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## Against Höhle's Compositional Theory of Affixation\*

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### 0. INTRODUCTION

In his recent article<sup>1</sup>, Höhle has presented a "strictly lexicalist" theory of word formation, the characteristic feature of which is the "compositional theory of affixation" (p. ). This theory claims, essentially, that compounds as well as affixal derivations are generated by the same phrase structure rule (1), (1) being an extension of the usual phrase structure rule format (in  $\bar{X}$  notation) to the level of lexical elements. This amounts essentially to making two important claims about the syntax of words: first, that compounds and affixal derivations have internal structure; second, that they are structured in the same way, cf. (2):

- (1)  $X^{\circ} \rightarrow Y^{\circ} \sim Z^{\circ}$   
(X, Y, Z: variables over syntactic categories such as V, N, A; superscript "°": 'zero-bar-level', cf. Toman 1980:27ff.)
- (2a)  $[_N[_V\text{schwimm}]][_N\text{bad}]$  (2b)  $[_A[_V\text{denk}]][_A\text{faul}]$   
'swim-bath' 'think-lazy'  
'bathing establishment' "mentally lazy"

Let us first interpret the "compositional theory of affixation" as being a theory of word structure only. By adopting it, we have to commit ourselves minimally to the following assumptions:

- (A1) Affixes are lexical items that are subcategorized as to lexical category (V, N, A).

\* An earlier version of this article (Reis 1983) appeared as a rejoinder to Höhle 1982 (also reprinted in this volume). In preparing the English version, the content has been virtually kept unchanged. I have, however, taken the opportunity to remove a number of technical and minor factual errors, to add a few clarifying remarks (marked by "[ ]"), and to reformulate numerous passages which were in need of stylistic improvement.

I should like to thank Susan Olsen and Page Woodworth who assisted me with the English version of this paper.

- (A2) If there are any differences between roots<sup>2</sup> and affixes (compounds and derivations), they are non-categorial in nature (i.e., they do not involve phrase structure categories).
- (A3) No rule operating after lexical insertion makes essential use of the root-affix (compound-derivation) distinction.
- (A4) Phrase structure rule (1) provides for the internal structures of all conceivable (German) words (which means *inter alia* that words having an internal structure [<sub>N</sub> V  $\phi$ ] do not exist).

The Höhle versions of these assumptions are roughly the following:

- (HA1) Affixes and roots are words in exactly the same way; hence, affixes have lexical entries containing *inter alia* categorial and selectional specifications (cf. p. 319f., 327ff.).
- (HA2) The root-affix (compound-derivation) distinction can be totally reduced to the distinction between 'free' and 'bound' lexical items; this selectional property, being entirely idiosyncratic, has to be specified in the lexicon anyway (cf. p. 319, 323f.).
- (HA3) The compound-derivation distinction is completely irrelevant (cf. 323ff., 334ff.).
- (HA4) Phrase structure rule (1) provides for the internal structures of all conceivable (German) words and only these (cf. p. 358ff.).

We notice immediately that these assumptions, in particular (HA2) and (HA3), are much stronger than their minimal counterparts, for they explicitly deny what (A2/A3) leave open as a possibility: the existence of an irreducible (albeit non-categorial) root-affix distinction, and its possible relevance to the domain of word formation and the lexicon. This strengthens the impression that can also be gained elsewhere in the article in question: Höhle, although he does not commit himself explicitly anywhere, seems to consider the compositional theory of affixation not only as a theory of word structure ('Wortgebildetheit'<sup>2a</sup>), but simultaneously as a theory of word formation proper ('Wortbildung'), i.e., as a theory that accounts for the relevant aspects of creativity as well. This amounts to postulating (HA5):

- (HA5) Given the formal means provided by Höhle's framework – these are essentially phrase structure rules such as (1) and lexical entries

(modeled in accordance with (HA1) and (HA2)) –, all relevant aspects of word formation concerning compound and affix formation(s) can be accounted for (cf. p. 320ff.).

Assumptions such as (HA3) and (HA1) mark a radical departure not only from classical positions in the treatment of word formation but also from the younger 'lexicalist' tradition<sup>3</sup>. This makes Höhle's theory – admirable as it is for its conceptual elegance and the range of facts and ideas it accommodates and/or gives rise to – all the more interesting, but it also kindles the spirit of opposition: traditions usually have *some* fundamentum in re. It will be shown in the following that this sceptical attitude is, to some degree, justified. Confining myself (following Höhle p. 321) to evidence from adjective and noun formation, I shall first try to show that (HA1) holds only for suffixes (§1), furthermore that, contrary to (HA3), the root-affix distinction figures crucially in describing linguistic regularities, at least in the domain of word formation proper (§3), and that, contrary to (HA2), the distinction operative in these regularities may not be reduced to independently given lexical information (§2). This has obvious implications for the validity of (HA4) and (HA5), which, however, also give rise to additional problems of their own; some of them will be sketched (although not solved) in §4. All this considered, I feel justified in concluding that the "compositional theory of affixation" cannot be upheld in its entirety in its present form: neither taken as a theory of word formation (in the sense of (HA1) – (HA5)), nor taken merely as a theory of word structure (in the sense of (A1) – (A4)) does it account for the full range of data it is intended to account for. These findings will be commented on in the concluding remarks (§5).

#### 1. RE (HA1)

To say that affixes are words is justified if and only if they share the essential properties of 'normal' words (roots). As far as suffixes are concerned, this criterion is fulfilled. In particular, they have the categorial properties that, in Höhle's theory, are crucial: just as normal words, especially verbs, may impose categorial restrictions on their environment, suffixes also impose categorial restrictions on their environment, which is the X<sup>0</sup>-level; by virtue of this property, affixes are "bound words". That they are inherently specified for lexical category follows from the so-called 'compositional regularity' (p. 356), a generalized version of which is given in (3):

- (3) In German word formations (compounds as well as affixal deri-

vations), the morpho-syntactic properties of the second constituent of the complex word – such as lexical category, and, where relevant, gender and inflectional class membership – are passed on to the whole complex word.<sup>4</sup>

Having a lexical category is, according to Höhle (p. 357), already sufficient proof of being a word. But suffixes possess all the other lexical properties characteristic of normal words, too: they have sound shape<sup>5</sup> and meaning; if, depending on their categorial status, they have gender and inflection, these properties are idiosyncratic; just like roots they have to be classified as [ $\pm$ native] (cf. *-ität* vs. *-heit*); and, likewise, they have idiosyncratic linking requirements (*-ung* e.g. requires *s*, *-er* does not), etc. Moreover, suffixes cannot be said to be ‘typically’ associated with specific types of meaning or sound form so as to necessitate the formulation of redundancy rules separating them from normal words, i.e. roots.

### 1.1.

But if this proves that suffixes are words, then, by the same token, the word status of prefixes is dubious. There is no linguistic regularity, neither (3) nor anything comparable to it, to prove the crucial point, which is that they have a lexical category. Höhle concedes this saying that the category of prefixes “must remain undetermined or arbitrary where there is no relationship to a free form which could offer us a clue”; but, on the strength of examples such as *künstlich* ‘art-ly’/‘artificial’, *mordsmäßig* ‘murder-s-measure-y’/‘terrific’ which he analyzes as “prefix-suffix-combinations”, he nevertheless insists that they basically do have a lexical category, for: “Suffixes do not combine randomly with every category or with first components that have no category at all” (p. 358).

As far as I can see, this position is untenable:

#### 1.1.1.

From the point of view of learnability, this position seems paradoxical. Either prefixes are marked for category in the lexicon; then this categorial mark must figure in and be discoverable through linguistic experience; or the category of prefixes is in fact doomed to being indeterminate or arbitrary, in which case it cannot be learned, hence is absent from the lexicon of native speakers<sup>6</sup>. The latter is certainly true for the majority of German prefixes, the more so since “similarity to free forms” is only of dubious help in determining the lexical category<sup>7</sup>.

### 1.1.2.

The argument with prefix-suffix combinations is spurious, too. These cases are rare to begin with<sup>8</sup>, and, as a rule, do not belong to the productive subtypes of the suffix in question (the only possible exceptions being at most *künstlich* ‘artificial’, *mißlich* ‘dis-ly’/‘awkward’); hence, they should be entered into the lexicon as complex wholes with highly idiosyncratic properties (cf. Höhle fn. 4). But with lexicalized word formations there is no way around acknowledging the possibility of unmarked first constituents anyhow – why should the speaker who certainly still analyzes lexicalized formations such as *Himbeere* ‘him-berry’/‘rasp-berry’, *Pausbacke* ‘paus-cheek’/‘chubby-cheek’, *Schornstein* ‘schorn-stone’/‘chimney’, *drollig* ‘droll-y’/‘funny’ as complex words by assigning strong boundaries between *Paus* and *backe*, *Schorn* and *stein* etc., go on identifying the category of the first constituent?<sup>9</sup>

The cases in question do not yield a diachronic argument either: none came into being as a prefix-suffix combination; *künstlich*, too, had already acquired its contemporary meaning (cf. Grimm 1873: c.2714) before *Kunst* ‘art’ became a prefixoid. This would, to be sure, not make it impossible to derive *künstlich* from *Kunst-* synchronically; but this hypothesis has little semantic plausibility, since the meaning of the prefixoid is not part of the adjective. Rather, the latter constitutes exactly the whole meaning of the former: *Kunstleder* = *künstliches Leder* ‘artificial leather’/‘imitation leather’, etc. This suggests considering *Kunst-* to be a bound allomorph of the adjective *künstlich*, which is a root. Then *Kunstleder* is made up of roots, hence a compound, hence no longer of interest for the issue at hand, which is the status of prefixes. Although deriving *Kunst-* from *künstlich* is not without problems the natural ‘compositional’ analysis certainly being the other way around, there are some arguments supporting it: First, new formations such as *Besatzer* (‘occupier’; derivational basis: *Besatzung* ‘occupation army’ plus suffix *-er*), *Studentenbewegler*<sup>10</sup> (derivational basis: *Studentenbewegung* ‘students movement’ plus suffix *-ler*) show that root allomorphy may in principle involve truncation of affixes. Second, direct parallels to the prefixoid *Kunst-* are not unusual in German, cf. the productive bound elements *Zusatz-*, *Sonder-* etc. that are completely identical in meaning with the free adjectives *zusätzlich* ‘addition-ly’/‘additional’, *besonder-* ‘be-special’/‘special’. That the derivation ‘really’ proceeds from the full free form to the bound allomorph, and not vice versa, can, moreover, be readily observed in the case of newly emerging patterns, such as the [*Winz*+N] pattern, which no doubt involves the old German adjective *winzig* ‘winz-y’/‘tiny’ (attested colloquial examples being *Winzwohnung/-küche/-baby/-männchen* ‘winz-apartment/-kitchen/-baby/-man’, cf. also *Winzmiete* ‘winz-rent’ (SPIEGEL, 7/31/1982:119); the bound element *winz-* invariably means the same as *winzig*).

## 1.1.3.

But even if the existence of productive prefix-suffix combinations were granted<sup>11</sup>, this would be relevant only in case it were also true that suffixes require derivational bases that are categorially marked. Höhle explicitly claims this (cf. the quotation given above), but considering formations such as *klitterhaft* (an ad hoc formation from the SPIEGEL meaning roughly "carelessly/imcompletely put together") and *Kriminal* (a common word) I am not convinced. Both words result from productive patterns of a type that Höhle's theory, in order to have empirical import, must necessarily cover<sup>12</sup>; but they seem to involve derivational bases (*klitter* on the one hand, which has its only lexicalized occurrence in *Geschichts-klitterung* 'history-s-klitter-ing'/'biased account of historical events', and the bound *Kriminalpolizei* 'criminal-police'/'criminal police', that figures in the characteristic paraphrase *Kriminal* = 'jemand, der bei der Kriminalpolizei beruflich tätig ist'/'somebody who is (professionally) with the criminal police'), for which no category label can be determined – in other words: for which none exists. One might, of course, try to turn the argument around by insisting that the ability to figure in word formation processes just like free morphemes, is by itself sufficient proof of having a lexical category. But this argumentation might be self-defeating. By this reasoning, *-klitter-*, being attested as the base of an action noun in *-ung*, would have to be categorized as V although, semantically, *klitterhaft* seems to be modeled on [N+haft] formations such as *skizzenhaft* 'sketch-y', *bruchstückhaft* 'fragment-ary' rather than on [V+haft] formations that invariably denote dispositions. And if *kriminal-* were categorized as an adjective, in analogy to free adjectives in *-al* (appearing as first constituents in compounds such as *Nominalbildung* 'nominal-formation'/'nominal form'), the *-er* derivation in question would become completely incomprehensible, since the pattern [A+er] is synchronically unproductive.

## 1.2.

Given the evidence presented this far, it seems clear, then, that prefixes, unlike suffixes, are categorially unmarked – contrary to what Höhle's theory predicts. Moreover, there is a remarkable difference in selectional behavior: while it is typical for suffixes to impose categorial restrictions on the base words they combine with, with finer morphosyntactic restrictions being frequent (cf. *-bar* admitting only transitive verbs as base words, *-ität* only nonnative adjectives, *-wert* only nominal infinitives, etc.), prefixes are selectionally weak: nonverbal prefixes, as a rule, need not be specified any further<sup>13</sup>; additional morpho-syntactic base restrictions are exceedingly rare.<sup>14</sup> Given Höhle's theory, this difference in be-

havior comes as a surprise; one would have expected, if not predicted, exactly the opposite.

This is not to deny that prefixes display some of the properties of normal words and suffixes – they, too, have sound form and meaning, [ $\pm$ native] is a relevant subcategorization feature, just as with suffixes there exist intermediate cases between prefixes and words ("affixoids"), etc. But this cannot make up for the lack of the categorial properties which is crucial. While suffixes are (also) words, prefixes are (only) morphemes. I have no explanation to offer for this asymmetry, only an additional observation that might perhaps be pertinent: in 'semi-motivated' compounds (these are compounds such as *Himbeere* 'him-berry'/'raspberry', *kunterbunt* 'kunter-coloured'/'multicoloured', *Stiefmutter* 'stief-mother'/'step-mother' where only one constituent occurs freely in the same meaning, the other being more or less a 'cranberry morph' without a lexical category), the constituent that is categorially unmarked usually occurs initially. Rightmost appearance of cranberry morphs in compounds is at least extremely rare<sup>15</sup>.

## 2. RE (HA2)

(HA2) corresponds to several passages in Höhle's paper where he explicitly states that "that which the distinction composition/derivation correctly emphasizes, [. . . is nothing but] the differentiation of free and bound morphemes" (p. 334, cf. p. 319, 324). That this is a bit of an overstatement of what he really means, can be inferred from the format of the lexical entries typically attributed to affixes (cf. p. 325):

- |     |   |                 |
|-----|---|-----------------|
| (4) | PhC: <i>ung</i>   | PhC: <i>bar</i> |
|     | CC: [X°V[N—]]   | CC: [X°V[A—]]   |
|     | LC: . . .   | LC: . . .       |
|     | (PhC, CC, LC: phonological, categorial, logical characterization) |                 |

The categorial characterization shows that affixes are not only defined as being bound, but also as being productive, which is implied by stating the restriction in terms of category symbols. That this is a necessary part of the definition is shown by the examples in (5) in which one would not want to classify the bold-faced bound elements as affixes. What distinguishes them from real affixes is obviously the fact that they do not combine productively with other morphemes, that is, they are not series forming elements.

(5a) *Pausbacke*'*paus-cheek*'/'chubby cheek'

<i>glimpflich</i>	'glimpf-ly'/'without much harm'
<i>klammheimlich</i>	'klamm-secret'/'very secret'
<i>Tausendsassa</i>	'thousand-sassa'/'jack-of-all-trades'
<i>unwirsch</i>	'un-wirsch'/'disgruntled'

(5b) <i>Fanatiker</i>	'fanat-iker'/'fanatic'
<i>neurotisch</i>	'neurot-isch'/'neurotic'
<i>Kosmo-naut</i>	'cosmo-naut'
<i>Unsympath</i>	'un-sympath'/'disagreeable person'

Höhle does not discuss cases such as these, but it is clear how the difference between these elements and real affixes would, if necessary<sup>16</sup>, be reflected in the respective lexical entries: the restriction to be expressed in the CC of *Pausbacke* etc. would be stated in terms of the one or few elements the bound constituent may combine with. Hence, taking (HA2) to mean essentially that the distinctions in question are entirely reducible to independent lexical information, cases such as (5) do not pose any problems.

I shall assume in the following, then, that the bound elements in (5) which have a lexical entry are roots just like freely occurring words. In terms of the classificatory possibilities offered by Höhle's lexical entries this amounts to drawing the line between roots and affixes in the following way: roots are defined by the lack of categorial (=category-specific) restrictions on the X<sup>o</sup>-level, affixes by their existence.

But, taking the following evidence into account, this definition becomes untenable.

## 2.1.

On the one hand, there are elements that are bound as well as productive, and yet cannot be readily classified as affixes, cf. (6)<sup>17</sup>:

(6a) <i>Euro</i>	(-Rakete, -Kommunismus, -Dollar, -strategisch)
'euro	(-rocket, -communism, -dollar, -strategic)'
(6b) <i>Öko</i>	(-Bewegung, -Markt, -Welle, -Laden)
'öko	(-movement, -market, -wave/'craze', -shop)'
(6c) <i>Polit</i>	(-Clown, -Szene, -Rocker, -Theater)
'polit	(-clown, -scene, -rocker, -theatre)'
(6d) <i>Tele</i>	(-Brief, -Kommunikation, -Spiele, -kratie)
'tele	(-letter, -communication, -games, -cracy)'

The reason is the same as in the case of *Kunst*-, *Sonder*-, *Zusatz*-, (cf. §1.1.2.): *Euro*-, *Öko*-, *Polit*-, *Tele*-, have the same meaning as the respec-

tive full words *Europa/europäisch* 'Europe/European', *Ökologie/ökologisch* 'ecology/ecological', *Politik/politisch* 'politics/political', *Television* 'television', hence are allomorphs of roots, hence must be roots themselves.

If this status assignment is correct, and, moreover, useful (cf. below §3), then (HA2) is directly refuted: There are no independently justified lexical means to distinguish between affixes and roots, when the latter are bound as well as productive; an additional distinctive feature, [ $\pm$ affix] or the like, has to be stipulated. A possible solution may be available in cases such as *Euro*-, *Öko*-, which, if derived by the productive word formation process of 'clipping', will not have to have a lexical entry of their own. But this escape route is clearly not open for cases such as *Polit*-, *Kunst*-, *Sonder*- etc.<sup>18</sup>

## 2.2.

On the other hand, there are also free elements, i.e. roots, that may be productive, i.e. form a series; cf. (7)<sup>19</sup>:

(7a) <i>Haltestelle</i>	'stop-e-place'/'stop'
<i>Wartestelle</i>	'wait-e-place'/'waiting place'
<i>Filmprüfstelle</i>	'film-inspect-place'/'film censorship board'
(7b) <i>Zeitungsman</i>	'newspaper-s-man'/'news-agent', etc.
<i>Milchmann</i>	'milk-man'
<i>Müllmann</i>	'garbage-man'
(7c) <i>Drogenszene</i>	'drug-n-scene'/'drug scene'
<i>Politszene</i>	'polit-scene'/'political scene'
<i>Hausbesetzerszene</i>	'house-occupier-scene'/'squatters scene'
(7d) <i>Krawattenmuffel</i>	'tie-n-grumbler'/'somebody who does not like ties'
<i>Sexmuffel</i>	'sex-grumbler'/'somebody who does not like sex'
<i>Morgenmuffel</i>	'morning-grumbler'/'somebody who does not like the morning'
<i>Fernsehmuffel</i>	'TV-grumbler'/'somebody who does not like TV'

Cases such as these confirm, first of all, the result of §2.1, which reduces productivity and bound occurrence to redundant features, predictable from the presence of [+affix]. At the same time, however, they bring to light a much more fundamental problem. If, as is the case within Höhle's approach, category-specific selectional restrictions are the only means of describing the productivity of an element, the productivity of free

elements such as in (7) cannot, in principle, be accounted for. Since their productivity does not seem to differ in any way from that of affixes, or bound elements in general, one may well ask whether Höhle's version of the lexicalist approach will ever be able to do justice to relevant phenomena of word formation.

## 2.3.

Let us just note in passing the problem of synthetic compounds such as (8); cf. Höhle p. 346f.:

(8a)	<i>Viertaktmotor</i>	'four-rhythm-motor'/'four-cycle-motor'
	<i>Zweibettzimmer</i>	'two-bed-room'/'double room'
	<i>Langzeitwirkung</i>	'long-time-effect'/'long-term-effect'
	<i>Leichtlohngruppe</i>	'light-salary-group'/'low wage rate'
(8b)	<i>Dickhäuter</i>	'thick-skin-er'/'pachyderm'
	<i>Einzeller</i>	'one-cell-er'/'unicellular organism'
	<i>scharfzüngig</i>	'sharp-tongue-y'/'with a wicked tongue'
	<i>weitmaschig</i>	'wide-mesh-y'/'with wide meshes'
	<i>südländisch</i>	'south-land-isch'/'from the south'
	<i>altsprachlich</i>	'old-language-ly'/'of classical languages'
	<i>buntfarben</i>	'colourful-coloured'/'colourful'

As far as the differentiation of 'bound compounds' such as *Viertakt*, *Dickhaut*- etc. from normal prefixes is concerned, they pose no unsurmountable problems. Since the former "derive from productive word formation processes" (p. 351), they do not have a lexical entry of their own; this makes them sufficiently different from affixes. But relevant word formation processes of these initial constituents remain thereby unexpressed, indeed inexpressible. There is not only the so-called "distributional problem", mentioned by Höhle, i.e., that these compounds occur only in bound form, but also the fact that certain bound compounds may become productive – as is presently the case with *Langzeit/Kurzzeit* "long-term"/"short-term", *Großraum*<sup>20</sup> 'large-room'. Moreover, there exists a serious selectional problem in that 'bound-compounds' combine only with nouns and certain suffixes as second constituents<sup>21</sup>. Once again we are led to the conclusion that lexical entries may not be the appropriate instrument, at any rate not the only instrument, to describe all the phenomena of word formation proper.

## 3. RE (HA3)

In evaluating (HA3) we have to ask whether, how often, and in which components of the grammar the compound-derivation (root-affix) distinction is of any use. Höhle approaches this question by systematically examining many types of data that have been supposed to be relevant to this question in the literature, or are suggestive in this direction. Among them, there are, in particular

- semantic correlations (Are roots and affixes typically associated with different meaning types? Are they suitable as semantic nuclei? (p. 327f.))
- facts concerning inflection and lexical category (p. 334, 357)
- the distribution of strong and weak boundaries (p. 334-339), and phenomena related to it, such as
  - phonological phenomena dependent on boundaries,
  - distribution of linking elements,
  - coordination and deletion phenomena,
  - inheritance of syntactic arguments (p. 341ff.).

In the course of this examination many interesting isoglosses and a number of remarkable correlations come to light (cf. 334ff.), but nowhere does Höhle find any significant correlation to the compound-derivation distinction: wherever one starts looking, "one will find only similarities instead of differences" (p. 334). From this Höhle draws the conclusion summarized in (HA3): the distinction in question is irrelevant.

## 3.1.

Höhle's findings are extremely interesting and in no case without consequences, for the similarities between compounds and derivations, viz. roots and affixes must be accounted for. And this is only possible, if roots and the affixes in question are assigned equal status on the appropriate descriptive level, which means, given the nature of the above mentioned processes, if they are both characterized as words.

But concluding from this that the compound-derivation distinction is completely irrelevant means overshooting the mark considerably. First of all, Höhle uses only suffixal derivations in his argumentation; whether prefixal derivations would yield the same result, remains questionable.<sup>22</sup> Second, and more importantly, however, his investigation is incomplete: While Höhle examines practically all possible correlations outside word formation<sup>23</sup>, he completely neglects the possible correlations within this domain. Yet it is exactly in this domain, where evidence can be found indicating that the compound-derivation distinction may have linguistic significance.

## 3.2.

Remarkably enough, the distributional differences proper do not form part of this evidence, although, on first glance, they seem to be striking cases in point. It is immediately clear, for example, that suffixes

- combine, as a rule, only with first constituents of a certain categorial type (e.g. productive *-tum* only with nouns, productive *-ig* only with nouns and adverbs (decreasingly with verbs)),
- may impose subcategorial restrictions on the first constituents (*-bar*, for example, combines only with transitive verbs, *-sch* only with proper names, cf. *Gallisttsche Krankheit* ‘the Gallistl-*sch* disease’/‘Gallistl’s disease’),
- may exclude derivations ending in certain suffixes from the class of admissible bases (thus *-ig* excludes bases ending in *-heit*, *-keit*, *-nis*, *-ling*, *-schaft*, *-tum*, *-ung*, (Fleischer 1975:259); cf. also the distribution of *-heit/-ig)keit* (ibid.: 152)),
- may be sensitive to the complexity of the first constituent; cf., for example, *-e* with respect to adjectival bases, and again *-heit* vs. *-(ig)-keit*,
- select their bases according to their own status as [+native]; [-native] suffixes always require first constituents that are [-native] as well<sup>24</sup>, cf. (9):

- (9)
- |                     |  |
|---------------------|--|
| * <i>Frechitāt</i>  | ‘bold- <i>itāt</i> ’ (vs. <i>Frechheit</i> ‘bold-ness’)                    |
| * <i>zwingent</i>   | ‘force- <i>ent</i> ’ (vs. <i>zwingend</i> ‘force-ing’/‘compelling’)        |
| * <i>zeitwortal</i> | ‘time-word- <i>al</i> ’ (vs. <i>verbal</i> ‘verb-al’)                      |
| * <i>Grenziker</i>  | ‘border- <i>iker</i> ’ (vs. <i>Grenzer</i> ‘border-er’/‘border policeman’) |
| * <i>Sprachist</i>  | ‘language- <i>ist</i> ’ (vs. <i>Linguist</i> ‘lingu-ist’)                  |

Practically none of these right-to-left restrictions has an exact parallel in the domain of compounds, let alone in the subdomain of nominal compounds.

On second glance, however, these differences are fully compatible with Höhle’s theory. In his model, it is only the characterization of an element as a bound element that provides a basis for selectional restrictions. And since roots according to him differ from affixes exactly in the property of not being bound<sup>25</sup>, the theory practically predicts that roots will be selectionally free, whereas affixes need not be. Moreover, as for the impossibility of certain suffix sequences (*\*-heitig* etc.), the so-called weak boundary seems again to play an important role – in other words, the facts in question may not reflect a peculiarity of suffixes to begin with.

Approximately the same explanation seems to hold for the restrictions on order<sup>26</sup> and recursivity peculiar to suffixes as illustrated in (10-11). Upon examining them more closely they are again nothing more than reflexes of the lexical difference between affixes and roots just mentioned.

- (10a) *haushoch* (‘house-high’/‘very high’) – *Hochhaus* (‘high-house’/‘high-rise building’);  
*Fensterglas* (‘window-glass’) – *Glasfenster* (‘glass-window’);
- (10b) *-schaftlich* – *\*-lichschaft*;  
*-erin* – *\*-iner*;  
*-heitlich* – *\*-lichheit*;
- (11a) *Zinseszins* ‘interest-*es*-interest’/‘compound interest’  
*Geldbeutelbeutel* ‘money-bag-bag’/‘bag for purses’  
*\*Altertumstum* ‘age-*tum-s-tum*’ (*Altertum* ‘antiquity’)  
*\*Provinzlerler* ‘province-*ler-ler*’ (*Provinzler* ‘provincial’)  
*\*rötlichlich* ‘red-*lich-lich*’ (*rötlich* ‘reddish’)
- (11b) *Krankenkassenkostendämpfungsgesetz*  
‘sick-fund-costs-damping-*s*-law’  
‘law for insurance policy cost control’  
*Krankenkassenkostendämpfungsgesetzesentwurf*  
‘sick-fund-costs-damping-*s*-law-*es*-plan’  
‘plan for a law for insurance policy cost control’  
*Krankenkassenkostendämpfungsgesetzesentwurfsberatung* . . .  
‘sick-fund-costs-damping-*s*-law-*es*-plan-*s*-debating’ . . .  
‘debate on the plan for a law for insurance policy cost control’

## 3.3.

Höhle’s theory more or less leaves open the kind of selectional restrictions that bound elements may impose. Since there are in some cases morphological restrictions, e.g. against complex base words, the next obvious question is whether there are suffixes discriminating between compounds and suffixal derivations as possible bases.

Again, the results are compatible with (HA3); for whenever compounds are admissible bases, so are suffixal derivations and vice versa.<sup>27</sup> While it is true that certain types of suffixal derivations may not be used as the base words of certain suffixes, these restrictions, though frequent, may always be handled by listing the types in question, i.e. without employing a specific [+affix] feature for these elements.

It still remains a remarkable fact, though, that this kind of base restriction should always rule out [X+suffix] formations, never compound formations, no matter whether the word-final root is bound or free, productive or not<sup>28</sup>. Even though it is unclear whether, and if so, where this



fact should be accounted for in the grammar, it is obvious that nothing in Höhle's theory leads us to expect it. Equally unexpected is the distributional difference between compounds and suffixal derivations with respect to synthetic formations: While these formations are extremely productive with so-called 'bound compounds' as their first constituents, bound suffixal derivations are practically non-existent, and even ad hoc formations of this kind such as *feiertümlich* (Fleischer 1975:268; the basis *Feiertum* 'celebration-tum', though a possible derivation in *-tum*, does not occur freely) are exceedingly rare.<sup>29</sup>

## 3.4.

Furthermore, there is a remarkable positional difference between roots and affixes that is unpredictable in Höhle's theory. Within complex words, a root may, in principle, occupy all positions, whereas affixes are positionally fixed, i.e. they occur either in initial or in final position, but not in both. This difference cannot be explained away by appealing to the fact that suffixes are bound as well as productive, for bound roots (cf. §2, 2.1) as well as productive free roots are, in principle, positionally free, cf. (12-13):

- (13a) *Traum-ergebnis/-frau/-note/-job/...* - *Kindertraum*  
 'dream-result/-woman/-grade/-job/...' - 'child-er-dream'  
 "fabulous result/woman/grade/job"... - "children's dream"
- Szenen-sprache* - *Drogen-/Literatur/-...-Szene*  
 'scene-n-language' 'drug-n/literature/-...-scene'  
 "slang currently used  
 in the scene"
- (13b) *Intensiv-station/-kurs/...* - *kosten-/leistungs/-...-intensiv*  
 'intensive-station/-course/' 'costs-/achievement-s/-...-intensive'  
 "intensive care "crash- "costly", "high-performance..."  
 unit course"
- Marathon-sitzung/- Klinge/...* *Gipfel-/Agrar/-...-marathon*  
 'marathon-meeting/-blade/' 'summit-/agrar/-...-marathon'  
 "very long, "very durable "very long sum-, "very long meeting  
 meeting" blade" mit conference" on agricultural affairs"

(13b) shows at the same time that a root may become productive in the initial as well as the final position. I do not see any reason why this could not likewise happen to a bound root such as *polit*. In contrast to what is implicitly assumed in the literature, this seems to suggest that productivity may not be a property of elements-in-(first/last)-position, but of ele-

ments as such. A case in point may be provided by *Killer*, which in present-day German has become a more and more popular constituent of compound words (Carstensen 1981:17), without preferring one position over the other: *Schmerzkiller* 'pain-killer', *Killersatellit* 'killer-satellite'/'satellite that kills', *Beamtenkiller* 'civil servant-n-killer'/'person killing civil service jobs', *Fleckenkiller* 'stain-en-killer'/'stain remover', *Killerkrebs* 'killer-cancer'/'cancer that kills', *Killerphrase* 'killer-phrase'/'phrase a killer uses', etc.

Hence in describing the fact that affixes are positionally fixed we cannot avoid using a special feature [+affix] for the elements in question, cf. (14). Replacing [+affix] by 'bound' and/or 'productive' renders (14) invalid. The same goes for (15), which is a reformulation of (14) taking into account the results of §1.

- (14) Elements with the feature [+affix] always and exclusively have selectional restrictions going in the same direction.  
 (15) Elements with the feature [+affix] always and exclusively have selectional restrictions pertaining to the lefthand environment.

Since (14) and (15) respectively, considerably restrict the form of possible lexical entries for affixes, an adequate grammar should be able to account for this generalization. Since this will necessarily involve acknowledging the feature [+affix], (14-15) provide a first argument against (HA3).

As for roots, the existence of positionally fixed elements (*Euro-*, *Öko-*, *fanat-*, etc., cf. §2) makes it impossible to formulate an equally interesting restriction on the form of possible lexical entries. But there remains an important difference between positionally fixed roots and affixes: While roots may lose this property by word formation processes, cf. (16) for representative recent examples,

- (16) *Multi* (cf. *multinational* 'multi-national') "multinational company"  
*Chaot* (cf. *chaotisch* "chaot-isch") "person that is chaotic and/or wants or causes chaos"  
*Unsympath* (cf. (12))  
*Eppler-Ökos* (cf. (6b)) SPIEGEL, 5/17/1982:18 "supporters of Eppler sympathizing with (his version of) the ecologist movement"

affixes never do<sup>30</sup>; formations such as *\*ein Mords* (from *ein Mordskerl* 'a murder-s-fellow'/'a devil of a fellow') are apparently ruled out by a generalization roughly along the lines of (17).

- (17) Only words with the feature [-affix] may be positionally 'unfixed' by word formation processes. Words with the feature [+affix] participate only in processes that are position preserving<sup>31</sup>.

Again, it is impossible to reformulate (17) doing without the [ $\pm$  affix] feature. Hence, (17) provides a second argument against (HA3).

## 3.5.

The most important arguments against (HA3), however, may be found when considering productivity phenomena and the rules accounting for them:

## 3.5.1.

The compositional theory of affixation implies that compounds and affixal derivations of the same type, e.g. [N+N], are in principle subject to the same word formation rules. This does not rule out the possibility that affixal derivations obey additional restrictions the structurally parallel compounds are not subject to, but it cannot be the other way around, for only the lexical entries of affixes provide a basis for expressing these restrictions. Thus, we may take the compositional theory of affixation to predict that all possible structures of affixal derivations will also be possible structures of compounds belonging to the same type but not necessarily vice versa.

This prediction is no doubt fulfilled by types such as [N+N], [V+N], where the respective compounding processes are practically unrestricted. But this is not the case with the [A+N]-type. The formation of [A+N] compounds is severely limited by morphological as well as semantic restrictions on possible first constituents, for neither (native) suffixed adjectives nor evaluative adjectives may appear in this position, and, in particular, there are no evaluative person names of that type (cf. Fleischer 1975:84f., 89f.; 1978:82), cf. (18-19). Moreover, the process of [A+N] compounding is not overly productive (even within the limits described). The formation of [A+N] suffixal derivations, however, is subject to neither of these limits, cf. (18'-19'), and some of the nominal suffixes taking adjectival bases are extremely productive, cf. especially *-heit*/*-(ig)keit*.

- |       |                           |  |
|-------|---------------------------|--|
| (18)  | <i>*Farbigdruck</i>       | 'color-y-print'/'colourprint'                  |
|       | <i>*Pflanzlichkost</i>    | 'plant-ly-diet'/'vegetarian diet'              |
|       | <i>*Bargeldlosverkehr</i> | 'cash-less-transfer'/'cashless money transfer' |
| (19)  | <i>*Feigmann</i>          | 'cowardly-man'/'coward'                        |
|       | <i>*Primitivperson</i>    | 'primitive-person'                             |
|       | <i>*Wüstkerl</i>          | 'depraved-guy'/'rake'                          |
| (18') | <i>Farbigkeit</i>         | 'colour-y-keit'/'state of being coloured'      |
|       | <i>Herrlichkeit</i>       | 'man-ly-keit'/'glory'                          |
|       | <i>Bargeldlosigkeit</i>   | 'cash-less-igkeit'/'state of having no cash'   |

- |       |                     |                                     |
|-------|---------------------|-------------------------------------|
| (19') | <i>Feigling</i>     | 'cowardly-ling'/'coward'            |
|       | <i>Wüstling</i>     | 'depraved-ling'/'rake'              |
|       | <i>Primitivling</i> | 'primitive-ling'/'primitive person' |

This shows that, contrary to Höhle's theory, the process of composition and suffixal derivations may follow different rules, and may also use them with marked differences in frequency. It goes without saying that this difference can only be described by distinctively characterizing the second constituents of complex words as roots vs. affixes.

## 3.5.2.

There is, moreover, a fundamental difference between the types of restrictions the processes of composition vs. affixal derivation may be subject to. As to the latter, restrictions have to be formulated in terms of the individual affixes: the restrictions imposed by *-bar* are different from those imposed by *-haft*, *-ig*, or *-wert*; we do not find any significant generalizations concerning affixes of the same categorial status. With composition, however, it is exactly the opposite: Individual elements occurring in second position, such as *-haus* 'house', *-blau* 'blue', etc., never impose systematic restrictions on possible first constituents, in other words, all existing restrictions have to be formulated in terms of the category to which the second constituent belongs. Thus, for example, N's may not combine with suffixed A's in first position, [V+V] compounds are rare, 'bound compounds' never occur before A, etc. etc. While this confirms the result of §3.5.1. the implications are much more far-reaching: Since, in Höhle's theory, restrictions on word formation processes can only be captured by means of lexical entries for individual elements, the typical restrictions on compounding cannot, in principle, be accounted for.

The situation does not improve by having the independently necessary lexical feature [ $\pm$ affix] at our disposal, for this feature still characterizes individual items, not lexical classes N, A, V, etc. Therefore, the conclusion already suggested by the problems that productive free roots pose for Höhle's theory (cf. above, §2.2.)<sup>32</sup>, now has become inevitable: There must exist a different, or, at least, a second grammatical device by which word formation rules and the corresponding restrictions can be formulated.

Contrary to (HA3), we have found, then, at least one fundamental difference between the formation of compounds and affixal derivations. That it should involve the central aspect of creativity, is surely no accident, since Höhle's theory seems to be primarily concerned with word structure rather than with word formation. (How and why this distinction has to be made, will become clear later on, cf. §4).

## 3.6.

Let us note in passing two additional types of data that might yield further arguments against (HA3). On the one hand we notice that the existing "functional groups" ("Funktionsgemeinschaften" – groups formed by morphemes with identical semantic function which figure and interact in different ways in word formation) seem to operate only affix-internally.<sup>33</sup> On the other hand, it can be readily observed that languages have decided preferences as to word formation types. Latin clearly prefers affixal derivation over composition (Buck, 1963: 354), while in German, composition has become by far the most popular means of word formation. Composition is also a prominent word formation type in English, whereas French continues the Latin tradition, composition, however, being undoubtedly on the rise (Rohrer 1976:215). If the difference between root and affix were in fact nothing but a lexical idiosyncrasy, such distributions would be totally unexpected, for they seem to presuppose an implicit awareness of composition vs. derivation as being distinct, autonomous processes.

This seems to suggest again, pending of course further analysis, that the composition-derivation distinction is much more fundamental than (HA3) would allow for.

## 4. RE (HA4) AND (HA5)

It is already clear from § 1 that (HA4) has to be modified: prefix formations have an internal structure [ $X^{\circ} \varphi Y^{\circ}$ ] that cannot be generated by the phrase structure rules at all (cf. also Höhle, p. 322). Whether this is the only structural exception to (HA4), is much too complex a question to be investigated here in full. I shall therefore limit the following discussion to so-called "derivations without affix", which, according to Höhle, yield a particularly persuasive argument for the compositional theory of affixation, showing that they must necessarily have the internal structure this theory predicts them to have (p. 358-362).

## 4.1.

In view of the compositional regularity (3), Höhle's theory implies that there are no words having the structure [ $X^{\circ}[Y^{\circ} \varphi]$ ]. Thus, for affixless derivations such as *Tritt* "kick, step" (from *tret-* "(to) step") constituent structures such as (20a) are ruled out. (20b,c) are both, in principle, admissible structures, but since (20b) is based on the dubious assumption of zero suffixes<sup>34</sup>, this leaves (20c) as the only structure conforming to Höhle's compositional theory of affixation.

(20a) [ $N[Vtritt]$ ] b) [ $N[Vtritt][N\emptyset]$ ] c) [ $Ntritt$ ]

If this is true, suffixal derivations differ from suffixless derivations in internal structure in that only the derivational base of the former is categorically marked, cf. the contrasting deverbal examples in (21):

(21a) [ $N\text{unter} \widehat{\text{schied}}$ ] b) [ $N[V\text{unter} \widehat{\text{scheid}}][N\text{ung}]$ ]  
(from *unterscheid-* "(to) distinguish")

(Höhle p. 362)

Affixal and affixless derivations differ also in stress pattern. In the latter, the main stress falls on the initial syllable, if possible, and in the former, on the stem, if possible<sup>35</sup>. Concerning these stress patterns, Höhle points out that, first of all, they are category specific, with initial stress being typical of nouns and adjectives, and stress on the stem being typical of verbs (p. 359); and, second, that as for constituents of complex words, the relevant category label for stress assignment is that of the constituent itself, not of the complex whole (ibid.). These facts provide compelling evidence for the correctness of (21), Höhle argues, for if *Unterschied* had a different structure, say (20a) or (20b), it would, by virtue of the immediate category label V, have to be stressed on the stem, which it is not, and if *Unterscheidung* had a different structure, say [ $N\text{Unter} \widehat{\text{scheidung}}$ ], it would have to carry the initial stress typical of nouns, which it does not. Thus, (HA4) seems to be true for a significant class of cases.

On first sight, Höhle's argument is convincing, the more so since derivations from *zurück* verbs provide supporting evidence: While *zurück* ("back", "re-") remains intact in suffixal derivations, it is replaced by *rück-* in suffixless derivations, cf. the action nominalizations in (22a) vs. (22b):

(22a)	<i>Zurückweisung</i>	(from <i>zurückweis-</i> "(to) reject")
	<i>Zurückdrängung</i>	(from <i>zurückdräng-</i> "(to) push back")
	<i>Zurücklegung</i>	(from <i>zurückleg-</i> "(to) put back", etc.)
(22b)	<i>Rückgang</i>	(from <i>zurückgeh-</i> "(to) decrease", "recede", etc.)
	<i>Rückkehr</i>	(from <i>zurückkehr-</i> "(to) return")
	<i>Rückzug</i>	(from ( <i>sich</i> ) <i>zurückzieh-</i> "(to) retreat")
	<i>Rücktritt</i>	(from <i>zurücktret-</i> "(to) resign")

Again, the distribution of *rück* vs. *zurück-* is category specific: *rück-* is typical of nouns, *zurück* typical of verbs (cf. Öhmann 1944, Fleischer 1975:312), and there can be no doubt that the complex words in (22b)

are in fact derived from the corresponding *zurück* verbs. Again, the distribution (22a) vs. (22b), in particular the total absence of *zurück-* from affixless derivation, can be explained only if we posit internal structures such as those illustrated in (21).<sup>36</sup>

On examining the consequences of this analysis more closely, however, a number of serious problems<sup>37</sup> become evident: The first problem involves the internal structure of affixless derivations. Deverbal nouns of this kind may be derived from simple as well as complex bases, cf. *Griff* "grip" (from *greif-* "(to) seize"), *Stau* "(traffic) jam" (from *stau-* "(to) pile up", etc.), *Treff* "rendez-vous", "meeting-place" (from *treff-* "(to) meet"), *Betreff* "reference" (from *be-treff-* "(to) refer to"), *Zerfall* "desintegration" (from *zer-fall-* "(to) fall apart"), *Ausbruch* "outbreak" (from *aus-brech-* "(to) break out"), *Heimkehr* "home-coming" (from *heim-kehr-* "(to) come home"), *Unterschied* "distinction" (from *unter-scheid-* "(to) distinguish"), *Widerruf* (from *wider-ruf-* "(to) revoke"), etc. The respective complex verbs are no doubt internally structured, the structure being [<sub>V</sub>[<sub>VZ</sub>aus][<sub>V</sub>brech]], [<sub>V</sub>[<sub>γ</sub>be][<sub>V</sub>treff]], [<sub>V</sub>[<sub>p</sub>wider][<sub>V</sub>ruf]], [<sub>V</sub>[<sub>p</sub>unter][<sub>V</sub>scheid]], or the like<sup>38</sup>. What happens to this structure in the course of affixless derivation? According to Höhle's theory it must disappear, for [<sub>N</sub>[<sub>V</sub>[<sub>p</sub>wider][<sub>V</sub>ruf]]] as well as [<sub>N</sub>[<sub>p</sub>wider][<sub>V</sub>ruf]] are, by his lexicalist standards, clearly impossible structures. But how and, on the other hand, why should it be gotten rid of? Note that we cannot evade the problem by calling into question the productivity of affixless derivations from complex verbs, for as long as the cases in point are fully motivated, as many of them are, they fall into the domain of Höhle's analysis, no matter whether they follow a productive pattern or not. Moreover, even if all cases in question were lexicalized, idiosyncratic properties making it impossible to generate them by phrase structure rules, we should still be able to express the relevant structural generalizations pertaining to them. *Be-*, *ent-*, *er-*, *zer-*, *ver-*, for example, occur only as immediate constituents of verbs, nouns and adjectives beginning with these prefixes being always analyzable as deverbal derivations. This is also true for the respective affixless derivations such as *Betreff*, *Zerfall*, which, moreover, seem to be restricted to *be-*, *ent-*, *er-*, *zer-*, *ver-* verbs that are, themselves, deverbal. In order to express these facts (via redundancy rules) we shall be forced to assign exactly the structures to affixless derivations that Höhle's theory disallows<sup>39</sup>.

The second problem shows up when we compare the description of affixal derivation patterns with that of the affixless formation patterns, which are illustrated in (23)<sup>40</sup>:

- (23a) V→N :  
*Schau* "show" (from *schau-* "(to) look, see"),  
*Griff*, *Stau*, *Treff*, *Betreff*, ... (see above)

- (23b) N→V :  
*bagger-* "(to) excavate" (from *Bagger* "excavator")  
*öl-* "(to) oil" (from *Öl* "oil")  
*barzel-* "(to) behave like (from the proper name *Barzel*)  
 Barzel"
- (23c) A→V :  
*bleich-* "(to) bleach" (from *bleich* "pale")  
*schwartz-* "(to) blacken" (from *schwarz* "black")  
*glätt-* "(to) smooth" (from *glatt* "smooth")  
*weit-* "(to) widen" (from *weit* "wide")
- (23d) V→A :  
 \_\_\_\_\_
- (23e) A→N :  
*Gut* "(the) good" (from *gut* "good")  
*Naß* "water" (from *naß* "wet")  
*Rot* "(the) red" (from *rot* "red")  
*Deutsch* "German (language)" (from *deutsch* "German")
- (23f) (N→A) :  
*angst*, cf. *mir ist angst* "I am frightened" (from *Angst* 'fright')  
*klasse*, cf. *er ist ein klasse Tennisspieler*  
 "he is a marvellous tennis-player" (from *Klasse* 'class')

The descriptive categories to be used are obviously the same:

- Just as with affixal patterns, the affixless types may differ in productivity. E.g., the type illustrated by (23f) is practically unproductive today, likewise (23e), with the exception of deadjectival words for colours and languages. Type (23b), on the other hand, is clearly productive, and so are, although to a much more limited degree, the patterns (23a,c), at least with simplex bases.
- Just as with affixal patterns, the derivational relationships in affixless types are 'oriented', as can already be inferred from the difference in productivity between (23a) and (23b), or (23c) and (23d).
- There is no difference in the type of base restrictions: The categorial restrictions are just as constitutive for the affixless types as they are for affixal patterns, but again, noncategorial restrictions, such as the restriction to simplex bases mentioned above, are nothing unusual.
- Neither is there a significant difference in the semantic patterning: Just as an affixal type may be associated with several semantic subtypes, cf. the various semantic series formed by adjectives in *-ig*, so may an affixless type, cf. (23b), which collects instrumental, ornative,

locative verbs among others, or (23c), the members of which may be inchoative or causative, etc.

- Even the inflectional properties of affixless derivations seem to be (almost) as predictable as in the case of affixal derivations, the determining factor being the categorial nature of the base. Thus, confining ourselves to nominal derivations, where there is an inflectional choice, we note that deadjectival nouns are neuter and follow the strong declension; deverbal nouns, at least if they belong to the productive subtype taking simplex bases, are masculine, follow the strong declension, and, as a rule, take the plural allomorph -s (cf. *Treff*, *Schwenk* "pan (shot)", *Dreh* "twist", *Stau*)<sup>41</sup>.

These parallels seem to be incompatible with a theory such as Höhle's, in which the difference between affixal and affixless derivation is made out to be fundamental (cf. also p. 362). This contradiction can be resolved, to be sure, by distinguishing carefully between aspects of 'word structure' and 'word formation' proper. Höhle's claim concerning the fundamental difference between the two types of derivation is apparently aimed at 'word structure', while the parallels described above involve more or less aspects of word formations proper, hence have no (immediate) bearing on Höhle's claim. But granting this, as I think we should, amounts to also admitting that Höhle's theory is much more limited than it at first appears (cf. also (HA5)), for there is no way in the theory, as it stands, to account for the aspects of word formation characteristic of affixless derivations. The formal means that are available in the case of affixal derivations are out of the question, since there are, by definition, no affixes, hence no lexical entries; and the ensuing question how these facts could otherwise be accounted for in the lexicalist model, has by no means a ready, let alone an obvious solution<sup>42</sup>. Only one thing is clear: As long as affixal derivation is conceived of in the way it is in Höhle's theory, there can be no description of the word formation aspects of affixless derivations compatible with this theory through which the parallels to affixal derivations are brought out.

#### 4.2.

Summing up the discussion of 4.1, we have seen that, as far as affixless derivations are concerned, a) word structure does not in any way reflect the process of word formation; b) the descriptive devices provided by the strictly lexicalist theory fail to account for the relevant aspects of word formation. The situation is probably the same in the case of the 'clipping' pattern, which is by no means marginal. In other words (HA5) cannot be valid for the whole domain of word formation.

Does this, by itself, constitute a conclusive objection against a strictly lexicalist description of composition and (affixal) derivation? Since a modular approach to word formation (proper) is a feasible, and possibly necessary way beyond traditional divisions (cf. also Toman 1980), the answer is 'no' – as long as the strictly lexicalist description of composition and derivation works. But we have already seen (§3) that, contrary to (HA5), it does not work: Regarding compositional types, the only relevant aspect of word formation proper that can be accounted for is their productivity (via phrase structure rule (1)), but not the various restrictions it is subject to; just like the above mentioned aspects of affixless word formation (cf. (b)), they have to be described elsewhere in grammar. Remarkably enough, the discrepancy between word structure and word formation characteristic of affixless derivations (cf. (a)) is also not without parallel in the domain of compounds, cf. the examples in (24) (with the exception of *Hausmann* which has become lexicalized by now, they all are – attested – ad hoc formations):

- (24) *Hausmann* 'house-man'/'(male) house wife"  
*Vorschubrennesseln* 'advanced-stinging nettles'/'criticism in advance"  
*Geisterpferd* 'ghost-er-horse'/'horse going in the wrong direction on the autobahn"  
*Arbeitsbegräbnis* 'work-s-funeral' "funeral where business is transacted", "working funeral"

As to their structure, *Hausmann*, etc. are no doubt compounds. The relevant word formation process, however, is analogy, the analogy being based on single lexicalized items (*Hausfrau* "housewife", *Vorschublorbeeren* 'advance-laurels'/'praise in advance', *Geisterfahrer* 'ghost-er-driver'/'driver going in the wrong direction on the autobahn', *Arbeitsessen* 'work-s-meal'/'meal where business is transacted', "working-lunch"), which also, together with one or both of the apparent constituents, figure crucially in the semantic interpretation.

Given the possibility of modularization, it would seem natural to relegate cases such as these to an "analogical" component of word formation, thereby systematically restricting the strictly lexicalist description to that part of word formation which is rule-governed (cf. Toman 1980: 6f.). In drawing the line this way, one could also hope to get rid of the problem posed for (HA3) by productive free roots, since the new words formed by them usually have the close semantic ties to already existing words of the same form that are characteristic of analogical productivity.

I believe that this is the right course to take. But if so, this will further limit the empirical import of a lexicalist theory of word formation, for in

the domain of affixal derivation – no doubt a prime target of this theory – rule-governed word formation processes are rather the exception, analogical processes the rule. As has been convincingly shown by Motsch 1977, even a highly productive process such as adjective formation in *-ig* belongs to the latter category, a certain influence of categorial facts notwithstanding. As far as I can see, this is also the case for other highly productive types such as formations in *-ung*, *-bar*, *-isch*, *-heit*, *-er*, etc., at least if we confine ourselves to their nontranspositional functions. But then one might indeed wonder how large (or small) a domain of facts Höhle's theory is still going to cover: nearly everything treated under the heading 'compositional and derivational processes of word formation' seems to call for a non-lexicalist account.

### 5. CONCLUSION

The results of the preceding sections show that the compositional theory of affixation, if interpreted as a theory of word formation proper, is untenable: Neither of the assumptions (HA1) – (HA5) can remain without modification. If interpreted as a theory of word structure, there also remain problems. However, since they seem to be limited to (A1), the arguments against (HA2) – (HA4) leaving (A2) – (A4) unaffected, a 'compositional theory of suffixation' or, even better (taking into account the necessity of a lexical feature [ $\pm$ affix]), a 'word theory of suffixation' might still be maintained.

How the lexicalist theory has to be modified accordingly is a question I shall have to leave open. Neither do I know, apart from some vague ideas concerning the general direction<sup>43</sup>, what kind of theory might ultimately come to terms with the facts of word formation cited here that Höhle's theory was not able to account for. This is no doubt unsatisfactory – theories cannot, after all, be refuted just by facts, but only by better theories. In this sense, further deliberations on the subject matter are not only hoped but urgently called for.

### NOTES

1. Wherever mistakes are impossible, I shall refer to Höhle's article (Höhle 1982) throughout by just supplying page references based on the English version of his paper in this volume p. 319-376.

I owe a great deal of thanks to Tilman Höhle for a long and pleasant discussion of this reply to this article. Wherever possible his comments have been taken into account. As for the numerous issues that remain unsettled, I sincerely hope that he will take them up in a further rejoinder. [See now the clarifying notes added to the original version of this paper, in this volume.]

2. My use of the term 'root' is unorthodox: It is meant to cover not only simple lexical morphemes such as *Haus* 'house', but also complexes of lexical morphemes such as *Haustür* 'house door'/'front door'.

[2a. *Wortgebildetheit* 'word-formed-ness'/'word structure' vs. *Wortbildung* 'word-forming'/'word formation (proper)'] are the terms by which Dokulil (1968:205) aptly characterizes the 'analytic' vs. 'processual' aspect of word formation, without, however, clarifying their relationship. – It is one of the main defects of the present article that, apart from making obvious the 'reality' of this distinction, it does not provide a principled account for their relationship either.]

3. Höhle's approach is radically different from Aronoff's (1976), according to whom affixes are exponents of word formation operations. Differences in detail notwithstanding (e.g., concerning the treatment of zero suffixes and prefixes), there are, however, clear parallels to Toman 1980, Lieber 1981.

4. The few exceptions to (3) within the [+N] domain of word formation – formations in *ge-* (cf. *Gebrüll* 'ge-roar'/'roaring' etc., where the rightmost constituent of the noun is verbal) and perhaps also the compositional subtype *Berlin-West* – can probably be treated by just listing them as such. – Concerning the verbal domain of word formation, for which (3), on first sight, does not hold, cf. Höhle, p. 373, note 16.

5. The problem of zero affixes is taken up in § 4.

6. Cf. also Williams 1981:249. – Note that even if prefixes were only assigned an arbitrary category X (which would be sufficient for lexical insertion into structures generated by (1), the usual requirement on insertion being 'nondistinctness'), the problem of learnability would persist, there being no obvious linguistic motivation for setting prefixes apart by anything else but strong boundary symbols.

7. This is so because words may be formally or semantically related without necessarily having the same lexical category. Accordingly, the criterion 'similarity to free forms' generates the following types of unclear cases: a) semantic similarities of prefixes to several free forms having different categories (e.g. *knall-*, which may be grouped with [ $\sqrt{\text{N}}$ knall] 'bang' or with [ $\sqrt{\text{V}}$ knall] '(to)bang'); b) formal similarity without corresponding semantic similarity (e.g., *Heiden(angst)* 'heathen-n(-fright)'/ 'mortal (fright)'; *stock (konservativ)* 'stick(-conservative)'/ 'ultra(conservative)'); conflict between semantic and formal similarity: Is *Bomben-* (cf. *Bombenerfolg* "tremendous success"), *Höll-* (cf. *Höllengelärm* "tremendous noise"), *Riesen-* (cf. *Riesenerfolg* "tremendous success") *knall-* (cf. *knallrot* "glaring red") to be related synchronically to the respective nouns *Bombe* "bomb", *Hölle* "hell", *Riese* "giant", *Knall* "bang", or rather to the corresponding adjectives *bomb-ig* "huge", "tremendous", *höll-isch* "tremendous" "terrible", *ries-ig* "tremendous", "very big", *knall-ig* "glaring"? – In comparison to 'similarity to free forms', the semantic function taken over by the prefix (e.g., the typically intensifying function of *super-* 'super'/'hyper-'/'hyper'/'hoch- 'high'/'stink- 'stink'/'scheiß- 'shit', if applied to adjectives) might even be the overriding factor in category assignment (provided it takes place at all), relating prefixes to the lexical category parallel in function to the class of intensifying adverbs such as *sehr* "very", *überaus* "exceedingly", although these usually do not figure in word formation.

8. A few additional examples are listed in Fleischer (1975:49): *mißlich* 'dis-ly'/'awkward', and three formations from *ur-*'proto-' (*ur-bar* "cultivated", *ur-ig/ur-tüm-lich* "original", "earthly").

9. The only process in which these types of constituents take part, albeit in a restricted way, is coordination, cf. *Stachel- und Heidelbeeren* 'prick and heidel-berries'/'gooseberries and huckleberries'; *?Heidel- und Stachelbeeren* 'heidel-

and prick-berries/'huckleberries and gooseberries', \**Him- und später wachsende Beeren* 'him and later growing berries'/'raspberries and berries that grow later', *Stief- und Pflege-mütter* 'stief and care-e-mothers'/'step-mothers and foster-mothers', *?ebenso-paus- wie rotbäckig-* 'as-paus- as red-cheek-y'/'having-cheeks as chubby as they are red'. Nothing pertinent follows from this, however, since coordination on the X°-level does, in general, not presuppose categorial identity (cf. *E - und Teegeschirr* 'eat- and tea dishes'/'dinner ware and tea service', *ebenso rüpel- wie flatterhaft* 'as boor-as flutter-haft'/'(somebody being) as rude as (he is) flighty').

10. In: J. Bopp: *Vatis Argumente*. — In: Kursbuch 58 (1979), p. 1-20 passim.

11. Concerning this possibility, it should be especially interesting to investigate the relative chronology of the origin and development of the prefixoids *Bomben-*, *Höhle* p. 375) does not affect the redundancy rule in question.

12. From these standard cases I distinguish, on the one hand, formation types such as *Sympi* 'symp-y'/'sympathizer' (from *Sympathisant* 'sympathizer') or *Emanze* 'emanz-e'/'feminist' (from *Emanzipation* 'emancipation') that involve more than affixal derivation pure and simple, and, on the other hand, cases of analogical productivity which is semantically rather than categorially governed. This 'non-standard' domain seems to be so large, however, that the relevance of Höhle's theory might be called into question (cf. § 4.2 below).

13. While there are a few productive prefixes (such as *stock-*, *haupt-*, *ultra-*) that combine with either adjectives or nouns only, there seems to be (as I hope to show in another paper, in preparation) a still active tendency in German to extend all prefixes taking one type of nominal base to taking the other [+N] type as well.

14. Thus the prefix *a-* 'un-', which is of limited productivity, precedes only [-native] constituents. Note, however, that this does not constitute a base restriction in the proper sense, since the compositional regularity, by which also the [±native] feature of the right constituent is passed on to the whole, leads us to classifying the bases of cases such as *ahistorisch* ('ahistorical') as native, *-isch* not being a non-native suffix.

15. *Tausendsassa* 'thousand-sassa'/'jack-of-all-trades', *Jungfer* 'young-fer'/'spinster', *Schlauberger* 'sly-berger'/'smart aleck' are rare examples (even they, however, rather belong to the 'semi-motivated' compounds). — With affixal derivation, however, no such asymmetry occurs cf. *drollig* 'droll-y'/'funny', *tüchtig* 'tücht-y'/'competent', *emsig* 'ems-y'/'bustling' etc., on the one hand, and *unwirsch* 'un-wirsch'/'cross', 'disgruntled', *unbedarft* 'un-bedarft'/'simple-minded', *Ungetüm* 'un-getüm'/'monster', etc., on the other.

16. As noted in § 1, the bound morphemes of the type illustrated in (5a) do not have to be categorially marked, nor do they necessarily have separate lexical entries. Matters are, of course, different for nonnative cases such as *naut-*, etc.

17. I owe a number of examples to a seminar paper by M. Siebenkotten/G. Schönfelder, University of Cologne. — Cf. also Carstensen 1981:17ff.

18. Bound productive roots usually occur in initial position, so that the 'distinctive' problem concerns more or less only prefixes. It would immediately disappear, if — in accordance with § 1 — prefixes were not assigned a category label. It is, however, unclear, whether bound productive roots are really systematically excluded from second position: The *-muffel* pattern (*Krawattenmuffel* etc. (cf. (7d)), for example, was familiar to me before I got to know and to use the free noun *Muffel* 'grumbler', 'boor'.

19. Cf. also Vögeding (1981:72), to whom I owe a number of pertinent observations concerning § 2.

20. I owe this example to a seminar paper by M. Gust/M. Klinge, University of Cologne.

21. It is unclear to me whether these restrictions have to be formulated from left to right (being imposed by the 'bound compounds') or vice versa. Either option, however, gives rise to serious problems: On the one hand, 'bound compounds' have no lexical entries of their own; on the other hand, there are certain types of second constituents (for example *-ling*, *-haft*, adjectival roots in general) that systematically do not combine with 'bound compounds', although they combine easily with normal free compounds. I do not see how this could be described by means of the formal possibilities of lexical entries. Moreover, in view of the fact at least some of the so called 'bound compounds' seem to be systematically impossible as free compounds, cf. *\*Allwetter* 'all-weather', *\*Gutart* 'good-nature', *\*Hochkarat* 'high-carat' (vs. *Allwetter-kleidung* 'all-weather-clothes', *gutart-ig* 'good-natured', *hochkarät-ig (es Gold)* 'high carat (gold)'), one might well doubt whether analyzing synthetic formations in terms of 'bound compounds' can, in principle, be correct.

22. It is only in coordination and deletion processes (cf. also Höhle p. 355) that prefixes and roots seem to interact significantly; even there, however, there are notable restrictions, cf.:

- ?einerseits un-, andererseits hochzufrieden*  
 'on the one hand un-, on the other hand high-satisfied'  
 "dissatisfied on the one hand, highly satisfied on the other"  
*\*ungekonnt und -interessant*  
 'un-able and -interesting'  
 "incompetent and uninteresting"  
*\*Erz- und sonstige Katholiken*  
 'arch- and other catholics'  
 "archcatholics and other catholics"

The differences between prefix derivation and compounds seem, at any rate, more important: The typical intensifying and emotive functions of prefixes have, as far as I know, no parallel in first constituents of true compounds; prefixation may lead to relational nouns contrary to what the generalized compositional regularity predicts (cf. Fanselow 1981:141ff.), cf. *Hauptgericht* 'head-dish'/'main course', *Lieblingsgericht* 'darling-s-dish'/'favourite dish', while true compounds follow the compositional regularity in this respect. The most important difference is, of course, the categorial difference already discussed in § 1.

23. While some modifications are in order (as to typical semantic differences between roots and affixes cf. Plank 1981:15ff.) and some of these correlations still await closer investigation (e.g., those concerning stress patterns), Höhle's result does not seem to be significantly affected by them.

24. Since this selectional restriction (formulated from left to right) holds for all nonnative suffixes yielding [+N] words (cf. Fleischer 1975:189ff., 283), it is apparently systematic (cf. also Plank 1981:132). Occasional puns (*Benehm-ität* instead of *Benehm-en* 'behavior', *schauder-ös* instead of *schauder-haft* 'dreadful') and the few lexicalized exceptions such as *Flötist* 'flute-ist'/'flute-player', *Harfenist* 'harp-n-ist'/'harpist' do not provide serious counterexamples, since the freely productive processes involving nonnative suffixes obey the above mentioned restriction in every case.

25. We leave aside for the moment the existence of bound roots, cf. § 2.

26. Cf. Schultink 1980; Plank 1981, too, is a mine of pertinent facts and ideas (cf. especially chapter 3, p. 127ff.). — Unfortunately, a thorough study of the ordering regularities in question is still a desideratum for German.

27. This statement is based on a first examination of all derivational patterns yielding [+N] words listed by Fleischer 1975. Whether these patterns are equally productive with compositional and derivational bases still remains to be investigated.

28. Naturally, we are concerned here with systematic, i.e., grammatical restrictions only. (As to the well-known phenomenon that grammatically well-formed word formations may not be acceptable, cf. Motsch 1977:183ff.)

29. Since second constituents of true bound compounds may form a series (cf. *-farb(e)* "colour" in *lachs-/creme-/eierschalen-/...farben/farbig* 'salmon-/cream-/eggshell-/...-colour-en/y/' "salmon-coloured, ..."), the absence of bound suffix derivations cannot be easily explained away.

30. There are occasional free uses of affixes (*-zig Male*, 'ty times'/'umpteentimes', *all diese -ismen* "all these -isms", cf. Vögeding 1981:69). But *-zig* in this use is idiomatic, and since *-ismus* can by no means be freely inserted into N positions, it can hardly count as a properly derived word or noun respectively.

31. The normal affixation processes are, of course, always position-preserving. But so is, too, it seems, the diachronic process of suffix extension or suffix combination, cf. *-erei*, *-erisch*, earlier *-haftig*). (The only dubious case is, possibly, provided by the history of the *ge...e* affix).

32. Let us note in passing that there is another problem involving productivity that Höhle's theory, as it stands, cannot account for: There is a gradual transition between unproductive and productive elements, viz. elements forming no series and those forming (longer and longer) ones. Since this constitutes a significant part of the problem with 'affixoids', Höhle's claim that "the form of a lexical entry is flexible enough to capture precisely and adequately all the degrees of transition between bound and free morphemes, i.e., the transition between derivation and composition (often discussed in the literature" (p. 332) is only half justified.

33. Thus, there is no noticeable interaction between roots and affixes such as *Mann* "man", *Gerät* "equipment", "tool", "instrument" vs. *-er*, although they all are productively used in forming names for professions and instruments.

34. The problems connected with the assumption of zero suffixes within derivational morphology are well-known. Within lexicalist theory matters become worse, because affixes are considered to be on a par with words, and there simply are no words without some phonological realisation. — This has been overlooked by Tomaš (1980:§31f.), who claims that lexicalist theory confirms the hypothesis that the formations in question are derivations by a zero-morpheme.

35. There are a number of exceptions to this, for example the suffixal derivations in *-ei*, *-al*, which are always stressed on the suffix (cf. Höhle p. 359), or suffixless derivations form verbs starting with 'atonic' prefixes (*be-*, *ent-*, *er-*, *ver-*, *zer-*), this inherent atonic property winning out over the general stress rule for nouns, cf. *Betreff* "reference" (from *be-tréff* "(to) refer"), *Entscheid* "decision" (from *ent-scheid-* "(to) decide"), *Verschleiß* "wear (and tear)" (from *verschleiß-* "(to) wear out"), etc. — Note that, if this atonic property is deduced from the phonological shape of the prefix (the decisive characteristics supposedly being the presence of underlying *e*, cf. Kiparsky 1966:72), the stress rules must be able to identify prefixes as such, for bound first constituents like *Ren(tier)* "rein-deer", *Eben(holz)* 'ebony', *Eber(esche)* 'eber-ash'/'mountain ash', *Tele(kommunikation)* 'tele-communication' are always stressed.

36. If this description is accepted — as I think it should be — the participles and verbs exhibiting *rück-* (cf. *rückblickend* 'back-looking'/'in retrospect', *rückvergüt-* "(to) re-fund", *rückbild-* '(to) back form'/'(to) form a back formation" etc.) can be plausibly explained as back formations from the respective complex nouns.

37. There are also problems of factual detail. For example, deverbal derivations in *-e* exhibit the stress pattern typical of nominal constituents, cf. *Übernahme* 'over-take-e'/'takeover" (from *übernehm-* '(to) over-take'/'(to) take over"), *Übergabe* 'over-gift-e'/'delivery" (from *übergéb-* '(to)over-give'/'(to)hand over"), and they also choose the *rück* allomorph, cf. *Rückgabe* 'back-gift-e'/'return" (from *zurückgeb-* '(to) back give'/'(to) return"), *Rücklage(n)* 'back-put-e'/'reserve funds" (from *zurückleg-* '(to) back-put'/'(to) lay aside"). Since the derivational status of the *-e* is some what questionable, I am, however, quite certain that a solution in accordance with Höhle's theory can ultimately be found.

38. It does not matter at this point, whether the first constituents are correctly categorized or not; but as to VZ constituents cf. Höhle p. 351-356. — Höhle (pers. comm.) does not agree with the categorizations supplied in the text above, but, as far as I can see, the problems in question will arise no matter which categorization is chosen.

39. If no such redundancy rule were posited, we could not explain why there is not a single analogical formation with a purely nominal base (such as *\*Bekampf* 'be-fight', *Kampf* 'fight' being a simplex noun) among the nouns with initial *Be-*, *Ver-*, *Ent-*, *Zer-*, etc. Note that with verbal 'prefixes' that are stressable (i.e. the con-verbs, "VZ constituents" in Höhle's terminology) such analogical extensions are nothing unusual (cf. *Aufgalopp* 'up-gallop'/'trial gallop", *Abgas* 'away-gas'/'waste-gas", *Umweg* '(a)round-way'/'detour", etc., *Galopp*, *Gas*, *Weg* clearly being simplex nouns), although, in the absence of a detailed historical investigation of nominal vs. verbal prefixes, nothing further can be said on the difference to formations in *Be-* etc. — The possibility of directly deriving past participles in *be-* etc. (cf. also Höhle p. 357) does not affect the redundancy rule in question.

40. In my comments to (23a-f), I am following Fleischer 1975. — I am concentrating on clear cases of affixless derivation, thereby avoiding side issues such as the controversial boundary between this word formation type and so-called 'conversion' (as exemplified by nominalized infinitives, etc.).

41. The only exception I know of is *die Schau* "the show", for which, however, several innocuous explanations can be offered.

42. That there is a word formation process which consists in nothing but "re-categorization" is also acknowledged by Höhle, cf. p. 373, note 16. — A lexicalist theory of affixless derivation that could be consistent with Höhle's approach is presented by Lieber 1981.

43. Which is towards a non-compositional, 'holistic' approach, cf. Motsch 1977, and, in particular, Plank 1981.

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