these dimensions may help elucidate the underlying bases for esthetic response.

More specifically, techniques for forming esthetic spaces may be distinguished according to (1) their *purpose* and (2) their *methodology*. A cross-classification of these two distinctions produces the typology shown in Example 1.

Ex. 1. A Taxonomy of Techniques for Spatial Representation in Consumer Esthetics

	Purpose	
Methodology	Perceptual Space (Perceptions Only)	Joint Space (Both Perceptions and Preferences)
Compositional	Study 1	Study 3
Decompositional	Study 2	Study 4

As indicated in Example 1, the *purpose* of a given technique may be (1) to form a *perceptual space* that indicates how some set of esthetic objects is *perceived* by a sample of consumers or (2) to produce a *joint space* that represents *both perceptions and preferences* in a way that explains feelings of liking or disliking for the objects. Both purposes are of clear importance to understanding the structure of consumer responses. Yet they deal with different facets of the problem.[6] A purely

perceptual space simply represents cognitive responses toward artistic objects, without attempting to indicate which objects are preferred. A *joint* space, on the other hand, usually models preferences by including ideal points that indicate the desired amounts of a given characteristic that an object should possess in order to be regarded favorably. Relative preferences among objects are then represented by their comparative distances from such an ideal point.[7]

Example 1 also shows that the method of gathering and analyzing data may be either (1) *compositional* or (2) *decompositional*.[8] In brief, *compositional* approaches collect ratings of each esthetic object on a number of attribute scales—e.g., fast/slow, light/heavy, sweet/sour, loud/soft, etc.[9] These attribute ratings are then analyzed by some multivariate statistical procedure such as principal components analysis (PCA) or multiple discriminant analysis (MDA) to create a space that depicts the differences between object perceptions by their locations on dimensions which condense and summarize the original attribute data.[10] By contrast, *decompositional* approaches begin by collecting judgments concerning the perceived similarity between such possible pair of objects. These pairwise similarity judgments are then analyzed by a technique called multidimensional scaling (MDS) to infer the dimensions that underlie the original similarity ratings.[11] Alternatively, multidimensional scaling may be applied directly to preference ratings or rankings via a procedure known as unfolding analysis.[12]

The purpose of the present paper is not to provide detailed technical descriptions of these various multivariate statistical and scaling procedures.[13] Our objective is to illustrate each approach as it applies to studying the market for jazz.

The Spatial Representation of Responses to Jazz: Some Illustrations

Study 1: A Compositional Perceptual Space

In a carefully-controlled laboratory setting, 32 subjects (mostly graduate students and their compeers) listened to 15 unidentified tapes of jazz saxophonists.[14] These recordings are described in Example 2. Each soloist was rated on 18 semantic differential scales of the following form:

new old

Ex. 2. Descriptions of 15 Jazz Saxophone Recordings Used as Stimulus Objectives in Studies 1 and 2

West Coast, Tenor

Lester Young	"Ad Lib Blues," Verve VE-2-2502	D-flat, 222 beats/min., 1952
Stan Getz	"Down Beat," Verve MG V-8321	B-flat, 238 beats/min., 1957
Zoot Sims	"Zoot Swings the Blues," Prestige P-24061	G, 262 beats/min., 1951
Al Cohn	"John's Bunch," Famous Door HL-107	B-flat, 203 beats/min., 1975

West Coast, Alto

Paul Desmond	"St. Louis Blues," Columbia C2S-826	E-flat, 210 beats/min., 1963
Lee Konitz	"Cork 'N' Bib," Atlantic 1258	B-flat, 108 beats/min., 1956
Art Pepper	"Marty's Blues," Archives of Jazz AJ510	B-flat, 200 beats/min., 1957

East Coast, Alto

Charlie Parker	"Jam Blues," Verve VE-2-2508	F, 218 beats/min., 1952
Sonny Stitt	"Au Privave," Verve MG VS-6108	F, 259 beats/min., 1959
Sonny Criss	"California Screamin', Prestige 7628	F, 262 beats/min., 1969
Phil Woods	"The Stanley Stomper," Prestige P-24065	E-flat, 145 beats/min., 1956

East Coast, Tenor

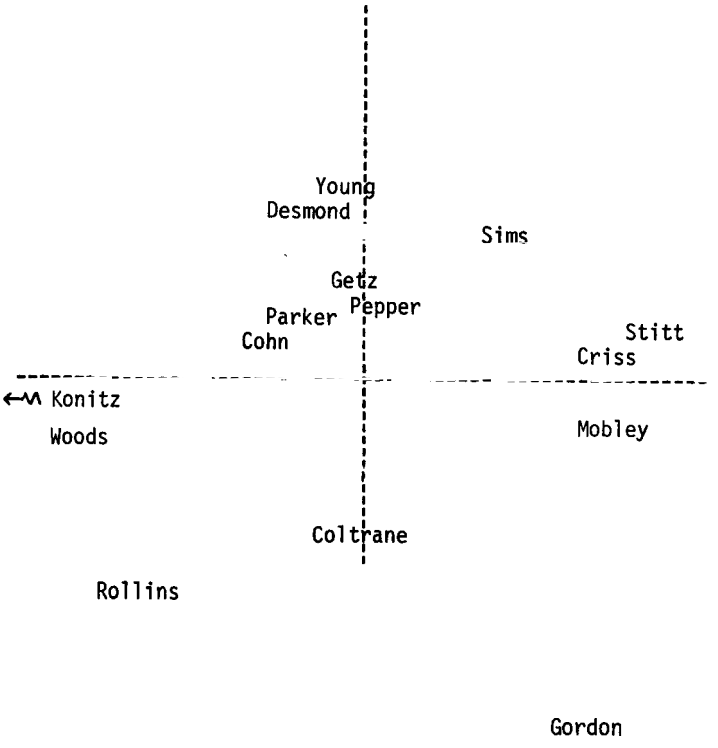
Sonny Rollins	"Bluesnote," Blue Note BN-LA401-H2	B-flat, 154 beats/min., 1956
Dexter Gordon	"Wee-Dot," Steeplechase SCS-1025	B-flat, 232 beats/min., 1974
John Coltrane	"Some Other Blues," Atlantic 1354	F, 196 beats/min., 1959
Hank Mobley	"Walkin'," Columbia C2S-820	F, 288 beats/min., 1961

The bipolar adjectives used to construct these scales were as follows: new/old, feminine/masculine, traditional/contemporary, slow/fast, active/passive, busy/lazy, composed/improvised, emotional/intellectual, out-of-tune/in-tune, changeable/stable, complex/simple, predictable/unpredictable, random/structured, repetitive/shifting, light/heavy, dissonant/consonant, warm/cool, and poorly-recorded/well-recorded.[15] The saxophone improvisations were each based upon the major 12-bar blues form and consisted of three choruses from the middle of a solo so that easily recognized tunes were masked. Other accompaniment, in all cases, was provided by just a rhythm section: bass, drums, and piano or guitar. Thus, musical form and instrumentation were held constant while other stylistic considerations were permitted to vary. For instance, as shown in Example 2, an effort was made to include both tenors and altos, both East and West Coast orientations, and a wide spectrum of keys, tempos, and recording dates.

As a first step, the data were submitted to a principal components analysis, which suggested that they could be well summarized by the following six indices: activity, harmoniousness, newness, orderliness, softness, and masculinity.[16] Scores on these indices were then entered into a multiple discriminant analysis to generate the two-dimensional MDA space shown in Example 3.

The horizontal dimension in Example 3 clearly represents tempo—ranging from slow (Konitz) to fast (Stitt)—while the vertical dimension reflects the distinction between East and West Coast orientations, with Rollins, Gordon, and Coltrane at one end of the continuum and Young, Desmond, and Sims at the other. Admittedly, there is some overlap of stylistic groups at the center of the vertical axis. Thus, for example, the space might be more pleasing intuitively if the vertical positions of Konitz and Parker were interchanged. But such apparent anomalies only serve to underscore the important point that the space is in no way intended as a substitute for musicological analysis. Rather it represents the perceptual judgments of a particular sample of jazz consumers, whose ratings may reflect attention to details that a musicologist would not necessarily regard as important aspects of style. It is, however, consumers and not musicologists who spend money for record albums so that, in a marketing-oriented approach, it is consumer perceptions that matter most.

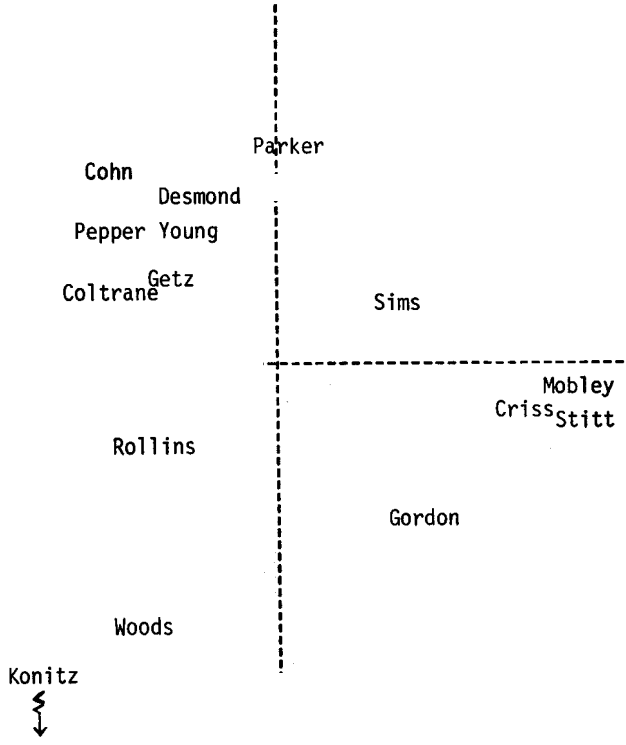
Ex. 3. MDA Space for 15 Saxophonists in Study 1



Study 2: A Decompositional Perceptual Space

The same group of subjects used in Study 1 also provided six-point similarity ratings for each pair of saxophone recordings. Specifically, they listened to one recording, then the next, and rated the pair for similarity—continuing until all 105 pairs had been judged. Such extensive listening-based comparisons are, we believe, unique in experimental esthetics because of the enormous amount of time required to complete all 105 pairwise comparisons.[17] The advantage of such a laborious procedure, however, is that it forces the subject to rate un-

Ex. 4. MDS Space for 15 Saxophonists in Study 2



identified selections on the basis of direct experience with the music rather than on the basis of any extra-musical associations.

When these pairwise similarity judgments were submitted to multidimensional scaling, the resulting two-dimensional MDS space (Example 4) resembled that found in Study 1 in most respects.[18] For example, the correlation between the spaces across the 105 inter-point distances was $r = .71$.[19] This moderately high value for r reflects the fact that the horizontal axis can still be interpreted as representing tempo while, *in general,* the vertical dimension still represents the distinction between East and West Coast styles. The departure of r from its maximum value of 1.0, however, results from the fact that, on musicological grounds, Konitz and Parker are again misplaced, much more seriously here than in Study 1.

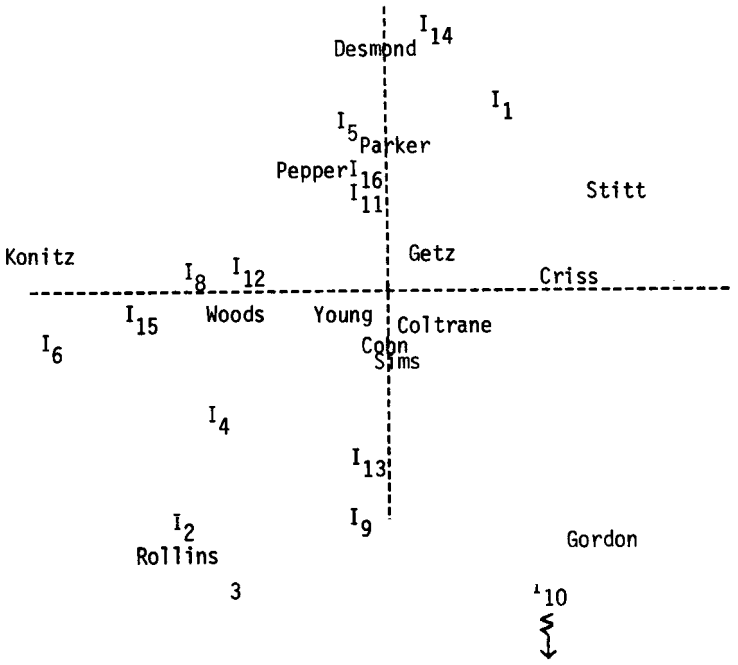
It must be reiterated that, because the data represent consumer perceptions, the "misplacement" of musicians can be inferred only by imposing some external musicological standard. Thus, the position of Konitz, though unexpected, is not necessarily erroneous perceptually. Indeed, he was the only saxophonist accompanied by guitar (Billy Bauer) instead of piano. If this aspect of the Konitz recording was important enough to exert a strong effect on his similarity ratings, it might explain his position at some distance from the saxophonists with whom he is normally associated. The absence of such a pronounced discrepancy in Study 1 could therefore have resulted from the fact that no piano/guitar attribute was included in the ratings collected in that study. Thus, though the space in Study 2 (Example 4) may seem less plausible than that found in Study 1 (Example 3), it may be more accurate in a psychological sense since subjects were free to make their own similarity judgments independent of any narrower set of considerations artificially imposed by the experimenters.

Study 3: A Compositional Joint Space

In a third study, a similar but independently drawn sample of 16 subjects rated 15 saxophonists on a set of 93 semantic differential scales comparable to those of Study 1, but much more extensive in scope. The key difference in Study 3, however, was that, in place of Hank Mobley, subjects rated a hypothetical *ideal* saxophonist on the same set of 93 attributes.[20] This made it possible for principal components analysis, followed by a subsequent multiple discriminant analysis of the factor scores, to create a two-dimensional space representing *both* the perceived positions of saxophonists *and* the location of an ideal point for each subject.

The resulting MDA space appears in Example 5. Again, the horizontal dimension offers a clear representation of tempo, but here the vertical dimension emphasizes the distinction between altos and tenors (with some tendency for East Coast players to be placed lower and West Coast players higher within their instrument groups). Moreover, the wide dispersion of the ideal points (I_1 to I_{16}) offers evidence of considerable heterogeneity of preferences among the subjects. Indeed, the assumption that different consumers have different needs and wants is fundamental to the concept of market segmentation and appears to be supported by the wide scatter of ideal points found in Example 5.[21]

Ex. 5. MDA Space for 14 Saxophonists and Ideal Points in Study 3

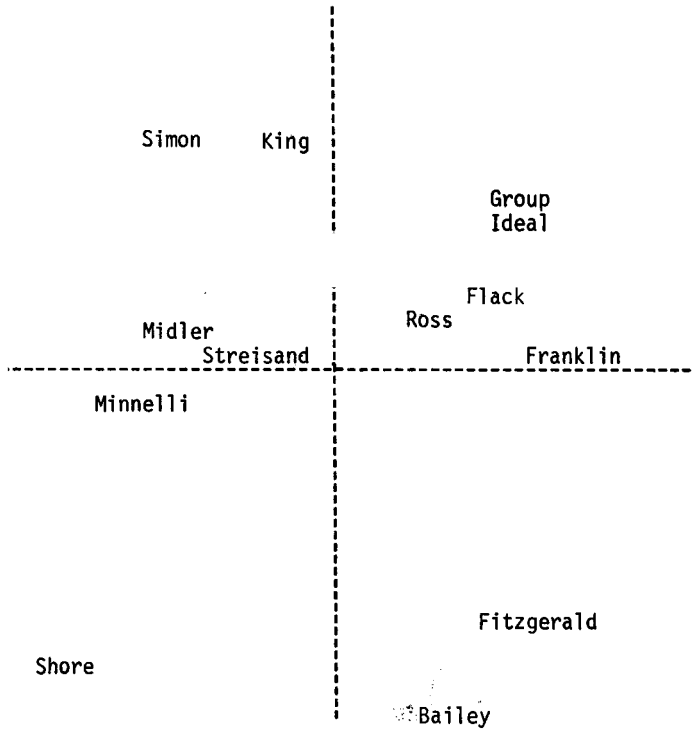


Study 4: A Decompositional Joint Space

An example of the fourth type of spatial representation used a very different, and much less jazz-oriented, set of esthetic objects consisting of 12 female singers: Cher Bono, Ella Fitzgerald, Roberta Flack, Carole King, Barbra Streisand, Diana Ross, Bette Midler, Aretha Franklin, Liza Minnelli, Carly Simon, Pearl Bailey, and Dinah Shore.[22] These 12 singers, plus a 13th ideal singer, were rated for pairwise similarity by a comparable but independently drawn sample of 22 subjects. The resulting MDS space appears in Example 6.[23]

Here, the horizontal axis appears to represent ethnic membership (white versus black) while the vertical dimension reflects degree of

Ex. 6. MDS Space for 12 Female Singers and Group Ideal Point in Study 4



contemporaneity (old versus new). Moreover, this particular approach creates a group ideal point close to Roberta Flack in the contemporary black region of the space. If desired, respondents could be clustered into affectively homogeneous groups before submitting the data to multidimensional scaling so that the resulting group-based MDS spaces could be viewed as market segments with shared preferences and a common ideal point.[24] Alternatively, unfolding analysis could be used to identify individual ideal points comparable to those shown in Example 5.[25] The authors believe, however, that a more fruitful approach to segmentation analysis is provided by the extension described in the next section.

An Extension of the Spatial Representations of Esthetic Responses: The Method of Multidimensionally Scaled Correlations

The four types of spatial representation described above, though illustrated in a laboratory setting, could in principle be applied to large-scale consumer samples. A partial limitation of the foregoing examples, however, is that they offer few insights into how the jazz market can be segmented or what segments tend to prefer which jazz artists. Such analyses could be handled by a number of available procedures,[26] but an approach directly related to the aforementioned spatial analyses is the method of multidimensionally scaled correlations (MSC).[27]

Multidimensionally Scaled Correlations (MSC)

Typically, MSC begins with data representing each respondent's preferences toward (or involvement with) a number of esthetic objects. These measures are correlated (between objects and across respondents) to provide a set of pairwise measures of association that are submitted to multidimensional scaling. In the resulting MDS space, therefore, interpoint distances represent the degree of preference association between objects.

Next, the original preference scores are correlated with *general customer characteristics* such as demographic variables (age, sex, ethnic group), socioeconomic status (income, education, occupation), or psychographic variables (personality, life style). The correlations of any customer characteristic with the set of object preferences are then represented in the space by a vector running through the origin.[28] The interpretation of such a characteristic vector is straightforward and extremely interesting: the farther an object is located in the positive direction of the vector, the more positively preference for that object is associated with possessing the characteristic represented by the vector. In this way, the set of vectors provides a vivid representation of the overall pattern of relationships between esthetic preferences and the possession of various demographic, socioeconomic, and psychographic characteristics.

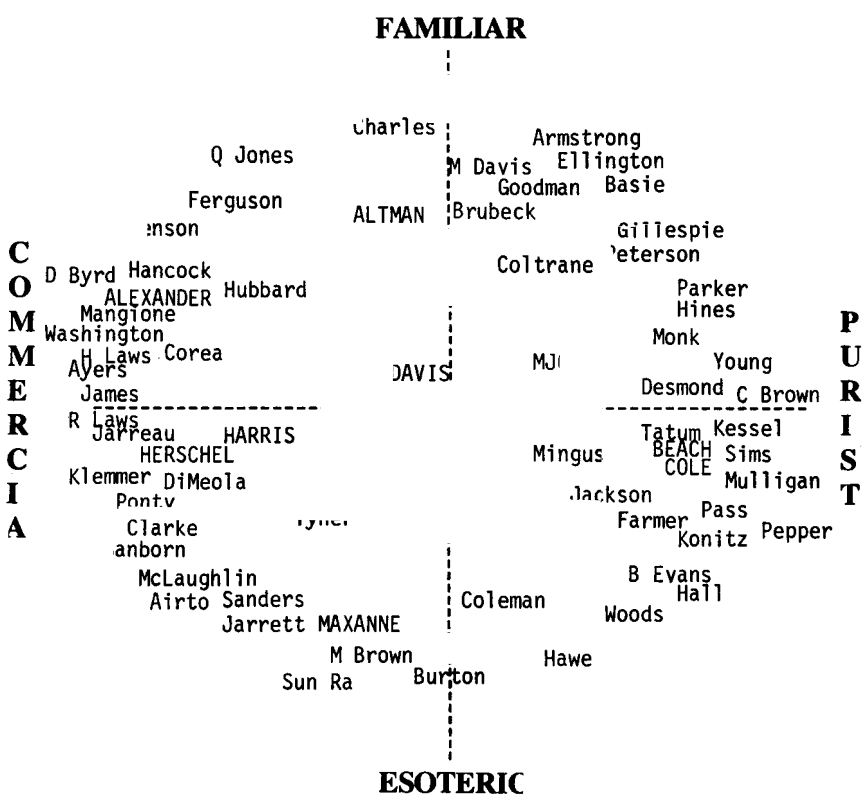
Study 5: The WRVR Survey

This approach is illustrated by a study conducted for WRVR, the major

jazz radio station in New York City.[29] Historically, the station had
n shifting its programming format from a focus on mainstream jazz,
yed by disk jockeys who provided detailed information about each
ɔrding, to an increased emphasis on crossover music announced by
ker, more personality-oriented DJs. These programming revisions
e intended to win a larger audience for the station, but an appraisal of
success of the format changes depended upon an assessment of the
cture of the market for jazz. This structure was by no means self-
lent to WRVR's management.
s a basis for undertaking such a market analysis, mail-survey ques-
naires were distributed to 1,000 and returned by 327 respondents.
se questionnaires collected 9-point preference ratings of 9 radio
ons, 14 local disk jockeys, and 59 well-known jazz musicians
:ted, with the help of WRVR's management, to represent a diversity
ɪzz styles and periods.[30] In addition, the questionnaires obtained
sures for a number of general customer characteristics such as
ɔgraphics, socioeconomic status, record-buying activity, and life-
[31]

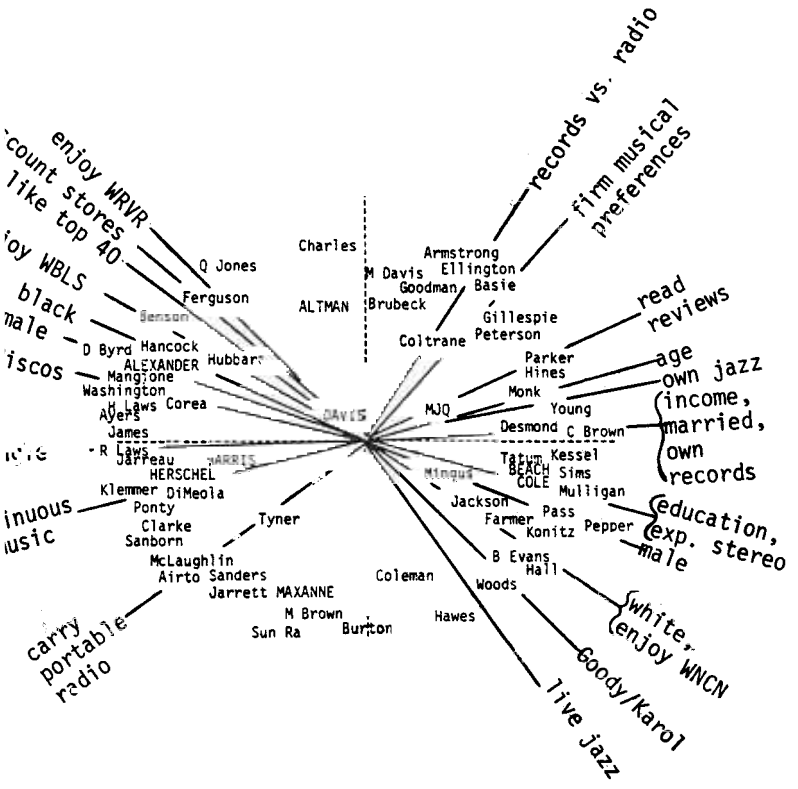
ultidimensional scaling of the inter-musician and inter-DJ corre-
ns generated the MDS preference space shown in Example 7.[32] In
space, the positions of the musicians (Small Letters) and DJs
ITALS) suggest an almost unequivocal interpretation of the two
Vertically, there is a clear distinction between familiar, widely-
sed performers at the top (Quincy Jones, Ray Charles, Miles Davis,
Armstrong) and more unfamiliar, esoteric artists at the bottom
Ra, Marion Brown, Gary Burton, Hampton Hawes). Horizon-
the preference space separates the more commercially successful
:ians at the left (George Benson, Herbie Hancock, Freddie Hub-
Donald Byrd, Chuck Magione, Grover Washington, Hubert
, Chick Corea, Bob James) from the more purist musicians on the
who are more faithful to their jazz heritage (Dizzy Gillespie, Oscar
on, Charlie Parker, Earl Hines, Lester Young, Paul Desmond,
rd Brown, Barney Kessel, Zoot Sims, Gerry Mulligan, Joe Pass,
:pper). Subjectively, the pattern of positions in the preference
hangs together intuitively with a pleasing degree of consistency
rarely found in consumer research—perhaps because judgments
sumer esthetics are made with more confidence, involvement, and
ise than are evaluations of products like toothpaste or cigarettes.
positions of the disk jockeys in the preference space are equally
able. Max Cole and Ed Beach had been noted for playing slightly

Ex 7. MDS Preference Space for 59 Jazz Musicians (Small Letters) and 8 WRVR Disk Jockeys (CAPITALS) in Study 5



obscure musicians committed to the jazz tradition. By contrast, G. Keith Alexander, Doug Harris, and Herschel all featured rather commercial, pop-oriented performers and would therefore presumably have been enjoyed most by those whose tastes ran in the direction of mass-appeal crossover music. Maxanne's chief characteristic at the time of the study was that she was new on the station in the after-midnight time slot. Accordingly, she was located at the unfamiliar end of the vertical dimension close to the musicians preferred by those whose tastes were somewhat esoteric. Roberta Altman was high on familiarity, but neutral on commercialism—perhaps because her role consisted mostly of reading the news on the morning show with Les Davis, to whom she was adjacent in the space. Most interesting was the completely neutral

8. Vectors Representing General Customer Characteristics in the Preference Space in Study 5



ition of Les Davis himself. This may be explained by the fact that he ıe, among the old-guard WRVR disk jockeys, was attempting to pt in the direction toward which the station's programming was ving. One might speculate that, over time, his preference position shifting from a location near to Max Cole and Ed Beach toward a t closer to G. Keith Alexander and that, at the moment of the study, was therefore caught on neutral ground in the preference space.

'he next step was to place vectors representing general customer racteristics into the preference space.[33] The set of such vectors of ıtest interest to management is depicted in Example 8. Here it can be ı that enjoyment of WRVR was positively associated with prefer- es for more familiar-and-commercial musicians such as Maynard guson, George Benson, Herbie Hancock, Donald Byrd, and Chuck

Mangione as well as with a greater liking for the newer WRVR disk jockeys like G. Keith Alexander, Herschel, and Doug Harris. This pattern of tastes also characterized enjoyment of WBLS—the soul-music station that management viewed as WRVR's key competitor, especially since the two were located in adjacent spots at one extreme end of the FM dial. By contrast, Max Cole and Ed Beach (old-guard WRVR DJs) tended to be admired by fans of WNCN. The latter was a classical music station, also located close to WRVR on the dial. Perhaps coincidentally, Max Cole went to work for WNCN after leaving WRVR.

In terms of demographic and socioeconomic characteristics, Example 8 also shows that preference for the more purist artists was associated with being older, higher in income, married, well educated, male, and white. By contrast, liking the more commercial musicians was associated with the opposite general customer characteristics. Taken together, these relationships suggest a clear tendency for WRVR's new programming format to appeal more to a socioeconomically "mid-scale" audience whereas its old format had attracted a relatively "overprivileged" listenership. By implication, this "up-scale" segment would be alienated by the station's shift toward more crossover programming.

Finally, Example 8 portrays a subset of the 46 life-style and purchasing vectors selected to suggest the nature of the related musical activities engaged in by those preferring musicians in different regions of the space. Those preferring familiar commercial musicians, for example, tend to buy their records at discount stores, to favor top-40 music, and to visit discotheques. Those who like more esoteric, but commercial, artists tend to seek continuous music by carrying a portable radio around with them. In sharp contrast, those favoring familiar purist jazz players appear to be better informed—tending to read reviews and music magazines, to develop firm musical preferences, and to prefer records to radio. Those who enjoy the purist, but more esoteric, musicians are more likely to go out to hear live jazz and to buy their records at big record shops like Sam Goody or King Karol. But probably the most loyal market for jazz recordings appears more among those whose preferences lie toward the extreme end of the purist dimension: they are more likely to own records in general, jazz records in particular, and expensive stereo equipment.

In sum, then, the preference space and characteristic vectors indicate that WRVR's programming change had achieved its intended objective. The station had become relatively more popular with those favoring the

mass-appeal artists in the familiar commercial region of the space, at the expense of alienating those preferring musicians with more limited appeal. Clearly, this latter group constituted a loyal, relatively affluent segment with more narrowly defined jazz tastes. Certainly, it was a small segment in terms of absolute size. Yet, from an advertiser's point of view, a manufacturer of records or hi-fi components might well have wanted to target his promotional messages at precisely this audience because of its comparative willingness and ability to expend financial resources on music. With the shift in WRVR programming toward the upper left-hand corner of the preference space, that option was no longer available to advertisers. This illustrates the point that undifferentiated audience ratings, such as those provided by Arbitron, may be quite misleading to an advertiser trying to reach a particular market segment. In the present case, by appealing more broadly to the mass audience that likes familiar commercial music and thereby improving its Arbitron ratings, WRVR may have rendered itself less useful as a specialized vehicle for selectively reaching the hard-core jazz fans who spend the most money for records and equipment.

Discussion

The present paper has not attempted to resolve the thorny question of whether the jazz artist should or should not compromise the art form in order to seek a greater degree of popularity. Rather the purpose has been to illustrate research techniques that permit a particular jazz offering, however uncompromising, to reach the most favorably disposed audience given the limits imposed by the nature of the marketplace. Those limits are best understood in terms of the patterns of perceptions and preferences that characterize consumer responses to jazz. Such analyses of the structure of consumer responses can often be greatly facilitated by the techniques of spatial representation exemplified in the five studies summarized here. These spatial techniques should prove useful in the empirical work needed as a basis for the rapidly emerging study of consumer esthetics.

NOTES

1. Morris B. Holbrook and Douglas V. Holloway, "Patterns of Relationships Among Esthetic Preferences and General Customer Characteristics: An Application of Multidimensionally Scaled Correlations to Mapping the Market for Music," working paper, Columbia University (1978), available from authors.

2. Morris B. Holbrook and Joel Huber, "Separating Perceptual Dimensions From Affective Overtones: An Application to Consumer Esthetics," *Journal of Consumer Research* 5 (March 1979): 272-83.

3. For an impassioned journalistic statement of this viewpoint, see Gene Lees, "The Dotage of American Radio," *High Fidelity* (January 1978): 12-29. A careful sociological formulation of a similar argument is provided by William N. McPhee, "Natural Exposure and the Theory of Popularity," in *Formal Theories of Mass Behavior* (New York: The Free Press, 1963), pp. 104-68, and tested in a marketing context by Abe Shuchman, "Are There Laws of Consumer Behavior?," *Journal of Advertising Research* 8, no. 1 (March 1968): 19-27.

4. Ronald E. Frank, William F. Massy, and Yoram Wind, *Market Segmentation* (Englewood Cliffs, N.J.: Prentice-Hall, 1972); Morris B. Holbrook and John A. Howard, "Frequently Purchased Nondurable Goods and Services," in Robert Ferber, ed., *Selected Aspects of Consumer Behavior* (Washington: National Science Foundation, 1977).

5. Wroe Alderson, *Marketing Behavior and Executive Action: A Functionalist Approach to Marketing Theory* (Homewood, Ill.: Richard D. Irwin, 1957).

6. Indeed, because one deals primarily with perceptions while the other focuses on feelings, the dimensions underlying the two kinds of space do not necessarily coincide; see Holbrook and Huber, "Separating Perceptual Dimensions."

7. Paul E. Green and Yoram Wind, *Multiattribute Decisions in Marketing* (Hinsdale, Ill.: The Dryden Press, 1973); Holbrook and Howard, "Frequently Purchased Nondurable Goods and Services."

8. In addition to Green and Wind, *Multiattribute Decisions in Marketing*, and Holbrook and Huber, "Separating Perceptual Dimensions," see William L. Wilkie and Edgar A. Pessemier, "Issues in Marketing's Use of Multi-Attribute Attitude Models," *Journal of Marketing Research* 10 (November 1973): 428-41.

9. For development of the theory underlying such scales, see Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, *The Measurement of Meaning* (Urbana, Ill.: The University of Illinois Press, 1957).

10. These uses of PCA and MDA are discussed, respectively, by Glen L. Urban, "Perceptor: A Model for Product Positioning," *Management Science* 21 (April 1975): 858-71, and by Richard M. Johnson, "Market Segmentation: A Strategic Tool," *Journal of Marketing Research* 8 (February 1971): 13-18; a detailed technical comparison of the two procedures is provided by Joel Huber and Morris B. Holbrook, "Using Attribute Ratings for Product Positioning: Some Distinctions Between Compositional Approaches," *Journal of Marketing Research* 16 (November 1979, in press).

11. MDS techniques are clearly described by Paul E. Green and Frank J. Carmone, *Multidimensional Scaling and Related Techniques in Marketing Analysis* (Boston: Allyn and Bacon, 1970), and by Joseph B. Kruskal and Myron Wish, *Multidimensional Scaling* (Beverly Hills: Sage Publications, 1978).

12. C. H. Coombs, *A Theory of Data* (New York: John Wiley, 1964); Paul E. Green and Frank J. Carmone, "Multidimensional Scaling: An Introduction and Comparison of Nonmetric Unfolding Techniques," *Journal of Marketing Research* 6 (August 1969): 330-41.

13. For such technical descriptions, see the references cited in Notes 1, 2, 7, 8, 10, 11, and 12.

14. Morris B. Holbrook and Joel Huber, "Musicological Distinctions Between Jazz Styles: Can Anybody Really Hear the Difference?" (in preparation).

15. These 18 adjectival pairs were selected to represent the dimensions shown to be important by Holbrook and Huber, "Separating Perceptual Dimensions."

16. These indices were composed by combining scores on the adjectival attributes in a manner suggested by the PCA results: activity = fast − passive − lazy; harmoniousness = in-tune + consonant + well-recorded − heavy; newness = contemporary − old; orderliness = stable + simple + structured − unpredictable − shifting − improvised; softness = intellectual + cool; and masculinity = masculine.

17. To avoid fatigue effects, the ordering of pairs was carefully balanced and rotated and, therefore, required that each subject listen individually.

18. Specifically, MDS was performed by the INDSCAL procedure derived by J. D. Carroll and J. J. Chang, "Analysis of Individual Differences in Multidimensional Scaling Via an N-Way Generalization of 'Eckart-Young' Decomposition," *Psychometrika* 35 (1970): 283-319, and described by S. Pruzansky, "SINDSCAL: A Computer Program for Individual Differences in Multidimensional Scaling," Bell Laboratories (1975).

19. The correlation coefficient, r, ranges between -1.0 and $+1.0$ and describes the degree of association between two variables.

20. Holbrook and Huber, "Separating Perceptual Dimensions." The rating of a hypothetical ideal object is a device widely used in consumer research on brand preferences. It asks the respondent to indicate a most-desired position on each attribute scale, thereby permitting a measure of the extent to which every product offering is perceived to depart from this ideal level.

21. The validity of the positions of these ideal points is indicated by the relatively good fit obtained when the distance between a subject's ideal point and a saxophonist's position was used to predict preference, as measured by a summative index of global evaluation: mean adjusted $R = .47$. Given the sample size ($N = 16$), this fit was statistically significant at $p < .01$.

22. Morris B. Holbrook and Rebecca S. Williams, "A Test of the Correspondence Between Perceptual Spaces Based on Pairwise Similarity Judgments Collected With and Without the Inclusion of Explicit Ideal Objects," *Journal of Applied Psychology* 63 (1978): 373-6.

23. Again, the INDSCAL procedure was used.

24. This approach to segmentation is described by Lester A. Neidell, "The Use of Nonmetric Multidimensional Scaling in Marketing Analysis," *Journal of Marketing* 33 (October 1969): 37-43. It is important to note that, whereas the individual ideal points in Example 5 represent most-desired positions for each respondent considered separately, the "group ideal" in Example 6 is an aggregate indication of the consensus across subjects.

25. In addition to Paul E. Green and Frank J. Carmone, "Multidimensional Scaling," see J. Douglas Carroll, "Individual Differences and Multidimensional Scaling," in Roger N. Shepard,

A. Kimball Romney, and Sara Beth Nerlove, e *Multidimen* *g: Th* *nd Appli* *cations in the Behavioral Sciences* (New York ninar Press

26. Frank, Massy, and Wind, *Marke* *gmentati* Holbrook and Howard :hased Nondurable Goods and Servic

27. Holbrook and Holloway, "Patterns of Relationships"; Morris B. Holbrook and Michael J. Ryan, "Using Multidimensionally Scaled Correlations to Determine Patterns of Relationships Among Weakly Associated Organizational Variables," working paper, Columbia University (1978), available from authors.

28. Technically, the position of such a vector is determined by regressing the characteristic's correlations with the object preferences on the spatial coordinates of the objects according to the procedure suggested, as the basis for PREFMAP, by Carroll, "Individual Differences and Multidimensional Scaling."

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31. Specific examples of these measure e given by Holbrook and Holloway, "Patterns Relationships." A more general discussio provided by William D. Wells, "Psychographics: Critical Review," *Journal of Marketing R* *earch* 12 (May 1975): 196-213.

32. The YST rocedure used here described by Joseph B. Kruskal, Forrest W. Young, and Judith B eery 'How To Use KYS' A Very Flexible Program To Do Multidimensional Scaling and Unl ling, Bell Laboratories 973).

. This was accomplished using the multiple regressi n procedure mentioned in Note 28. Onl se vectors with multiple correlations greater than $R = .70$ were regarded as sufficiently reliabl [redacted] ial interest to WRVR's management—i