

Affective Reactions to Physical Appearance

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Affective Reactions to Physical Appearance

When people look at other people, objects, or places they react emotionally (Damasio, 1995; Wilson, Dunn, Kraft & Lisle, 1989; Zajonc, 1980, 1984). These emotional reactions can be described as pleasant or unpleasant, arousing or calming, and empowering or not empowering. This paper is part of a broader stream of research we are conducting in which we attempt to link the service context (the physical place in which service is delivered) with the emotions experienced by participants in a service interaction.

Our overarching hypothesis is that the emotions [and behavioral prescriptions] elicited by a service environment (“servicescapes”) affect the quality of the transaction between the service provider and the customer. These effects are hypothesized to be independent of the effects that the actors may have on each other.

Our specific hypotheses are that two notions lead to more effective customer service interactions: (a) Greater fit between the mix of emotions that best fit the service and the mix of emotions actually conveyed by the context; (b) Greater fit between the present cognitive guides and the required cognitive guides. Metaphorically, we predict that in an emotionally and cognitively well-fitting service context, the “dance” between the participants in a service encounter will be smoother. We also argue that (c) coherent contexts, in terms of emotions and cognitive guides, lead to more effective service. Thus, the proposed theory – as summarized in Figure 1-- suggests that management of the service context can affect the quality of service interactions. It suggests that service

organizations can improve service delivery through the management of the service landscape.

Insert Figure 1 Here

The research stream draws heavily upon theory of psychologically-latent dimensions of affect (e.g., Russell, 1991). In this chapter we describe two studies conducted as a part of this research stream in which the applicability of this theory of emotion was examined. The first study documents the association between various service industries and distinct emotional experiences. The second study documents the association between physical appearance and distinct emotional profiles. In both studies we attempted to demonstrate that in studying emotional reactions to physical cues we must go beyond the dichotomy of positive emotion versus negative emotion. Thus, before we describe our two studies we briefly review the issue of the dimensionality of emotion.

The dimensionality of emotion

Previous literature has examined the structure of emotional experience (e.g., Osgood, Suci, & Tanenbaum, 1957; Russell, 1980; 1991), and has recognized either two or three dimensions (e.g., Russell, 1991). The first dimension has been labeled evaluation, valence, or pleasantness and is indistinguishable from concepts such as positive-negative mood, good-bad mood, or satisfaction-dissatisfaction (Isen, 1987; Forgas, 1995). The second dimension is arousal, activity or activation (Russell, 1991), and the third is described as power, control, dominance or potency (Takahashi, 1995).

A different body of literature considers physical appearance and physical objects in organizations. This literature is typically limited to discussions of positive versus

negative affect. For example, Bitner's (1992) analysis of the appearance of service operations largely focuses on the pleasantness experienced by customers. Our goal is to document the link between physical appearance and the multi-dimensionality of emotion, noting that the first and ubiquitous dimension of pleasantness is not sufficient to handle the complexity of emotional reaction.

Indeed, some treatments note the importance of the second dimension -- arousal (e.g., Zeithaml & Bitner, 1996), and a few researchers dealt with all three dimensions of affect including power. Importantly, those who probed all three dimensions found evidence for the existence of the power dimension. For example, Takahashi (1995) found that naive observers could reliably discern the emotions conveyed by abstract drawings and that the three dimensions of affect could well capture these emotions. Similarly, Donovan and Rossiter (1992) show that by using the three dimensions of affect, we can understand shopping behavior.

However, the methods of these studies maintained an assumption of three dimensions and imposed the three-dimension structure in their measurement. Using the framework proposed by Osgood et al (1957) accomplishes such imposition. However, when measurement is geared to test, rather than assume, the dimensionality of emotion, evidence for the dimension of power is not consistent. As a result, most of the literature on emotions that uses the dimensional view ignores the dimension of power (e.g., Watson & Tellegen, 1985; Carver & Scheier, 1990).

Moreover, research of the dimensionality of emotions often relies on factor analysis (cf., Watson & Tellegen, 1985). The problem is that factor analysis assumes and solves for "simple structure" which may *not* be a valid reflection of reality. Assuming

simple structure can create problems as recognized by Guttman in the 1940's (in Levi, 1994). Factor analysis assumes that a single latent dimension produces each emotion. Yet the known dimensional structure of affect does not conform to the "simple structure" assumption of simple structure (e.g., Kluger, Lewinsohn, & Aiello, 1994). Thus, factor analysis may be misleading if a given emotion is related to several latent dimensions (e.g., fear is both unpleasant, exciting, and contain an element of powerlessness). By taking these analysis assumptions into account, and modifying the analytic procedure accordingly, we expect to find the three dimensions of affect.

Hence, our goal in the two studies reported below was to document that importance of the second and third dimension of affect in reacting to physical stimuli. To achieve our goal we explored the benefits of using analytical techniques that do not make the assumption of factor analysis – smallest space analysis (SSA). SSA is a variant of multiple dimensional scaling (MDS) developed by Guttman (see Borg & Shye, 1995), and is an analytic method that does not make any a priori assumptions about the structure of the data. SSA produces both an estimate of the recoverability of the original data from the identified dimensions (coefficient of alienation) and maps all items in maps of an Euclidean space. (The process is similar to plotting variables on a space defined by factors in factor analysis.) In these maps, the proximity of items indicates that they are strongly and positively correlated while a large distance may indicate either that items are not correlated or that they are negatively correlated. After identifying the number of dimensions, we interpret the dimensions. The maps should be interpreted according to a priori expectation in intrinsic meaning, and the statistical index (called the coefficient of

alienation) should *not* be taken as a sole evidence for the appropriateness of the solution (Borg & Shye, 1995).

Study 1: The “feel” of different service contexts

Method

Participants

A total of 200 customers contacted in 10 different service organizations (representing five service types) in Israel answered an affect survey. Within each organization we sampled 20 customers and within each service type we sampled two organizations. Thus the data for the study were survey responses of customers of the following organizations: two banks, two supermarkets, two fast-food restaurants, two lobbies of hotels, and two ambulatory medical centers.

Instrument

We developed a survey with 18 items measuring the degree to which various affects are elicited by the physical place where service delivery took place. Responses were on 7-point scales. Items were chosen to represent various areas of known mood circumplex (e.g., Kluger et al., 1994) with a special emphasis on adding adjectives that measure aspects of power. The list was restricted to 18 items so that the entire survey could be administered on one page serving to reduce participant attrition.

Procedure

A research student approached customers inside service areas and requested their help in filling out the survey as a part of a larger study conducted by researchers from the

university. She proceeded to approach customers until completing a quota of 20 customers per organization. All data were collected within one visit to each organization during January of 1998.

Analysis

The known dimensional structure of affect does not conform to the “simple structure” assumption of exploratory factor analysis (i.e., each item should belong to one and only one latent factor; e.g., Kluger et al., 1994). Therefore, the dimensionality of the affect items was investigated with SSA (Borg & Shye, 1995) which does not make any a priori assumption about the structure of the data.

To characterize the affective structure of each organization, we calculated a dimensional score for each participant. We created a dimensional score both on the basis of the SSA; this is similar to the computation of a factor score. We then calculated a factor score on the basis of an unrotated Principal Component Analysis (PCA). The number of PCA components was constrained to the same number of dimensions indicated by the SSA analysis. Both methods – SSA dimensional scores and factor scores – yielded similar results. Therefore, we used, in Study 1, the more familiar factor scores.

Results

The SSA indicated that two dimensions capture most of the affective ratings (stress < .15). The two dimensions clearly represented pleasantness and arousal and were organized as a circle (a circumplex structure). These results provide only partial support for our assumption that the affective reaction to physical space is well captured by three dimensions; the dimension of power did not emerge in these data. A one-way ANOVA

clearly showed that the 10 organizations differed with respect to both pleasantness and arousal ($p < .001$).

To explore the affective combination of each service, we averaged the dimension scores across the 20 participants of each organization. Next we plotted these means in a two dimensional space (Figure 1.1). As can be seen in Figure 1.1, three of the pairs of service types were very similar to each other on both dimensions (the hotels, the medical centers, and the fast food establishments). One pair was similar on the arousal dimensions (the supermarkets), and one pair (the banks) was dissimilar on both dimension and thus did not conform to our assumptions.

Insert Figure 1.1 about here

It may be trivial to suggest that certain services are felt as more pleasant than others are. We therefore sought to show that the second dimension of affect – arousal – is also an important feature of the emotional context. Therefore, in Figure 1.2 we plotted the histograms of the means arousal of the 10 organizations, controlling both for pleasantness (the first dimension) and customer satisfaction. As can be seen in Figure 1.2, the order of the arousal means was strikingly arranged by service type with only single minor aberration (Supermarket 1). That is, we find a resemblance in arousal – an affective dimension that is usually ignored in the service literature – of services within a service type.

Insert Figure 1.2 about here

Discussion

The results of the first study confirm that distinct service types are associated with distinct patterns of emotion. Moreover, the results clearly indicate that arousal

(regardless of its degree of pleasantness) is an important dimension in reacting to service experiences. However, the third dimension of power was not found. Indeed, the failure to obtain the power dimension is very similar to summaries of the dimensional approach to affect (e.g., Russell, 1990). In Study II we attempt to clarify this issue.

The empirical difficulty in obtaining the power dimension should not lead to the conclusion that it is not important or that it is not “there”. Power is central aspect of human and organizational behavior (e.g., Brown & Gilman, 1960; Pfeffer, 1981; 1992), and people invest considerable efforts to convey cues that will bring them status and the associated power (Molloy, 1975, 1977; Rafaeli, Dutton, Harquail, & Mackie, 1997). Thus, it is less likely that the power dimension does not exist than that our measurement is at fault. Russell (1991) offers a post-hoc suggestion to this issue, noting that a process of measurement of affect that samples moods that relate to *intra*-personal contexts yields the arousal dimension, while a process that samples moods that relate to *inter*-personal contexts yield the dominance dimension. However, our goal, in Study 2, is to document that all three dimensions of affect co-exist if the measurement process calls up a broad enough sample of moods and if the focus is directly on physical cues.

Specifically, the sampling of power adjective in previous research and in Study 1 may have been too limited. Because adjectives that indicate an extreme feeling of power or lack of power are relatively rare in day-to-day use they are often not sufficiently sampled in affect questionnaires (Clancy, 1989; Brown & Gilman, 1960). We therefore propose that all three dimension of affect, including power, can be recovered from emotional reaction to physical appearance if adjectives that contains strong power connotation are well represented in measurement.

To directly focus on physical cues we test these propositions in the context of emotional reactions to women's appearance. Studying the impact of physical appearance has recently been recognized as valuable to organizational scholars (cf. Rafaeli & Pratt, 1993). It also provides an excellent context for testing our propositions because looking at other people is likely to evoke implicit interactions and therefore most of the spectrum of human emotions (Goffman, 1959; Stryker, 1981).

Study II: The Three Dimensions of Affective Reactions to Physical Appearance

Method

Overview

Photographs of 28 women were shown to 40 judges (23 male and 17 female students who received course credit). Each judge rated a set of 7 photographs on 22 (emotional) items using seven-point rating scales. Subjects rated the photographs both for sent affect and received affect. These ratings yielded acceptable inter-judge reliabilities. The aggregated ratings were first subjected to SSA (Borg & Shye, 1995). Then the dimensionality of the responses was explored.

Stimuli

The stimuli were women's photographs. Approximately 50 women were photographed on the street by a photographer representing an Israeli-women's magazine ("Aat") who was taking photographs for an article on the dress of the supposedly typical-Israeli woman (see some examples in Figure 2.1). All women were approached and asked for permission by the magazine staff. Only some of the photographs were used for this study; some photographs were excluded because they included more than one person.

Insert Figure 2.1 about here

Measurement of emotional reactions

To the survey used in Study I we added items that measure aspects of power. The final list comprised 22 items measuring various emotions elicited by the person shown in a photograph (see Table 1). Each emotion was again rated on a 7-point scale.

Insert Table 1 about here

Judges were asked to respond to two sets of questions regarding each photograph: (1) they were asked to rate the degree to which the woman in the photograph **sent** (intended to elicit) each emotion. (2) They were asked to rate the degree to which the woman made them **experience** each emotion. This was done to increase the reliability of our findings and to safeguard against the possibility that a participant's perspective in an interaction – sender or receiver – may alter the reported emotions. The order of questions was counterbalanced between judges.

Procedure

Judges (students) were recruited for participation in a study for partial course credit. To minimize rater fatigue, the set of 28 slides was divided into 4 sets and each judge rated only one set. Therefore, 10 judges rated each of the photographs. Judges were shown one slide at the time in a darkened room and were asked to rate the photographs on the affect questionnaires. The experimenter waited until all judges completed the rating of one slide, instructed them to turn the page for the rating of the next slide and then showed the next slide. After reviewing all slides, the experimenter collected the ratings and handed a new set of ratings. This procedure was repeated to separate the ratings of Sent Affect and Experienced Affect. Order of presentation of the

two affect questionnaires was counter balanced across groups of judges. Judges worked approximately an hour.

Analysis

For each affect item, within every group of judges, we calculated intra-class correlations (Table 1). For most items and sets of photographs, the intra-class correlations were acceptable. We therefore averaged across all judges, within a set of raters, the affects induced by each photograph. The mean ratings of the four sets were then used to create a file in which the unit of analysis is the single photograph (28 units of analysis with 22 variables of Sent Affect and 22 variables of Experienced Affect). The mean ratings of Sent Affect and the mean ratings of Experienced Affect were, separately, subjected to SSA to investigate the dimensionality of the reported emotions.

Results

Evidence for three dimensions of affect

The SSA of both Sent Affect and Experienced Affect showed acceptable coefficient of alienation (sometimes referred to as stress) for two dimensions (.14 which is smaller than the .15 rule of thumb, e.g., Amar & Toledano, 1994). However, because we predicted the presence of a third dimension, we explored the SSA of three dimensions. SSA with three dimensions further reduced the coefficient of alienation and yielded three-dimensional maps that were easily interpretable for both Sent Affect and Experienced Affect ratings. Therefore, we present only the MDS solution for Sent Affect.

Figure 2.2 (2a, 2b, and 2c) shows the results of the MDS for three dimensions. As can be seen in Figure 2a, the first two dimensions are easily interpreted as pleasantness and arousal. Specifically, the first dimension (the horizontal axis of Figure 2a)

differentiates affects with high arousal (the right hand side) from affects with low arousal (the left-hand side). The second dimension (the vertical axis of Figure 2a) differentiates affects that are pleasant (top) from affects that are unpleasant (bottom). Note the circular arrangement of the affects in these two dimensions. Each emotion on the map appears to represent a combination of pleasantness and arousal. For example, excitement is high on both arousal and pleasantness; threat is high on arousal but low on pleasantness. On the calm side, boredom is low on both arousal and pleasantness and warmth is low on arousal but high on pleasantness.

Insert Figure 2.2 (2a 2b and 2c) about here

The two-dimensional maps of dimension 1 with dimension 3 and dimension 2 with dimension 3 appear in Figure 2b and 2c. These maps clearly suggest that the third dimension is power. For example, in Figure 2b, power is manifest in the vertical dimension. High power is found in the top part of the map, evident in emotions such as status, security, and beauty, whereas lack of power is evident in the bottom part of the map in emotions such as gaiety and misery. Similarly, in Figure 2c, power is also manifest in the vertical dimension with gaiety and ugliness at the lower end of this axis, while status and security are at the top end.

To facilitate the interpretation of the third dimension we separated the positive items from the negative items (pleasant from unpleasant) on the basis of the initial SSA. Next we performed SSA once for the positive items and once for the negative items. This procedure allowed us to get a closer look at the dimensions of arousal and power. Again, the results of the sent and experienced affect were quite similar, so we only present the results for the Sent Affect. Specifically, in Figures 2.3 and 2.4 we present a map of the

positive side of arousal and power, and a map of the negative side of arousal and power, respectively.

Insert Figure 2.3 and 2.4 about here

These maps support the existence of a power dimension. Specifically, in both Figure 3 and Figure 4 the horizontal dimension separates moods with high arousal (right) from moods with low arousal (left). Also, in both maps the power dimension is found in the vertical axis. In Figure 2.3, high power is in the bottom (e.g., passivity, coldness) and low power is found at the top (weakness, misery, and anxiety). In Figure 2.4, high power is found at the top (calmness, status, and power) whereas low power is found at the bottom (warmth, gaiety).

Discussion

Study 2 was designed as a model system to document the three-dimensionality of emotional reactions to physical appearance. We documented the reliability of emotional reactions to physical appearance of women. We also illustrated how careful selection of emotional terms, yet measurement that is not predetermined with respect to the dimensionality, manifests three dimensions of affect – pleasantness, arousal, and power.

Both Russell (1991) and Takahashi (1995), for example, proposed that power is the third independent dimension. Our results provide support to the broad hypothesis that power and arousal are important features of the emotional reaction to physical appearance. The ability to define regions (or axis) in SSA map that conforms to the theoretical expectation is taken as evidence for a good solution. Thus the three-dimension solution seems satisfactory on theoretical grounds. In contrast, using only statistical grounds (coefficient of alienation $< .15$) it may appear that two dimensions are

sufficient. Nevertheless, Borg & Shye (1995) warned that statistical evidence alone is not sufficient.

Therefore, to further test whether the three dimensional view is justified, we deleted the least reliable affect both from the SSA of negative affects (depression) and from the SSA of the positive affects (security). After the deletion the SSA results still showed evidence for the power dimension, reinforcing our theoretical arguments regarding the viability of this dimension.

Importantly, with the small sample of stimulus and affect items, not every item should clearly conform to our interpretation of the three dimensions. Moreover, it is possible that rotation of axis or use of regions in the map will better represent the hypothesized dimensions. However, rather than attempting to fit every item in these maps to all three dimensions, we propose more replications using all the items we used and possibly adding some more items. Future research should sample more aggressively the construct of power, since the pleasantness and arousal dimensions are relatively easy to measure and are well documented.

Several features of our results warrant special notice. First, the results provide strong evidence for the arousal dimension. The almost perfect picture of a circle in Figure 1a, which is strikingly similar to other studies of the circumplex of affect (Russell & Feldman-Barrett, 1999), suggests that for every affective reaction to physical appearance the amount of arousal is as important as the extent of pleasantness in characterizing the emotion. This suggests that simply describing reactions as pleasant or unpleasant is insufficient. The importance of arousal as a key dimension of the affective

reaction is now accepted by affect researchers that study both self-reports (e.g., Russell & Feldman Barrett, 1999) and the biological basis of emotions (e.g., Buck, 1999).

Second, our results document the existence of a third dimension. In spite of previous problems with the power dimension, we documented that with careful choice of emotional terms and the use of SSA (or multiple dimensional scaling) there is evidence of the power dimensions. However, our analysis also reveals some problems in the measurement of power. One problem is the relatively low reliability of responses on items that characterize the power dimension such as security. The mean reliability of the security item was very low (and lowest) both for sent affect and for experienced affect (.32 and .27 respectively).

A second problem regards the distinction between sent affect and experienced affect. For example, an immobile snake may feel like a bad, passive, but very powerful object. In a reaction to the snake, we may feel frightened that is low pleasantness, high arousal, and low power. Once the snake starts moving quietly away from us, the object may “feel” more arousing but our reaction will be calmer. By moving away the snake gives away some power, and we regain confidence. Thus, there is an asymmetry between what the snake exudes and what we experience. This asymmetry may serve to lower the reliability of power measurement. Indeed, the scariest scenes in the movies, for example, may involve something unpleasant and powerful that nevertheless appears passive. Our fear arises from the potential for action of the bad and powerful object.

A third problem regards differences in types of power. For example, there may be a difference between dominance and strength. Dominance may refer to how one objects feels relative to its environment while strength may refer the absolute level of power that

an object makes one feel. Differences in type of power may also relate to concrete levels and abstract levels. For example, the feel of power produced by watching an athlete may not be the same as the feel of power produced by watching a CEO, while both objects broadcast power and may or may not create a feeling of power in the target person. Therefore, unlike pleasantness and arousal, power experience may depend both on comparison to an external target (Buck, 1999) and cognitive, or evolutionary younger, processes (Buck, 1999; Russell, 1991).

Conclusion

This effort is part of a broader research agenda that explores the emotional foundations of reactions to symbols and physical landscape (<http://iew3.technion.ac.il:8080/~anatr/main.html>). It provides initial, but important evidence about the merit of applying the three dimensional perspective to the study of affective reactions to physical appearances and symbols. Moreover, in congruence with our model (Figure 1), the results of Study 1 suggest that service industries create a different mix of the basic emotional dimensions. For example, it appears that the emotions of medical centers involve a low level of arousal, whereas fast-food restaurants involve high levels of arousal. These differences in arousal appear even when the level of pleasantness is similar across these different service industries. Finally, both studies suggest that we need to further develop the measurement of power. This dimension is likely to have particular importance in analyses of service arenas because of the struggle for power in service delivery (Mars & Nicod, 1984; Rafaeli, 1989).

References

- Amar R., & Toledano, S. (1994). HUDAP manual with Mathematics. The Hebrew University of Jerusalem, Computing Center: Jerusalem, Israel.
- Bitner, M.J. (1992). Servicescapes: The impact of the physical surroundings on customers and employees. Journal of Marketing, 56, 57-71.
- Borg, I., & Shye, S. (1995). Facet theory: Form and content. Sage: Thousand Oaks, CA.
- Brown, R. & Gilman, A. (1960). The pronouns of power and solidarity. In T. A. Sebeok (Ed.) Style in language. Cambridge, Mass, MIT Press: 253-276.
- Buck, R. (1999). The biological affects: A typology. Psychological Review, 106, 301-336.
- Carver, C.S., & Scheier, M.F. (1990). Origins and functions of positive and negative affect: A control process view. Psychological Review, 97, 19-35.
- Clancy, J. J. (1989). The invisible powers: The language of business. Lexington, Mass: Lexington Books.
- Damasio, A. (1985). Descartes's error: Emotion, reasons, and the human brain. NY: Avon Books.
- Donovan, R.J. & Rossiter, J.R. (1982). Store atmosphere: An environmental psychology approach. Journal of Retailing 58(1): 34-57.
- Goffman, E. (1959). The presentation of self in everyday life. Garden City, NY: Doubleday.
- Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. Advances in Experimental Social Psychology 20: 203-253.

- Kluger, A. N., Lewinsohn, S. & Aiello, J. (1994). The influence of feedback on mood: Linear effects on pleasantness and curvilinear effects on arousal. Organizational Behavior and Human Decision Processes, 60, 276-299.
- Levi, S. (1994). Louis Guttman on theory and methodology: Selected writings. Aldershot: Dartmouth.
- Mars, G.. & Nicod, M. (1984). The world of waiters. London: George Allen & Unwin.
- Molloy, J. T. (1975). Dress for success. New York: Warner Books.
- Molloy, J. T. (1977). The Woman's Dress for Success Book. New York: Warner.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). The Measurement of Meaning. Urbana: University of Illinois Press.
- Pfeffer, J. (1981). Power in organizations. Boston, MA: Pitman.
- Pfeffer, J. (1992). Managing with power: Politics and influence in organizations. Boston: Harvard Business School Press.
- Rafaeli, A. (1989). When cashiers meet customers: An analysis of the role of supermarket cashiers. Academy of Management Journal, 32, 245-273.
- Rafaeli A., Dutton, J., Harquail, C.V., & Mackie Lewis, S. (1997). Navigating by attire: The use of dress by female administrative employees. Academy of Management Journal, 40, 9-45.
- Rafaeli, A. & Pratt, M. J.(1993). Tailored meaning: On the meaning and impact of organizational dress. Academy of Management Review, 18, 32-55.
- Russel, J. A. (1991). Culture and the categorization of emotions. Psychological Bulletin 110, 426-450.

- Russel, J. A., & Feldman Barrett, L. (1999). Core affect, prototypical emotional episodes, and other things called emotions: dissecting the elephant, Journal of Personality and Social Psychology, 76, 805-819.
- Stryker, S. (1981). Symbolic interactionism. Social psychology: Sociological perspectives. In M. Rosenberg & R. H. Turner (Eds.). New York, Basic Books: 234-263.
- Takahashi, S. (1995). Aesthetic properties of pictorial perceptions. Psychological Review 102, 671-683.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. Psychological Bulletin, 98, 219-235.
- Wilson, T. D., Dunn,, D.S., Kreaft, D., & Lisle, D.J. (1989). Introspection, attitude change and attitude-behavior consistency: The disruptive effects of explaining why we feel the way we do. In L. Berkowitz (Ed.) Advances in Experimental Social Psychology, 19, 123-205. Orlando, FL: Academic press.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. American Psychologist, 35, 151-175.
- Zajonc, R. B. (1984). On the primacy of affect. American Psychologist, 39, 117-123.

Table 1. Intra-Class Correlations for 4 sets of photographs (7 photographs each) measuring the reliability of the average rating across 10 judges.

	Set 1	Set 2	Set 3	Set 4	Mean
Sent					
Beauty	0.92	0.80	0.87	0.79	0.84
Boredom	0.58	0.71	0.89	0.86	0.76
Power	0.89	0.79	0.77	0.74	0.80
Status	0.96	0.83	0.36	0.30	0.61
Pleasantness	0.85	0.74	0.69	0.83	0.78
Coldness	0.73	0.78	0.70	0.54	0.69
Excitement	0.55	0.79	0.94	0.79	0.77
Depression	-0.81	0.83	0.70	0.48	0.30
Activity	0.73	0.81	0.82	0.78	0.78
Ugliness	0.80	0.76	0.85	0.67	0.77
Calmness	0.90	0.79	0.61	0.84	0.78
Weakness	0.55	0.73	0.54	0.24	0.51
Misery	0.74	0.88	0.37	0.3	0.57
Warmth	0.88	0.55	0.73	0.82	0.74
Passivity	0.67	0.73	0.52	0.54	0.61
Softness	0.90	0.28	0.81	0.78	0.69
Meanness	0.85	0.81	0.45	0.87	0.74
Interest	0.78	0.67	0.92	0.71	0.77
Anxiety	0.49	0.08	0.44	0.23	0.31
Security	0.76	0.54	0.38	-0.38	0.32
Threat	0.59	0.46	0.29	0.20	0.38
Gaiety	0.48	0.9	0.84	0.71	0.73

Table 1. Continued

	Set 1	Set 2	Set 3	Set 4	Mean
Experienced					
Beauty	0.91	0.73	0.90	0.88	0.85
Boredom	0.51	0.76	0.79	0.67	0.68
Power	0.87	0.9	-0.02	0.46	0.55
Status	0.93	0.86	0.63	0.68	0.77
Pleasantness	0.91	0.80	0.75	0.88	0.83
Coldness	0.88	0.74	0.67	0.76	0.76
Excitement	0.80	0.92	0.92	0.87	0.88
Depression	0.47	0.76	0.78	-0.91	0.27
Activity	0.78	0.77	0.88	0.58	0.75
Ugliness	0.82	0.55	0.75	0.79	0.73
Calmness	0.91	0.68	0.76	0.84	0.80
Weakness	0.66	0.83	-0.02	0.54	0.50
Misery	0.67	0.91	-0.81	0.17	0.23
Warmth	0.89	0.75	0.79	0.69	0.78
Passivity	0.42	0.70	0.81	0.60	0.63
Softness	0.85	0.80	0.86	0.86	0.84
Meanness	0.85	0.81	0.61	0.84	0.78
Interest	0.81	0.33	0.90	0.77	0.70
Anxiety	0.79	0.31	0.74	0.04	0.47
Security	0.51	0.48	0.05	0.03	0.27
Threat	0.80	0.68	0.51	0.84	0.71
Gaiety	0.53	0.88	0.81	0.77	0.75

Note. Actual values were calculated with Cronbach's alpha. Negative values indicate lack of reliability.

Figures

Figure 1: A schematic description of a theory of emotional and cognitive servicecape

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Figure 2.2. a. Smallest Space Analysis for 22 Sent Affect items (map 1)

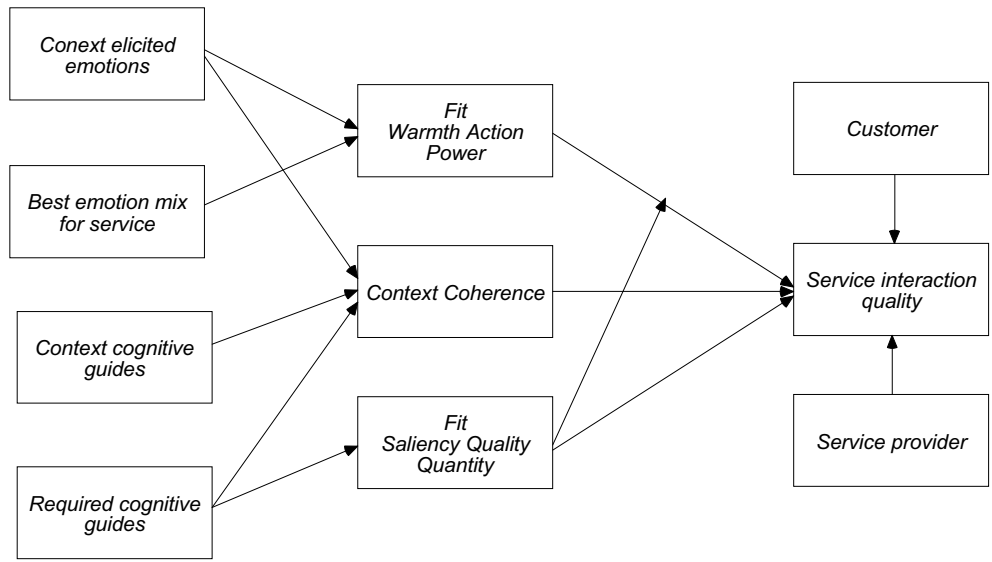
b. Smallest Space Analysis for 22 Sent Affect items (map 2)

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Figure 2.3. Smallest Space Analysis for Positive Sent Affect Items

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Figure 1: A schematic description of a theory of emotion and cognition in physical landscape cues



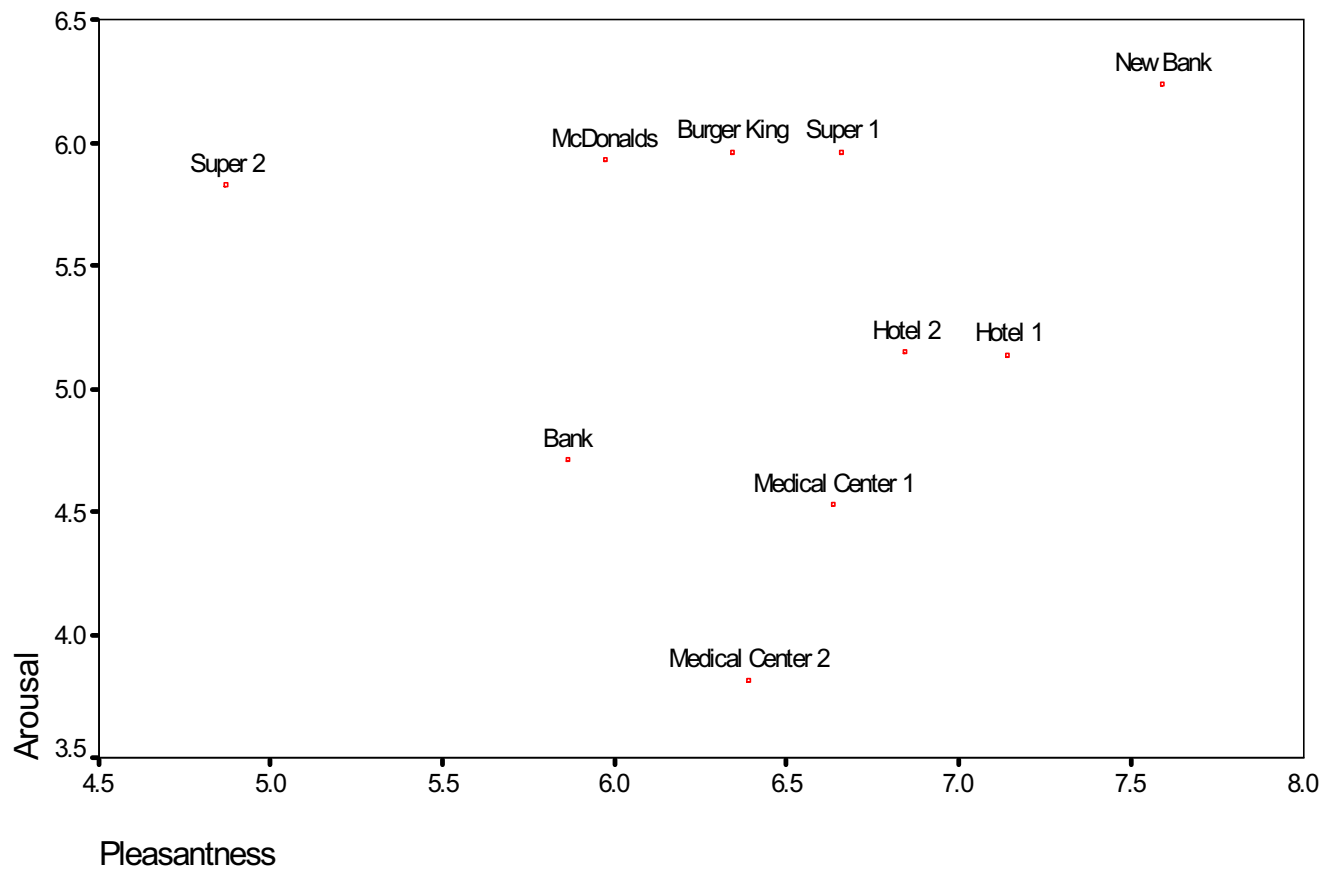


Figure 1.1: Least Square Means of Arousal Controlling for Pleasantness and Satisfaction

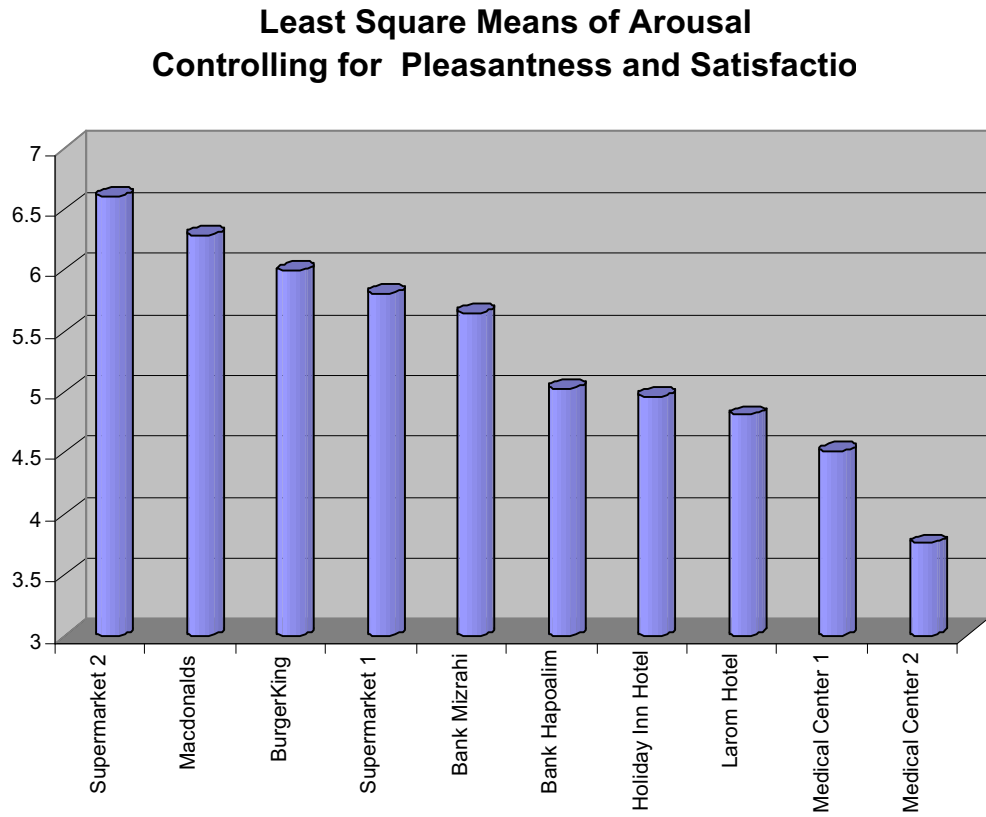


Figure 2.2. Smallest Space Analysis for 22 Sent Affect items (map 1)

Space Diagram for Dimensionality 3. Axis 1 versus Axis 2.

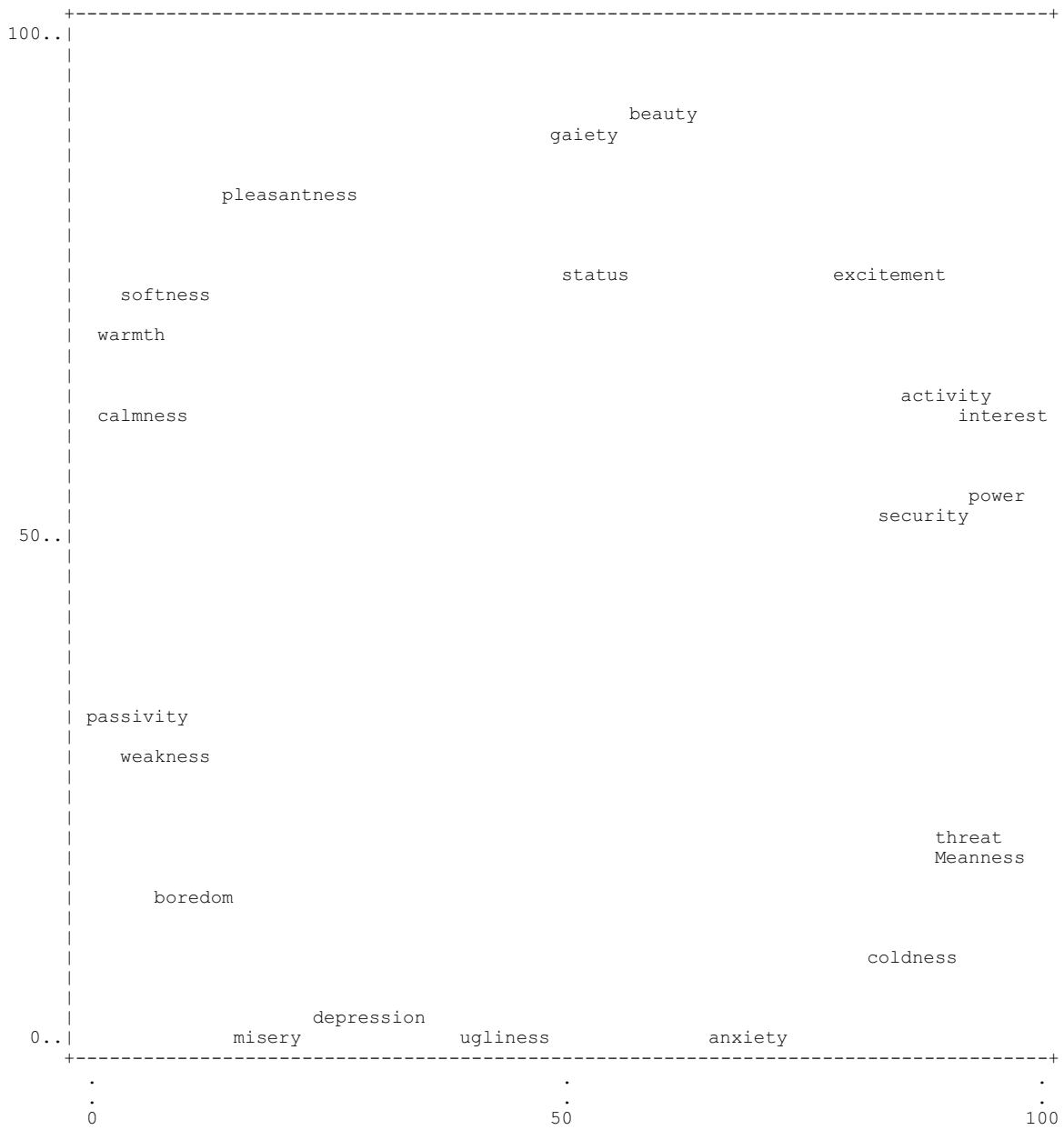


Figure 2.2 Smallest Space Analysis for 22 Sent Affect items (map 2)

Space Diagram for Dimensionality 3. Axis 1 versus Axis 3.

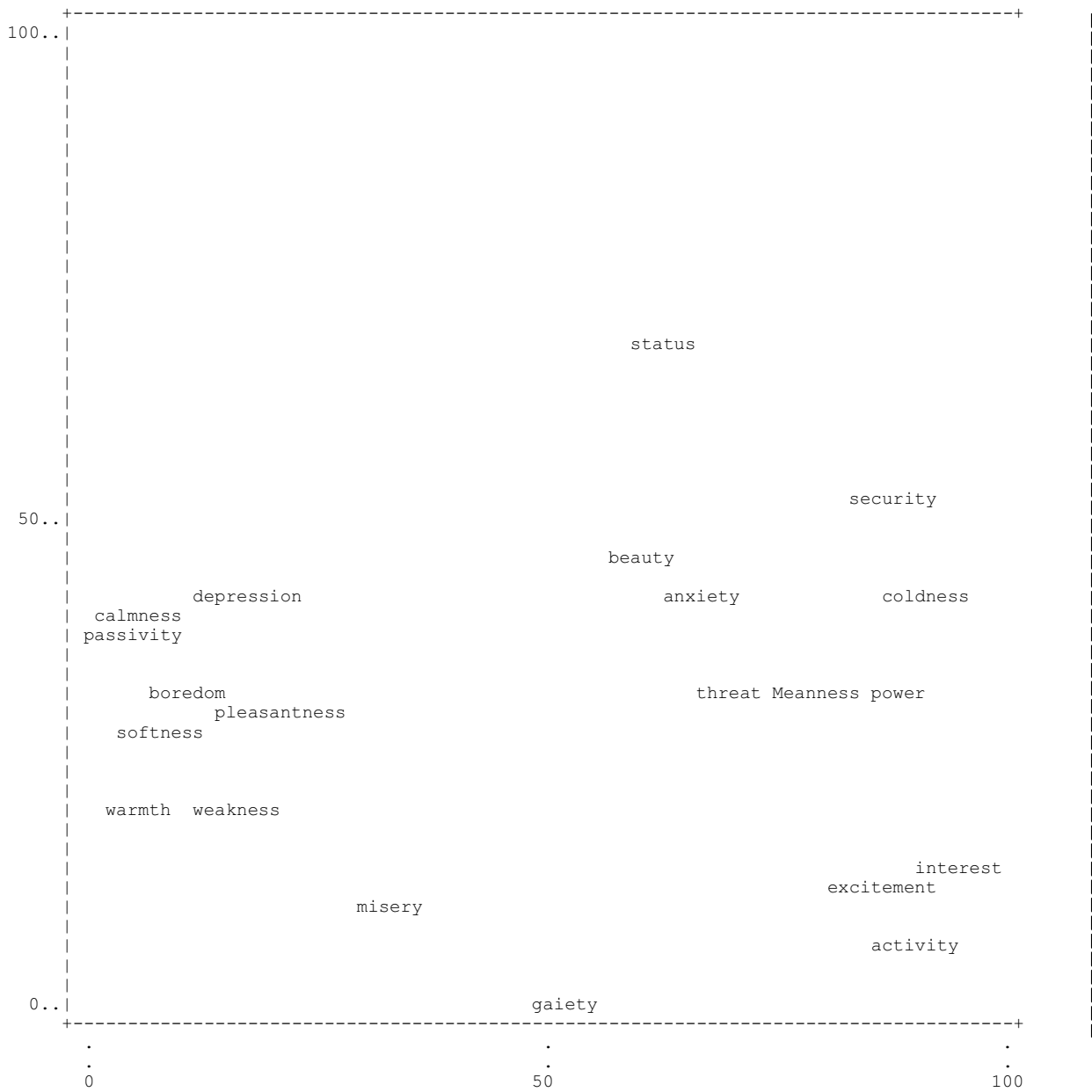


Figure 2.2 Smallest Space Analysis for 22 Sent Affect items (map 3)

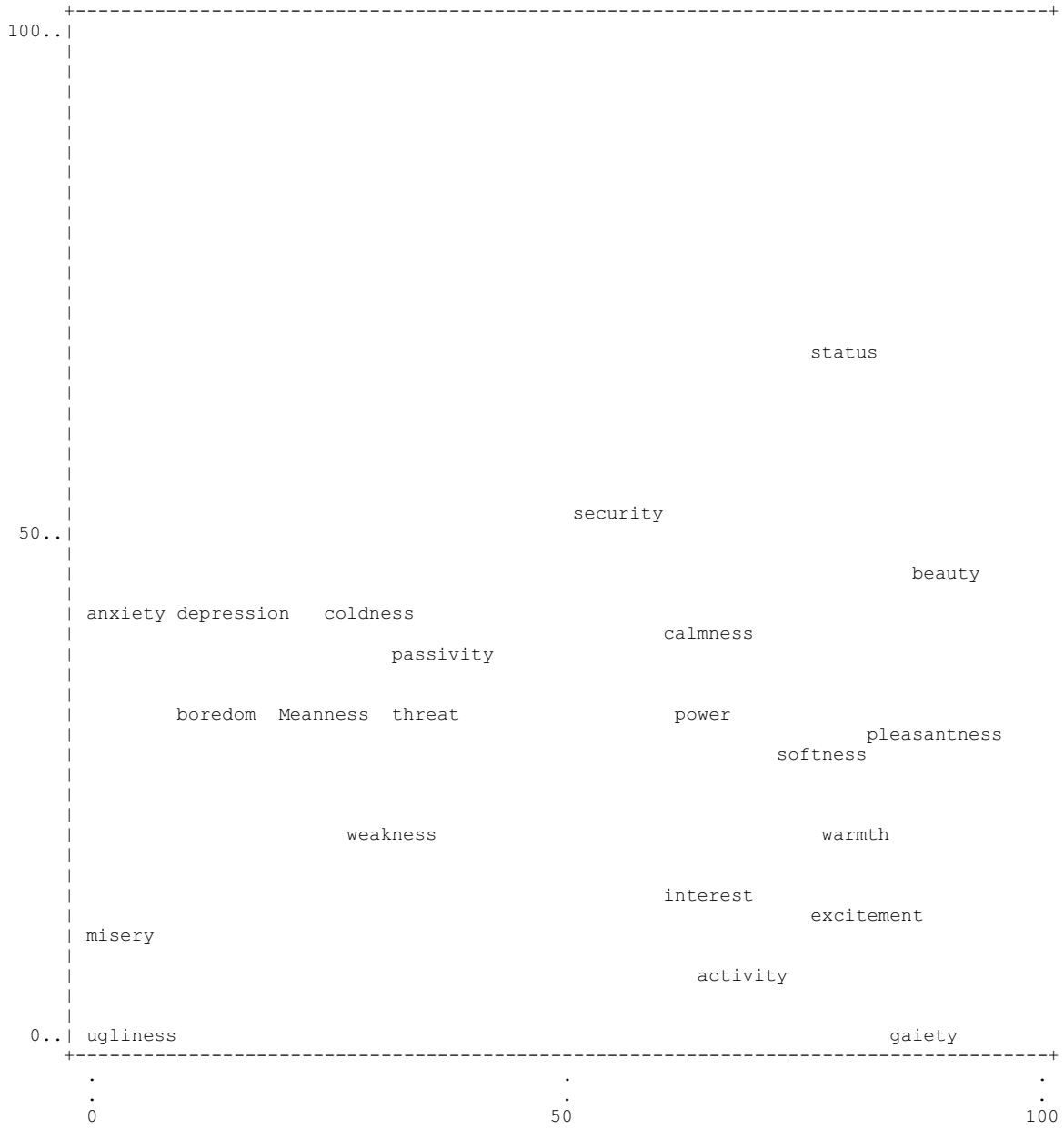


Figure 2.3. Smallest Space Analysis for Positive Sent Affect Items

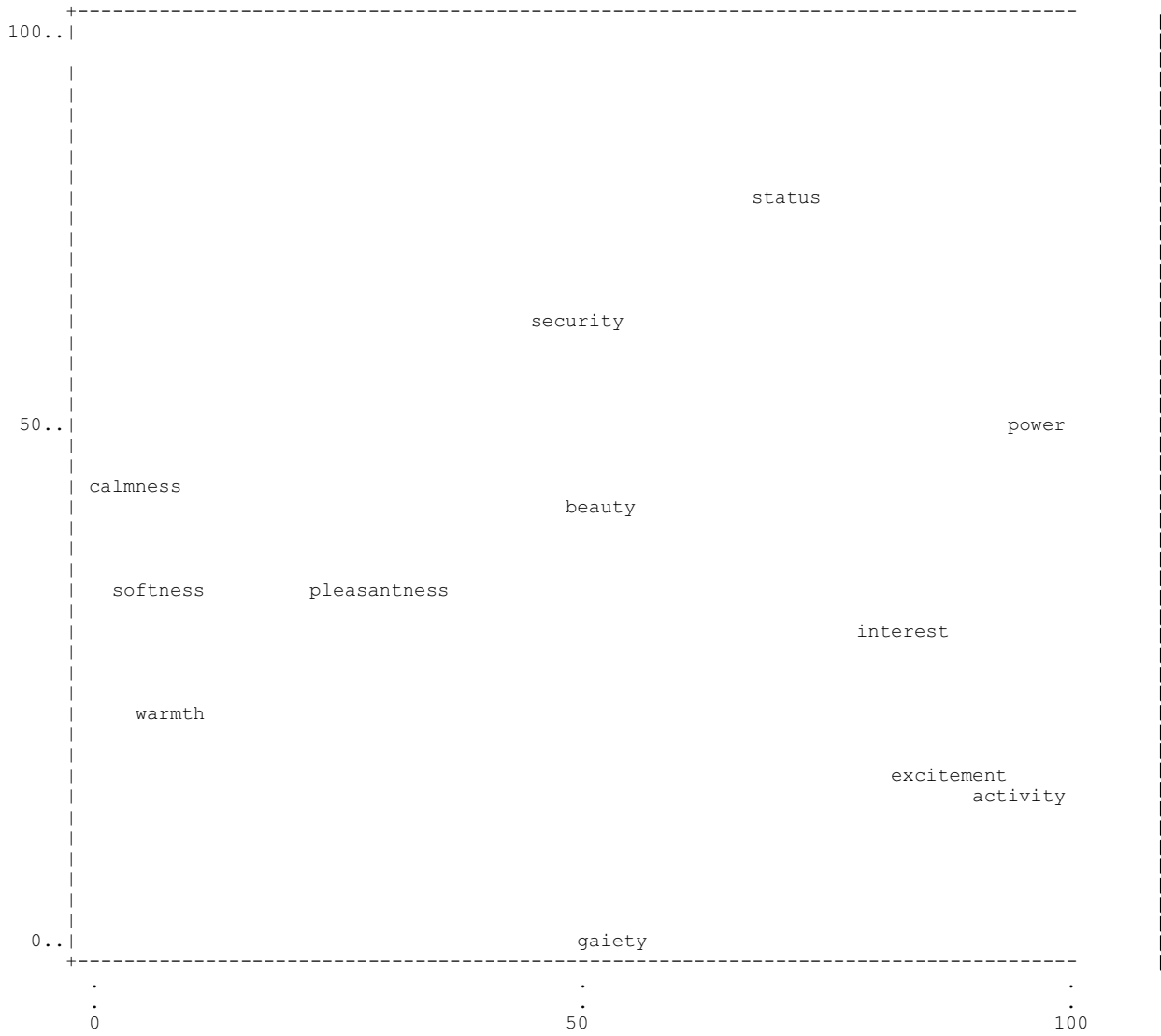


Figure 2.4. Smallest Space Analysis for Negative Sent Affect Items

