

## DESCRIBING A SEMANTIC FIELD <sup>1)</sup>

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The aim of the present investigation was to provide a description of the internal structure of a semantic field in such a way that the given description could be confirmed (or challenged on empirical evidence) by any linguist replicating the research. The investigation was therefore fundamentally different from previous considerations of similar semantic structures, e.g. the work of the twentieth century German school of *Wortfeldtheorie* <sup>2)</sup>, which is distinguished by a disregard of objective discovery procedures and a reliance on the native speaker competence of the individual linguist; this type of work produces many impressive results which are nevertheless of reduced value since their validity is untestable in any objective manner.

The present investigation employed a standardised method equally available to other researchers, namely C.E. Osgood's *Semantic Differential*. <sup>3)</sup> The method is designed to fulfil three conditions under which linguistic encoding can be used as a meaning-index :

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<sup>2)</sup> See for instance TRIER, J., *Der deutsche Wortschatz im Sinnbezirk des Verstandes*. Heidelberg : 1931; WEISGERBER, L., *Grundzüge der inhaltbezogenen Grammatik*. Düsseldorf : 1962; and id., *Zur innersprachlichen Umgrenzung der Wortfelder, Wirkendes Wort — Sammelband I* Düsseldorf : 1962, 150-5.

<sup>3)</sup> OSGOOD, C.E., SUCI, G.J. & TANNENBAUM, P.H., *The Measurement of Meaning*. Urbana, Illinois : 1957. For recent discussion on the validity of the Semantic Differential see SNIDER, J.G. & OSGOOD, C.E., *Semantic Differential Technique — a Sourcebook*. Chicago : 1969.; MIRON, M.S., *The Semantic Differential and Mediation Theory*, *Linguistics* 66, 1971, 74-87; Osgood, C.E., *Commentary*, *Linguistics* 66, 1971, 88-96.

- 1) there must be a carefully chosen set of alternative responses standardised for all subjects, thus eliminating problems arising from both the impossibility of comparing unlimited output and differences in facility of encoding;
- 2) these responses must be elicited from the informant rather than produced spontaneously;
- 3) the alternatives must be representative of the dimensions in which meanings vary.

The first and second of these conditions are fulfilled in the form of the testing method, which consists of a set of bipolar seven-point scales, the two poles of each scale being occupied by adjectives of opposed meaning; on these scales a set of concepts to be compared is ranked by the informant. The third condition was fulfilled by exhaustive preliminary investigations conducted by Osgood and his co-workers, which showed up high correlations between separate adjective-pairs, on the basis of which a very small number of factors sufficed to account for the variance within the total set of polarities. In practice this means that a quite small randomly chosen set of polarities will give equivalent results to, say, all the polarities in the language. In the present study it was hypothesised that should different members of a semantic field be employed as concepts on a Semantic Differential task, a factor analysis of the results would reveal the dimensions operative within the body of data, i.e. the dimensions in which these members of a semantic field vary. A comparison of the respective loadings of each of the tested field-members on each of the exposed dimensions would provide a basis for description of the internal structure of the field.

The test example was the semantic field from modern German *böse-schlecht*. Because the investigation was in effect a pilot study of the effectiveness of the method chosen, and the semantic field as such was not of primary interest in the investigation, the number of members of the field brought under examination was limited to the number an informant can cope with in approximately twenty minutes, which is about as much time as can reasonably be asked of a voluntary unpaid informant. The following ten words from the field were selected :

*böse, ekelhaft, entsetzlich, fürchterlich, grässlich,  
scheusslich, schlecht, schlimm, schrecklich, widerlich.*

Eight adjective pairs were randomly chosen from Osgood's preliminary investigation (the Thesaurus study) and translated into German by the author. They were :

bunt — farblos  
 leise — lärmend  
 reif — unreif  
 männlich — weiblich  
 menschlich — tierisch  
 alt — jung  
 dauerhaft — vorübergehend  
 absichtlich — unabsichtlich

(Had any adjective-pairs heavily loaded on the Evaluation factor — e.g. *good-bad*, *nice-nasty* — been included in the random selection, they would have been rejected, as the nature of the test material made rankings on such scales a foregone conclusion.)

The choice of these particular eight scales rather than any others (with the exception in this case of scales loaded on Evaluation) should exercise no influence on the results, since, as stated above, any randomly chosen set of polarities will give in theory identical measurements.

Sixty-four native speakers of German, resident in West and East Germany, completed the Semantic Differential task. The informant sample was fairly representative of the general population with the exception that it included perhaps rather more informants with academic training than would a totally unbiased sampling. However, no effects of level of education, or of sex, age or dialectal influence, could be determined in the final results.

A factor analysis <sup>4)</sup> was carried out on the obtained data, using Osgood's D-method of factoring. This method is equivalent to classical techniques, but makes use of raw scores rather than correlation coefficients.

Three factors were extracted, accounting in toto for 95.37 % of the variance within the data. Of this, Factor I accounted for 74.67 %, Factor II for 16.81 %, and Factor III for 3.90 %. The analysis was discontinued at this point, since it was felt that a fourth factor would

<sup>4)</sup> Factor analysis, in this case, asks whether 10 concepts really represent 10 different forms of verbal behavior or whether there are a smaller number of more general patterns (the most significant ones) to be detected (note from the Editor).

account for approximately an insignificant 0.1 % of the variance, possibly even less. 4.62 % of the total variance was therefore not accounted for. Figure I shows the loadings for each of the ten concepts in each factor.

	Factor I	Factor II	Factor III
böse	0.82	0.93	0.65
ekelhaft	0.95	0.28	0.20
entsetzlich	1.34	-0.10	0.16
fürchterlich	1.23	-0.39	0.29
grässlich	1.53	0.00	0.00
scheusslich	1.14	-0.01	0.11
schlecht	0.82	1.18	0.00
schlimm	0.97	0.43	0.23
schrecklich	1.34	-0.09	0.02
widerlich	0.90	0.42	-0.18

FIG. 1. Factor loadings for each concept.

It can be seen that Factor I exhibits a high positive loading for each concept, whereas there are an equal number of positive and negative loadings on Factor II; Factor III exhibits positive loadings for most concepts, with *widerlich* alone receiving negative loading. The null loadings in Factors II and III for *grässlich* and *schlecht* are a statistical artefact produced by the need for a pivot concept in each factor; they do not affect the validity of the grouping.

The interpretation of these factors is fairly straightforward. Factor I, exhibiting high positive loadings for all field members, is a general factor of correlation confirming the existence of a semantically meaningful grouping, i.e. confirming the fact that these ten words belong to the same semantic field. Had the loadings in the first factor shown any other configuration, serious doubt would have been cast on the validity of the results.

Factor II, on which *schlecht* has the highest loading, but on which five concepts (all with the suffix *-lich*) receive negative loadings is most profitably interpreted as a factor of intensity or saturation of content. This can be illustrated by comparing the sentences

- (1) *Er ist ein schlechter Mensch.*
- (2) *Er ist ein fürchterlicher Mensch.*

It is readily appreciated that the character judgment given in (1) is more damning than that given in (2). Independent evidence for the validity of this interpretation is provided by the fact that those adjectives receiving negative loadings in this factor are exactly those which may be used to modify other adjectives (indeed, even other adjectives of quite differing meaning), as in the sentence

(3) *Das ist doch schrecklich nett von dir!*

and may thus properly be regarded as less saturated with their «actual» meaning.

Factor III, finally, produces the highest loading for *böse*, with the remaining concepts receiving mainly positive loadings and only *widerlich* having negative loading. This allows interpretation of this factor as a dimension of intentionality; compare the sentences :

(4) *Sei nicht böse!*

\* (5) *Sei nicht schrecklich!*

and it will be seen that (4) is normal, whereas (5) is anomalous. Likewise, the separation on this concept of *ekelhaft* (positive loading) and *widerlich* (negative loading), which have received highly similar loadings on Factors I and II, supports this interpretation, as *ekelhaft* can be conceived as more «intentional» than *widerlich*; cf. :

(6) *Er benimmt sich ekelhaft.*

\* (7) *Er benimmt sich widerlich.*

where (7) is anomalous.

The test method has thus revealed three dimensions which are relevant for the description of the internal relations of this semantic field. Fig. II, in which Factors II and III are plotted against each other, gives a diagrammatic representation of the structure of this section of the field, where it can be seen that *grässlich*, *scheusslich*, *schrecklich*, *entsetzlich* form a clear group, from which *ekelhaft* is distinguished by a greater loading on Factor II, intensity, *fürchterlich* on the other hand by a lesser loading on this factor. *Widerlich* is to some extent set apart by a smaller loading on Factor III, *schlecht* by its very high loading of intensity, *böse* by high loadings on both factors.

A Semantic Differential analysis can therefore chart the interconnexions and delimitations of the closely related members of a semantic field. A complete picture of this field could be obtained were the analysis to be

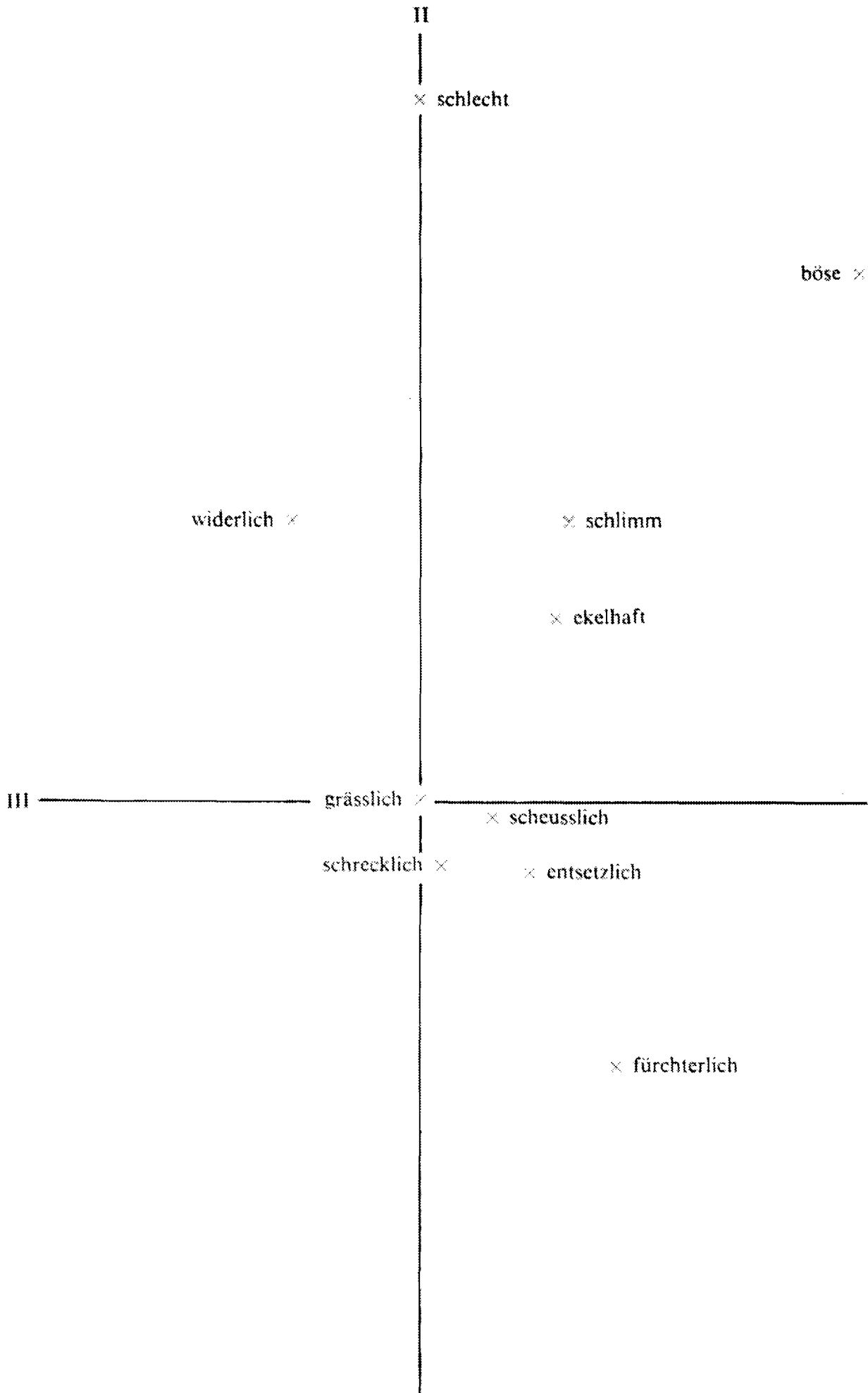


FIGURE II : Relative Loadings of all Concepts on Factors II + III

extended to cover all field-members, and accompanied by similarly replicable analyses of the properties of the adjectives (gradability vs. non-gradability,<sup>5)</sup> markedness vs. non-markedness, etc.<sup>6)</sup>), and of their syntactic similarities or differences.<sup>7)</sup> The sum total would be a valuable description of a semantic field.

<sup>5)</sup> SAPIR, E., Grading, in *Selected Writings of Edward Sapir in Language, Culture and Personality*, ed. D.G. Mandelbaum, Berkeley : 1949.

<sup>6)</sup> GIVON, T., Notes on the Semantic Structure of English Adjectives, *Language* 46, 1970, 816f.

<sup>7)</sup> H.J. SEILER has described the syntactic properties of a field of verbs in SEILER, H.J., Zur Erforschung des Lexikalischen Feldes, *Sprachnorm, Sprachpflege, Sprachkritik*, Jahrbuch des Instituts für Deutsche Sprache 1966-7, Düsseldorf : 1968, 268-86.