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DESCRIPTIVITY IN THE DOMAIN OF BODY-PART TERMS

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1. Introduction

In an earlier paper, I proposed a system for evaluating the relative descriptivity of lexical items in a consistent manner in terms of the interrelations of three metrics.[1] The first of these, including five possible degrees of descriptivity, is based on the premise that the sum of the meaningful parts of a given form is or is not equal to the meaning of the whole. The second, also composed of five degrees, is based on paraphrase-term relations in which the logical quantifiers: all, some and no, are applied to the terms of the paraphrase in one test and to the meaningful parts of the term (linguistic form) in the reversibility test. Both tests are applied in the form of logical propositions. The third metric, with three degrees, deals with the relative explicitness of the meaningful parts of a given form: explicit, implicit or neither. When a given lexical item is subjected to this three-metric test, the combined numerical indices from each of the metrics constitute a specific grade within a spectrum of overall descriptivity. The static view of the lexicon that this system provides may then be compared with the dynamics involved, in other words, the formal and semantic processes represented in the items under consideration. For the latter, these are chiefly: maximal isomorphism between corresponding meaningful parts of terms and components of paraphrase, semantic narrowing (simple or complex) and metaphor; and for the former: compounding and derivation. Crosscutting these static and dynamic aspects of the problem, the pragmatic dimension of motivation as regards the origin of the term, i.e. mainly emphasis on physical form, function or location, provides a framework for further characterization of the kind of descriptivity involved.

This system was then tested in a pilot study involving the fairly limited and semantically homogeneous lexical domain of body-part terms in a specific language, Finnish. The purpose of the present paper is to subject comparable data from other languages to the same kind of analysis and compare the results in order to ascertain whether the generalizations arrived at with the Finnish data also hold for the other languages or, more specifically, which of these generalizations are more or less universal and which language or language-type specific?

The additional languages to be examined here are: French, German, Ewe, Maasai and Swahili.[2] While there are absolute differences in the number of terms collected for the domain of body parts from each language, the internal distributions are such that all are fairly uniformly comparable. The shortcomings are not so much in kind as in statistical frequency of occurrence in support of certain general patterns. This is particularly true for the African languages where the absolute number of terms was in each case considerably lower than for any of the European languages. In practical terms, this means that some generalizations can only be weakly, or occasionally not at all, substantiated by the evidence from the African languages.

I will first present and discuss the descriptivity grading and interrelations between it and formal, semantic and pragmatic processes as noted above for each of the languages, then compare the results and summarize my findings. These and the present system of descriptivity grading will then be compared with those arrived at by Heine (1975) using a somewhat different statistical approach to the problem.

2. Language-specific Data Analysis

2.1 Finnish

The overall descriptivity index (number of descriptive terms divided by total number of terms) is 45.1. In other words, slightly less than half the items in the corpus are in varying degree descriptive while the remainder are labels or incompletely analyzable. The overall grade distribution is as follows:

Grade	Number of Terms	Percentage of Total
0	97	41.3
*0	32	13.6
1	20	8.6
2	1	.4
3	1	.4
4	1	.4
5	2	.8
6	27	11.5
7	1	.4
9	2	.8
10	51	21.7

Both nominal compounding and derivation are extensively used word-building processes. Only one of the 142 nonderivational forms was a noun phrase, the remainder compounds. Compounds accounted for a majority of the terms. Deverbatives were more than twice as common as denominatives. The following chart sums up the correlations between the formal (noun phrase, derivation), semantic (isomorphism, narrowing, metaphor) and pragmatic (form, function, location) parameters on the one hand and the degree of descriptivity on the other. The percentage figure is based on the total number of items for a given motivational category. Semantic processes and descriptivity grades are listed in descending order of frequency of occurrence for a given motivational and formal category (I=maximally isomorphic, N=simple narrowing, NN=complex narrowing, M=metaphor):

	Percentage	Semantic Processes	Grades
Form			
compound	77.1	I, N, M	10,1
deriv.			
denom.	12.5	M, N	1,6
deverb.	10.4	NN	6,2
Function			
compound	26.3	*	10
deriv.			
deverb.	73.7	NN	6
Location			
compound	77.8	N	10,6
deriv.			
denom.	22.2	NN	*

* Examples are too few and too diverse in nature to indicate any particular patterning.

Examination of the chart reveals a number of patterns.[3] Form- and location-motivated terms are chiefly expressed by compounds, whereas the bulk of the function-motivated terms are derivational. Denominatives are used for form and especially location, while deverbatives are primarily function-motivated terms and are not used to express location at all. Compounds are more descriptive than derived forms in all motivational categories and deverbatives somewhat more so than denominatives. Isomorphism appears solely with compounds, simple narrowing chiefly with compounds and complex narrowing only with derived forms. Form-motivated terms occur most frequently, accounting for a majority of the total, then function-motivated and finally location-motivated terms.

2.2 French

The overall descriptivity index is 29.7 The overall grade distribution is as follows:

Grade	Number of Terms	Percentage of Total
0	129	58.9
*0	25	11.4
1	9	4.
2	3	1.4
3	1	.5
4	2	.9
5	5	2.3
6	11	5.
7	1	.5
8	7	3.2
10	26	11.9

Nominal compounds are relatively rare in French, being restricted to a small number of types. However, a rich assortment of derivational affixes is available and frequently used in creating new terms and noun phrases, often of the genitive type (e.g. racine de cheveu). These perform the function generally accomplished by compounds in other languages. The list of body-part terms compiled for this study contained no compounds. Noun phrases accounted for a majority of the terms. Derivational forms were about evenly split between denominatives and deverbatives.

	Percentage	Semantic Processes	Grades
Form			
NP	62.5	N, NN	10,6
deriv:			
denom.	37.5	M, NN	1,8
Function			
NP	29.4	I, N	10
deriv:			
denom.	5.9	*	*
deverb.	64.7	NN	5.8
Location			
NP	80.	N	10
deriv:			
denom.	20.	NN	2

Form- and especially location-motivated terms are largely expressed by noun phrases as opposed to function-motivated terms which are chiefly derivational. Denominatives are used primarily for form and location while deverbatives are used exclusively for function. In all motivational categories, noun phrases are more descriptive than derived forms and deverbatives more so than denominatives. Similarly, simple narrowing is found only and primarily (with respect to other semantic processes) with noun phrases, complex narrowing mainly and metaphor solely with derived forms. Form- and location-motivated terms are of almost equally high frequency of occurrence, in both cases higher than that of function-motivated terms.

2.3 German

The overall descriptivity index is 44.4, the overall grade distribution as follows:

Grade	Number of Terms	Percentage of Total
0	128	50.8
*0	12	4.8
1	22	8.7
4	1	.4
5	1	.4
6	25	9.9
7	1	.4
8	1	.4
9	2	.8
10	59	23.4

Unlike French, nominal compounding is an extremely productive and frequently used word-building process. Of the 98 nonderivational descriptive terms, only five were noun phrases, the remainder compounds. Compounds accounted for a majority of the terms in all three motivational categories: all locational, most formal and about three-quarters of all functional terms. Derivational terms were

chiefly deverbative and complementarily distributed: deverbatives only for functional terms and denominatives only for formal terms.

	Percentage	Semantic Processes	Grades
Form			
compound	92.5	N, I, M	10, 1, 6
deriv:			
denom	7.5	*	*
Function			
compound	73.7	N, I	10, 6
deriv:			
deverb.	26.3	NN	6
Location			
compound	100.	N, I	10

As just noted, locational terms are solely expressed by compounds, formal terms only slightly less so and functional terms still less so. On the other hand, deverbatives are used solely for functional and denominatives solely for formal terms. In all motivational categories, compounds are more descriptive than derived forms. Simple narrowing and maximal isomorphism are found almost exclusively with compounds and complex narrowing only with derived forms. Formal terms are preferred, functional terms least encountered.

2.4 Ewe

The overall descriptivity index is 69.6, the overall grade distribution as follows:

Grade	Number of Terms	Percentage of Total
0	33	29.5
*0	1	.9
1	18	16.1
5	3	2.7
6	28	25.
7	1	.9
10	28	25.

Nominal compounding is a major process. Of the 71 nonderivational descriptive terms, 70 were compounds and one was a noun phrase. Compounds accounted for a majority of the terms. Under derivation, deverbatives were much more frequent than denominatives.

	Percentage	Semantic Processes	Grades
Form			
compound	92.1	N, M	10,1,6
deriv:			
denom.	5.3	*	*
deverb.	2.6	*	*
Function			
compound	50.	N	6
deriv:			
deverb.	50.	NN	6
Location			
compound	100.	I, N, NN	10,6

Locational terms are entirely expressed by compounds and formal terms largely so. While derivation in general is infrequent, it is significant that most of it appears as function-motivated deverbatives. Inversely, the few denominatives are used only in the form-motivated category. Compounds are more descriptive than derived forms in all categories. Simple narrowing is found only with compounds and complex narrowing mainly with the deverbatives. Form-motivated terms are the most common, function-motivated the least common.

2.5 Maasai

The overall descriptivity index is 32.4, the overall grade distribution as follows:

Grade	Number of Terms	Percentage of Total
0	62	59.
*0	9	8.6
1	12	11.4
5	5	4.8
6	8	7.6
10	8	7.6

Nominal compounding is of relatively little importance. While verbal derivation is common and productive, nominal derivation - at least inasmuch as the domain of body-part terms is concerned - is less in evidence. Two of the 23 nonderivational constructions were compounds, the remainder noun phrases. Noun phrases in general formed a majority and deverbatives occurred much more often than denominatives.

	Percentage	Semantic Processes	Grades
Form			
NP	66.7	M, N	1,10
deriv:			
denom.	27.8	N	6
deverb.	5.6	*	*
Function			
deriv:			
deverb.	100.	NN	*
Location			
NP	100.	I, N	10,6

All location-motivated and most form-motivated terms are noun phrases. Although there are only four examples of the function-motivated category, all are deverbatives. All but one of the form-motivated derived forms are denominatives. With the partial exception of those found in the form-motivated category, which included a disproportionately high number of metaphors (Grade 1), noun phrases are more descriptive than derived forms. Complex narrowing is found only with the few deverbatives. The motivational hierarchy is, in descending order of frequency of occurrence: form, location, function.

2.6 Swahili

The overall descriptivity index is 29.4, the overall grade distribution as follows:

Grade	Number of Terms	Percentage of Total
0	77	70.6
1	9	8.3
3	1	.9
6	8	7.3
7	1	.9
8	1	.9
10	12	11.

No nominal compounds appear in the corpus. As in Maasai, nominal derivation is relatively infrequent. Thus noun phrases accounted for most of the descriptive terms and derivation was about evenly split between denominatives and deverbatives.

	Percentage	Semantic Processes	Grades
Form			
NP	75.	M, N	1, 10
deriv:			
denom.	25.	*	*
Function			
NP	42,9	I, N	10, 6
deriv:			
denom.	14.2	*	*
deverb.	42.9	N, NN	6
Location			
NP	100.	I, N	10, 6

All location- and the majority of the form-motivated terms are noun phrases. Functional terms were few and are equally divided between noun phrases and deverbatives with the exception of one denominative. Otherwise, denominatives appear only in the form-motivated category. As in Maasai, except for the relatively large number of meta-

phors among the form-motivated noun phrases, noun phrases are more descriptive than derived forms. Isomorphism and simple narrowing are characteristic of the noun phrases in general and complex narrowing is found only with the deverbatives. Formal expressions are the commonest, then locational and lastly functional.

3. Comparisons and Generalizations

3.1 Formal Processes

Nonderivational constructions (compounds and noun phrases) account for the greatest number of descriptive terms. And in fact, compounds or noun phrases are more descriptive than derived forms in all languages and motivational categories with the partial exception of Maasai and Swahili form-oriented terms which include a fairly large number of metaphors (minimally descriptive) along with a smaller number of maximally descriptive terms. Thus as regards descriptivity, derivation implies non-derivation. Although nonderivational constructions may be less in evidence in derivational languages like Finnish and French, they are nonetheless dominant in such languages too. Furthermore, compounding as opposed to noncompounding languages are more descriptive in terms of both quantity and quality. That is, the numerical proportion of descriptive items and the degree of descriptivity are greater. The explanation for this would appear to lie in the fact that elements of compounds generally have language-external denotata and are less abstract in meaning while derivational morphemes are often language-internal oriented, more abstract.

While deverbatives are preferred over denominatives in the present sample, the distribution of the

two types is clearly conditioned by the motivation category, as is also the case in the distribution of nonderivational vs. derivational terms. These differences will be discussed below (3.3).

These observations are reflected in the following percentage-based distributional chart:

	Finnish	French	German	Ewe	Maasai	Swahili
Nonderiv.	60.4	57.3	88.7	80.7	55.6	72.6
Deriv:	39.6	42.7	11.3	19.3	44.4	27.4
denom.	11.6	21.1	2.5	1.8	9.2	13.1
deverb.	28.	21.6	8.8	17.5	35.2	14.3

3.2 Semantic Processes

The semantic processes: isomorphism, narrowing and metaphor, which constitute rough indices of descriptivity, form a hierarchy that directly corresponds to that of the formal processes. Thus isomorphism is found only with nonderivational terms, never with derivational. Simple narrowing appears almost exclusively with nonderivational terms, while complex narrowing, with very few exceptions, is characteristic of derivational terms. Metaphors, with the lowest grade of descriptivity, deviate from this general correspondence in at least two important ways. First, they are found principally among the form-motivated terms and, second, rarely among the deverbatives, which are chiefly function-motivated, and hardly ever among the location-motivated terms. Since a derivational morpheme defines a larger or more abstract referent group, it will always represent simple narrowing with regard to the term as a whole. On the other hand, a compound element or lexical component of a noun phrase often has a more specific meaning which contributes to the isomorphism of the term. Therefore, when the root or stem of a derived form is in a simple

narrowing relation to the meaning of the term, we automatically have a case of complex narrowing. Hence the likelihood of complex narrowing is considerably greater with derivational than with nonderivational forms. Thus, for example, in French indicateur 'index finger', a deverbative construction consisting of a root indic- (cf. indiquer) 'point, indicate' plus a derivational suffix -teur referring to an agent, the root referent class outside of this construction is much larger than that found here, which might be paraphrased as '(finger used to) point', a case of simple narrowing in itself which, when combined with the agentive suffix, results in an instance of complex narrowing.

As the following chart indicates, the frequency distribution of the semantic processes is similar in all the sample languages:

	Finnish	French	German	Ewe	Maasai	Swahili
I	9.1	19.7	19.6	15.8	14.7	15.2
N	51.5	37.9	54.9	50.	32.4	54.5
NN	24.2	27.3	10.9	15.8	17.3	3.
M	15.2	15.1	14.6	18.4	35.6	27.3

Simple narrowing is by far the commonest process, while the remaining three are more or less equally distributed. Maximal isomorphism is found with nonderivational terms, primarily location-motivated and secondarily form- or function-motivated. These are all Grade 10 items. Simple narrowing appears chiefly in two grades: 10, nonderivational, found primarily among form-motivated, secondarily with location-motivated and thirdly with function-motivated terms; and 6, primarily with form- or location-motivated nonderivational terms and secondarily with form-motivated denominatives and function-motivated nonderivational terms. Complex narrowing is found mainly in Grade 6: primarily with function-motivated deverbatives, secondarily with form-motivated non-

derivational and thirdly with location-motivated non-derivational terms. Metaphors are all Grade 1: primarily with form-motivated nonderivational terms, secondarily with form-motivated denominatives and lastly with location-motivated nonderivational terms. In sum, then, we may say that maximal isomorphism is more descriptive than simple narrowing, simple narrowing more so than complex narrowing and complex narrowing more so than metaphor.

3.3 Pragmatic Processes

Form-motivated terms are more in evidence than either function- or location-motivated terms. This was the case for all languages except French in which the number of location-motivated terms was slightly greater than that of form-motivated terms. Furthermore, all languages except Finnish favor location-motivated expressions over function-motivated ones. These interrelations are specifically demonstrated in the following chart:

	Finnish	French	German	Ewe	Maasai	Swahili
Form	63.2	36.4	62.	48.7	54.5	50.
Function	25.	25.8	17.6	10.3	12.1	21.9
Location	11.8	37.8	20.4	41.	33.4	28.1

This distribution appears to be largely attributable to the semantic nature of the domain under investigation. Body parts happen to be somewhat more readily characterizable in terms of external form than function or location. In Finnish, the proportionately large number of functional terms as opposed to locational terms may be due to the fact that deverbative noun derivation is more extensively used in that language than in any of the other sample languages and deverbatives are par excellence associated

with the expression of functional terms. Whether this dominance of form-motivated terms would hold in other semantic domains is doubtful. It is quite conceivable that functional expressions would be more common among terms for machines or tools, for example, or locational expressions among terms for dwelling types.

As regards correlations between formal and pragmatic processes, nonderivational terms are preferred in all the languages in the form- and location-motivated categories. This is especially true for the latter as witnessed by the fact that four of the six languages (German, Ewe, Maasai and Swahili) displayed only nonderivational terms in the locational category. In the form-motivated category, denominatives are favored over deverbatives (no deverbatives in French, German and Swahili) and, in the location-motivated category, derivation is used only to a limited extent in Finnish and French and then solely denominative. In the function-motivated category, deverbatives are clearly preferred over not only denominatives but also nonderivational terms with the exception of German where compounds are dominant (however, no denominatives). While these statements are true, there are differences in degree among the six languages which are illuminating.

Thus although German and Ewe, compounding languages which make relatively little use of derivation, have a higher proportion of compounds in all categories, the noncompounding languages, French, Maasai and Swahili, make less use of noun phrases. Conversely, the stronger derivational languages, Finnish and French, show a greater percentage of derivational terms in the functional category and are the only sample languages with derivation in the locational category. These findings may be summed up in the following formulation which is valid for at least the semantic domain of body-part terms:

1. In weak derivational languages, nonderivation is dominant in all motivational categories, more so in compounding than in noun-phrase languages.

2. In strong derivational languages, nonderivation is dominant in all motivational categories except function.

3. In all languages, nonderivation is dominant in the location-motivated category, more so in weak derivational languages.

4. In all languages, denominatives are dominant in the location- and, to a lesser extent, form-motivated categories and deverbatives in the function-motivated category.

A comparison of the relationships between the formal and pragmatic processes suggests a rather interesting set of correlations. A salient formal characteristic of the form-motivated category is the preference for denominatives over deverbatives, of the location-motivated category for nonderivation, and of the function-motivated category for deverbatives over denominatives. Now function is usually semantically equatable with action, a dynamic concept often represented by verb forms, while form and location are essentially static concepts - and this is perhaps more particularly so for location - mainly represented by nominals. Viewed in terms of a static-dynamic dimension, this presents us with the following picture:

	static ⟵		⟶ dynamic
form	nonderivational	denominative	deverbative
motivation	location	form	function

The hierarchy of overall descriptivity for the three categories is, from maximal to minimal descriptivity: location, form and function. Note that this exactly parallels their relative positions in the static-dynamic

scale, which suggests that, ceteris paribus, terms denoting static concepts will be more descriptive than those used to designate dynamic concepts.

3.4 Value-Set and Grade Profiles

Of the 47 possible value sets for measuring the degree of descriptivity (Ultan 1975, p. 11), 16, ranging over the entire gamut of descriptive grades, are represented in the data under investigation. No single language offered examples of all 10 grades. The following chart sums up the statistical frequencies of these value sets and grades as they are distributed among the various formal, semantic and pragmatic processes. The three-digit figure under "Value Set" is a composite of the relative values of the three metrics used in the descriptivity-grading system, from left to right: Anal (the sum of the parts does or does not equal the whole), Para (paraphrase-term relations), Expl (term-explicit or -implicit meaning). The abbreviations for the formal processes are: C = compound or noun phrase, deN = denominative, deV = deverbative. W = widening. The figures in the matrix refer to the total number of examples found in the corpus.

			Form			Function			Location		
Grade	Value Set	Process	C	deN	deV	C	deN	deV	C	deN	deV
1	453	M	51	10		2		1	5		
2	452	M	2								
	443	M	1								
		NN			1					1	
		N								1	
3	433	NN		1							
4	243	NN		1				2			
		N						1			
5	233	NN	1	1	2			4			
		N		1					2		
		W							1		
	143	NN							2		
		N	1								
6	241	N						1			
	133	NN	9	3	1	2	1	20	6	2	
		N	24	7		5	1	2	23		
7	141	NN	1								
	132	N	1			2					
	123	W							1		
8	131	NN	1					1			
		N	2			1		1	1		
	113	N							2		
9	112	N	2								
		I				2					
10	111	NN	1								
		N	78	1		11		1	24	1	
		I	5			7			52		

Examination of the chart shows that the bulk of examples are clustered in three value sets, each corresponding to a different grade, viz.: 1, 6, 10. Associated with each grade are certain formal, semantic and pragmatic characteristics which, when combined, may be said to constitute grade profiles. Therefore, a Grade-10 item is maximally descriptive and will most likely be a

compound or noun phrase and form- or location-motivated. If form-motivated, it will probably exhibit simple narrowing; if location-motivated, maximal isomorphism. A Grade-6 item is medially descriptive and stands a fair chance of being form-motivated, in which case more likely a compound or noun phrase with simple narrowing, less likely a denominative with complex narrowing. However, the odds that it may be a location- or function-motivated term are far from minimal. If location-motivated, it will most likely be a compound or noun phrase with simple narrowing; if function-motivated, a deverbative with complex narrowing. A Grade-1 item is minimally descriptive and a metaphor. It will most probably turn out to be a form-motivated compound or noun phrase, less likely a denominative, still less likely a location-motivated compound or noun phrase, and rarely a function-motivated term.

4. Another System

4.1 Heine's Method

Using a somewhat similar system, Heine (1975) measured the descriptivity of the same designations for body parts in the three African languages: Ewe, Maasai and Swahili, examined in the present study. Comparison of the two systems and the results obtained in each will, I believe, prove instructive. Since Heine's paper is not readily available to many readers, I will first briefly describe his method.

Expressions to be measured are tested by means of five different parameters. The first of these operates on the premise that the more roots a given expression contains, the more descriptive it will be. Each root in a term is assigned one value point. The index of descriptivity for a given language and corpus is then determined by dividing the sum of the value points by the total

number of terms. This produces the following indices (the higher the figure, the greater the descriptivity):

Swahili	20
Maasai	23
Ewe	84

The second contrasts the number of compounds (Wortzusammensetzungen) with the number of noun phrases (Wortkombinationen). A compound is assigned one value point, a noun phrase none.

	Compounds	Noun Phrases
Swahili	0	20
Maasai	3	20
Ewe	60	1

The third parameter is a measure of derived terms, each of which is assigned one value point. The index is determined by dividing the sum of the value points (= number of derived terms) by the total number of terms, with the following results:

Swahili	6
Maasai	8
Ewe	3

The fourth and fifth parameters are essentially the same as my first (the sum of the parts of a construction equals or does not equal, in varying degree, the meaning of the whole) and second (paraphrase-term and term-paraphrase relations) metrics, respectively. For both of these, the indices are arrived at by dividing the sum of the value points by the total number of terms. This results in the following indices:

	Parameter 4	Parameter 5
Swahili	83	66
Maasai	91	66
Ewe	178	169

4.2 Comments on Parameters

It seems to me Parameter 1 (number of roots per word) is based on a slightly questionable premise. Words containing several roots may often enough be less descriptive in terms of the other parameters than those with, say, only two roots, e.g. Ewe ßu-nyúí-ka 'artery' composed of three roots with an overall (sum of all five

parameter indices) descriptivity index of five vs.

akôta-fú 'breastbone'

containing two roots but with a higher index of 11. Similar examples may be found not only among the Ewe terms but also in Swahili and Maasai.

Also somewhat dubious is the handling of reduplications. In Ewe, where reduplication (CV, CVCV) may be used to form adjectives - i.e. serves a derivational function - examples are treated inconsistently. Thus while vévĭ 'bile' (from ve-ve-i) is identified as a derived form with no analysis of the reduplicated stem, ame-kú-kú 'corpse' is quite properly analyzed as a compound (ame 'human', kúkú 'dead') but the reduplicated element is regarded as two roots. On the other hand, futúfutú 'lung' is assigned no descriptive value although the basic meaning of the term is 'elastic' or 'bubbly', that is, an adjective derived from *futú.

After a brief explanation of Parameter 2 (compounds vs. noun phrases), we find the following statement:

> "Je mehr eine Sprache (z. B. das Ewe) zum deskriptiven Prinzip neigt, desto mehr macht sie Gebrauch von Wortzusammensetzung. 'Stark etikettierende Sprachen' dagegen tendieren dazu, deskriptive Ausdrücke durch Kombinationen von selbständigen Wörtern wiederzugeben."

Now, as noted above, compounds are - ceteris paribus - more descriptive than derived forms and, as the overall descriptivity indices for the six sample languages show, compounding languages (Ewe, German, Finnish) make greater use of descriptive terms than languages in which compounding plays a lesser role in the morphology (French, Maasai, Swahili). Thus Heine's generalizations are fully supported by my findings but neither of these two statements are warranted on the basis of Parameter 2 alone. That is to say, in Heine's system a compound is assigned a value of one while a noun phrase is rated zero (actually assigned

no value). However, these value assignments are, as far as I can see, apparently arbitrary, since no justification for the descriptive superiority of compounds over noun phrases is given. While both claims are in fact valid, their justification is to be found rather in Parameters 4 and 5 than in Parameter 2.

It is true, as Heine states, that the Parameter 3 (derivation) percentage figures for the three African languages do not parallel the consistent patterning found in Parameters 1 and 2. But if, instead of dividing the number of derived terms by the total number of terms, we divide the former by the total number of descriptive terms, the relationships are more in accord with those produced by Parameters 1 and 2:[4]

Swahili	27
Maasai	44
Ewe	19

Ewe, a compounding language, has the lowest proportion of derived terms but a high overall descriptivity index; Maasai, a noncompounding language, has a relatively high proportion of derived terms but a low descriptivity index; and Swahili, noncompounding, has a fairly low proportion of derived terms but also a low descriptivity index.

The results obtained from application of Parameters 4 and 5 are in agreement with those arrived at in my corresponding analysis of Finnish, French and German as well as Ewe, Maasai and Swahili and are consistent with those produced by Parameters 1 and 2.

A basic difference between the two grading systems is the way in which descriptivity indices are totaled and averaged out for a given language. In Heine's system, all value points within a single parameter form the basis for computation; in mine, value points from each of the

three metrics (= parameters) are computed for each item. While not all parameters and metrics are directly comparable, this difference in technique provides a valuable reciprocal method of "proofing" the results obtained. Thus where the two agree - and this is most often the case - the results receive additional support.

One further objection I have to Heine's method is the fact that homonyms are not discounted before averaging out value points for a parameter. This has the effect of distorting the final results in some cases. The Swahili corpus, for instance, consists of a total of 121 items, 12 of which are homonyms. On the other hand, the Ewe corpus contains 116 terms including only four homonyms.

5. Conclusions

The application of descriptivity-grading methods to the semantic domain of body-part terms in six rather structurally diverse languages provides strong arguments for the charaterization of relationships between certain formal, semantic and pragmatic processes used in word building on the one hand and relative descriptivity on the other.

Among the formal processes, nonderivational expressions tend to be more descriptive than derivational and languages that favor compounding make greater use of descriptive terms than those that do not. The latter group also includes languages which do not employ derivation extensively, such as Maasai and Swahili (i.e. nominal derivation). Thus in terms of overall or general descriptivity, derivational forms imply nonderivational.

Among the semantic processes, maximal isomorphism, reflecting the highest degree of descriptivity, is found almost exclusively with nonderivational forms. Simple

narrowing appears primarily with nonderivational forms and complex narrowing chiefly with derivational. Metaphors are particularly associated with form-motivated expressions and are found in nonderivational or denominative constructions rather than as deverbatives.

Among the pragmatic processes, form-motivated terms are predominant and function-motivated least employed. This hierarchy is probably a consequence of the semantic domain itself and one would logically expect to find other arrangements preferred for different domains. In the form- and location-motivated categories, nonderivational constructions are preferred. However, if derivation is used, denominatives prevail. In the function-motivated category, derivation is usually preferred and almost always deverbatives. In weakly derivational languages, nonderivational constructions are preferred in all three motivational categories, particularly so in compounding languages; in strongly derivational languages, such constructions are preferred in the form- and location-motivated categories only. Location-motivated terms tend to be more descriptive than form-motivated, while function-motivated terms are least descriptive. This hierarchy is paralleled by a formal one whereby nonderivational constructions primarily represent location-motivated terms, denominatives form-motivated terms and deverbatives function-motivated terms. The pragmatic hierarchy is in turn conceivable as reflecting a dimension of activity: static (location-motivated) - less static or more dynamic (form-motivated) - dynamic (function-motivated).

NOTES

1. See Ultan 1975 for the details. A very brief account is given here. Grade 0 denotes an unanalyzable term, Grade *0 a partially analyzable term, Grades 1 - 10 from minimally to maximally descriptive.

2. Most of the data from the three African languages: Ewe, Maasai and Swahili, were provided by Prof. Bernd Heine of the Institut für Afrikanistik, Universität zu Köln, to whom I extend my thanks and my apologies for any possible errors in retranscription or interpretation. Further information on Swahili was offered by Mr. Hassan Adam of Tanga, Tanzania, and on Ewe by Mr. Simon Wellington Kumah of Kpandu, Ghana. I am grateful for their patience and help. The Finnish analysis given in Ultan 1975 will be summarized here for convenience of comparison.

3. Entries under "Semantic Processes" and "Grades" are given in descending order of frequency of occurrence from left to right. Thus, for example, in Finnish there were more Grade-10 form-motivated compounds than Grade 1.

4. The relatively few differences in analysis of derived terms do not significantly alter the basic proportions:

	Heine	Ultan
Swahili	6	7
Maasai	8	10
Ewe	3	6

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