

# Variable direction in zero-derivation and the unity of polysemous lexical items

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## Abstract

The adjective, noun, and verb *fett/Fett/fett* ‘fat’ in German are polysemous in each word class. The zero-derivational relationships that hold between them are described. The theoretical points are made (i) that, in cases of polysemy, individual senses rather than lexical items as a whole are involved in zero-derivation, and (ii) that, in this particular case, the direction of derivation differs depending on which of the senses are implicated, going from noun to adjective (SUBSTANCE to CONTENTIVENESS) or from adjective to noun (DIMENSION to STATE), and thereby precluding the designation of one lexical classification as basic *tout court*. The implication of such cases is that, with their individual semantic components so autonomous as to be alternately basic and derived in different morphological oppositions, ‘lexical entries’, categorised in terms of word class, cannot be the integral principal organising units of mental lexicons and dictionaries they are commonly taken to be.

## I Introduction

### I.1 Directionality

For languages where zero-derivation (or conversion) is a meaningful morphological concept, it is generally assumed that one lexical categorisation of derivationally related lexemes is basic and the other lexical categorisation is derived, however this asymmetry is implemented in a descriptive framework.<sup>1</sup> In lieu of formal complexity, semantic complexity is relied on as chief evidence for the direction of derivation, complementing and perhaps overriding whatever other considerations might be suggestive of asymmetry.

For example, in English, where noun and verb are solidly established as lexical classes, notwithstanding the ease of verbing nouns and nouning verbs, the noun *foot* and the verb

*foot* are not normally considered on a par, but the noun is assumed to be basic and the verb to be zero-derived from it: overall, *foot* occurs more frequently as a noun (as part of referring expressions) than as a verb (with predicating function); as a noun *foot* is inflectionally irregular (plural *feet*, with stem-vowel alternation) while as a verb *foot*, like all derivatives, is inflectionally regular (i.e., weak, with past and participle suffix /-ɪd/); and above all, the verbal senses of *foot* – ‘to traverse by foot’, ‘to move the feet to measure or music’, ‘to add up and set the sum at the foot of an account or bill, and settle the bill’ – can readily be defined in terms of the noun *foot*, invoking its senses ‘(lowest part, below the ankle, of) one of the paired body parts on which humans and other vertebrates stand and walk’ and, metaphorically derived, ‘lower or lowest part of something (anthropomorphic or otherwise)’, while it would require some ingenuity to define what *foot* means as a noun through what *foot* means as a verb. Conceivably, verbs of posture and movement COULD be invoked in defining the noun’s meaning: ‘body parts that a person or animal stand on and walk on’; but that would be different verbs, not verbs specifically meaning ‘to traverse’ or ‘to move to music’.

The other way round, *buy* occurs more frequently as a verb than as a noun; as a verb *buy* is inflectionally irregular (with the past and participle *bought* showing an irregular vowel alternation close to suppletion), while as a count noun *buy*, like all derivatives, is inflectionally regular (plural suffix /-(ɪ)z/); and above all, the nominal senses of *buy* – ‘act of buying’ (not the prototypical KIND of meaning for morphologically simple members of the word class of nouns, either), ‘something bought’ – are easily defined in terms of the verbal sense of *buy*, ‘to obtain in exchange for money’, while it would be more cumbersome to set out the meanings of the verb and the noun *buy* where the former are based on the latter; hence, *buy* is basically a verb and the noun *buy* is zero-derived from it.

With semantic complexity, whether paralleled by formal complexity or not, so critical for assumptions of asymmetry, there is the question of how independent it is of ontological commitments of a language, as they shape, and are perhaps shaped by, the word-class categorisations and the semantic profile of the basic vocabulary of the language in question. It is perhaps wise to exercise caution and not take for granted that what is semantically complex in one language is perforce semantically complex in all others, irrespective of the meanings of basic, morphologically simple lexical items and prototypical word-class meanings.

## 1.2 Senses

Directionality is not always determined as firmly and straightforwardly as for the English examples above, and seeming indeterminacies have sometimes occasioned doubts as to whether conversion is directional in the first place, in particular instances or for a language in general: with no asymmetries between the various syntactic uses of the basic units that grammar operates on (‘roots’), such protean forms would simply have to be recognised as being non- or pre-categorial, with directionality a matter of categorially specifying roots, not of altering lexical class.<sup>2</sup>

But derivational directionality may also pose a problem where lexical asymmetries can be established with some degree of conviction – a problem that has received less attention although it is no less serious, throwing doubt on standard assumptions about the integrity of lexical items (or lexemes). This problem, to be highlighted in the present paper, arises when the direction of derivations is different for the different senses subsumed under single polysemous lexical items. Where individual senses are sufficiently autonomous to be operated on independently by morphological rules, the assumption that lexical items are unitary, however polysemous, is called in question. On the standard assumptions of lexicologists, as standardly applied in practical lexicography, it needs more than polysemy (or more accurately less, namely homonymy, the lack of semantic relatedness) to be different lexical items. For example, the noun /bəɪ/ (spelled *bye*) is a different lexical item from the noun /bəɪ/ (*buy*) and the verb /bəɪ/ (*buy*), because its sense (that best known to cricketers), ‘a run scored for a ball that passes the batsman and the wicket-keeper’, is unrelated to the senses ‘act of buying’/‘something bought’ and ‘to obtain in exchange for money’ in anybody’s mental lexicon or published dictionary.

An actual case where derivational directions criss-cross intriguingly is provided by the adjective *fett* ‘fat’ and the noun *Fett* ‘fat’ in German. There is also a verb or two *fett-en* ‘to apply fat to’, ‘to become fatty’, but that is less of a challenge in relevant respects.<sup>3</sup>

## 2 FAT in German: adjective, noun, verb

### 2.1 Adjective FAT

While dictionaries usually give longer lists of senses under this entry, the German adjective *fett* is essentially only two-ways polysemous: it means (i) ‘large in bulk, owing to excessive fatty tissue (*vulgo* flesh)’, and (ii) ‘rich in fat content’ (i.e., in natural esters of glycerol and various fatty acids). People and animals, as well as their body parts, are the typical domains for this adjective with sense (i) (e.g., *ein fettes Schwein* ‘a fat pig’); with sense (ii) *fett* is typically attributed to or predicated of foodstuff (solid, liquid, or in between) (e.g., *ein fetter Schweinebraten* ‘a fat pork roast’).<sup>4</sup> Further senses or uses of *fett* are derived separately from these two: from ‘large in bulk’ (i) derive ‘boldface’, ‘of conspicuous size’, and ‘profuse in growth’; from ‘rich in fat content’ (ii) derive ‘nourishing; fertile’ and ‘lucrative’, with ‘fertile’ (< ‘rich in fat’) perhaps providing a link to ‘profuse in growth’ (as in *fette Weide* ‘fat pasture’), derivative of sense (i). A further sense, ‘marked by an accumulation of oily or greasy matter on the surface’, as in *fette Haut/Haare* ‘fatty skin/hair’ or *fettes Papier* ‘greasy paper’, is probably to be kept separate, though it has a closer affinity with (ii) than with (i).<sup>5</sup> In German teenspeak (*voll*) *fett* is one of the numerous intensifying (evaluational) adjectives, ‘very good, cool’: although presumably directly borrowed from English teenspeak, ‘(full) fat/phat’, it can be construed as derived from both (i) and (ii). Finally, there is a colloquial regional sense of *fett* used predicatively, ‘(very) drunk’, which is synchronically hard to derive from either (i) or (ii); *voll* ‘full’ is also used for ‘drunk’ in German, and a concept such as ‘plentiful’ perhaps offers a connecting link for those apprehensive of homonymy.

Though distinct, the two primary senses of *fett* are closely related: homonymy is out of the question. If a common meaning or *Grundbedeutung* is required for a lexical item, as in some approaches to lexical semantics, the contrast that has to remain underspecified in such an abstract semantic representation for *fett* in both its senses is to do with causality. ‘Large in bulk’ (i) falls under a more general type of property concept, DIMENSION/SHAPE/SIZE, and the particular property of ‘being rich in fat’ (ii), whatever property type it instantiates (perhaps CONTENTIVENESS/EFFICACY: PHYSICAL PROPERTY would seem overly general), can be construed as being in a relationship of cause of the effect of being of such DIMENSION/SHAPE/SIZE. In terms like those of Cruse (1986: 50), dissecting the global notion of polysemy, the relationship between the two primary senses of *fett* falls under the rubric of ‘sense change’ rather than ‘sense modulation’, while the senses separately derivative of the two primary ones are instances of ‘modulation’. In terms like those of Copestake & Briscoe (1995), the two primary senses are related by ‘sense extension’, while the derivative meanings are ‘contextual specialisations’.

The particular way in which the two primary senses of *fett* are semantically related is not unique: *fett*’s opposite, *mager* (cognate with English *meagre*), combines exactly the same kinds of meanings on the negative side (which is here probably the marked one), (i) ‘small in bulk, owing to a comparative lack of fatty tissue’ (DIMENSION/SHAPE/SIZE, English ‘lean, thin, meagre’), (ii) ‘containing little or no fat’ (CONTENTIVENESS/EFFICACY, English ‘lean’). Further adjectives could be adduced as also having a DIMENSION/SHAPE/SIZE sense and other senses related to it not too dissimilar from CONTENTIVENESS/EFFICACY as in the cases of *fett* and *mager*: *dick* and *dünn*, like their English cognates *thick* and *thin*, combine ‘of great/small extent between opposite surfaces, of large/small diameter’ with, among others, ‘of firm/slight consistency, more/less potent’ (e.g., *dicke/dünne Suppe* ‘thick/thin soup’); unlike its DIMENSION opposite *breit* ‘wide’, *schmal* (whose English cognate is *small*) combines ‘of small width in proportion to length’ (English *narrow*) with ‘barely sufficient, deficient’ (English *scant(y)*; e.g., *schmale Kost* ‘unsustaining food’); unlike its EFFICACY opposite *schmach* ‘weak’, *stark* combines ‘powerful’ with a DIMENSION meaning, ‘corpulent’.

It depends on one’s conception of the internal structure of lexical items whether one would further want to give synchronic pre-eminence to one actual sense over the other(s) in such cases of multiple primary senses, beyond the recognition of the semantic relatedness that justifies their subsumption under one lexical item in the first place. Although such decisions about pre-eminence would seem to be implied by theoretical notions such as ‘sense change’ or ‘sense extension’, it is not obvious on what grounds the cause-property or the effect-property could be considered pre-eminent. Diachronically, it was the sense ‘large in bulk’ (DIMENSION/SHAPE/SIZE as a state), blended with a sense ‘well-fed’ (DIMENSION/SHAPE/SIZE as the result of a change of state), that was primary, on the unanimous testimony of the etymological dictionaries. The ultimate Germanic source of *fett* and its cognates in English and elsewhere (also of German *feist* ‘fat, plump’ in sense (i): *fett* itself is the form of the same word borrowed into High German from Low German in the twelfth or thirteenth century, subsequently marginalising *feist*) was the resultative participle *\*fait-id-a-* of a transitive verb *\*fait-j-an*

‘to feed up, fatten’, itself a causative derived from an adjective *\*fait-a-* ‘large in bulk’ (Old Norse *feittr*, Old English *fæt(t)*, Old High German *feiz*). This adjective in turn is traced to a Indo-European intransitive verbal root *\*peið-* (or *\*poi(d)-*/*\*pi(d)-*) ‘to be swelled from moisture’ (result of change of state) and/or ‘to gush forth’ (change of state). (There is little evidence to support a further derivation of this verb, as sometimes conjectured, from a noun for a substance causally involved in such changes of state, *\*poi-* ‘sap, juice’.) The adjective *fett*’s opposite, *mager*, appears to have undergone the same sort of semantic extension, with the DIMENSION/SHAPE/SIZE sense ‘long, thin’ assumed to be the original one in Germanic or indeed Indo-European (*\*māk-ro*/*\*māk-ro*, cf. Greek *makrós* ‘long’, Latin *macer* ‘lean’).<sup>6</sup> If there was a direct diachronic extension of the meaning of the adjectives, then it was from an effect-state (in the case of *fett* designated by the participle of a causative verb or the original adjective) to a cause-state (corresponding to the cause-event designated by the original transitive verb), rather than from cause to effect.

However, there is no good reason why such a diachronic sequence should perforce translate into uniform synchronic pre-eminence of one of the senses of the current polysemous adjectives *fett* and *mager* and others like them. Where uniformity is concerned, it would seem that DIMENSION/SHAPE/SIZE can be pre-eminent in this sphere in some cases (as in *dick*, *dünn*, or *schmal*, mentioned above, or also in a not-yet-conventionalised extension of the DIMENSION/SHAPE/SIZE adjective *schlank* as in *schlanke Suppe* ‘slim soup’, ‘soup causing those who eat it to become slim’) and CONTENTIVENESS/EFFICACY in others (as in *stark*).

## 2.2 Noun FAT

In the case of *fett* there are in fact more synchronic connections to consider. In addition to the adjective there is also a noun *Fett*, which is correspondingly polysemous: it designates (i) the (excessive) accumulation of fatty tissue in the body of people and animals (as in *Du setzt an den Hüften Fett an* ‘You put on flesh, run to fat around the hips’), and (ii) the substance from esters of glycerol and various fatty acids as occurring in animal bodies and plants (or now also synthesised), and as used for nutritional and certain technical purposes, in fluid, viscous, or solid form and of white or yellowish colour (as in *Gieß das ranzige Fett weg!* ‘Pour away the rancid fat!’). *Fett*’s (marked) opposite, *mager*, has a corresponding noun too, but needs to derive it by means of a suffix (*Magerkeit*); and this noun has a counterpart only to sense (i), ‘lack of fatty tissue in the body of people and animals’, with no positive substance that would produce thinness having yet attained cultural salience. The secondary adjective senses of *fett* mentioned above do not extend to the noun *Fett*, or are at any rate less prominent. Not very transparently, in combinations with verbs of getting and having (*sein Fett abkriegen/weghaben* lit. ‘to get/have one’s fat’), the noun also means ‘scolding’ and ‘punishment’.

As with the adjective, the senses (i) and (ii), of a STATE (of a body of a particular dimension, shape, size) and a SUBSTANCE type respectively, can be related to one another as effect-STATE and cause-SUBSTANCE; but there are no obvious grounds here

either to consider one or the other synchronically pre-eminent, even though clear cases of *Fett* in STATE sense (i) may occur less frequently, facing competition from a non-zero derivative, *Fett-igkeit* 'fatness'.<sup>7</sup> (The noun corresponding to the original High German adjective *feist* 'fat, plump', *das Feist/Feißt*, is now obsolete: its meanings were parallel to *das Fett*, as documented in the Grimms' *Deutsches Wörterbuch*, vol. 3, col. 1471.)

Although adjectives in German share more with nouns than with verbs (typologically speaking they are 'nouny' rather than 'verby'), they form a word class distinct from nouns: nouns, for one thing, are lexically specified for gender. The noun *Fett* is neuter in both senses: the neuter is not an all-purpose default gender in German, and therefore cannot be taken for an indicator of the noun's being non-basic. That the gender of *Fett* is uniform is suggestive of lexical unity, since nouns related to the same adjective can differ in gender (cf. *nass* 'wet' – neuter *Nass* 'water or another liquid', conceived of as a SUBSTANCE', feminine *Näss-e* 'wetness', conceived of as a STATE).

### 2.3 Direction of sense derivation for FAT

Both the adjective *fett* and the noun *Fett* are formally simple, in the sense of lacking an overt derivational affix. Self-evidently, however, given their senses and in particular their parallel polysemy, the adjective and the noun are to be derivationally related to each other, and the question therefore is: Which is basic, the adjective or the noun, and which is (zero-)derived? The point of this example is that this question cannot be answered for the words (lexemes) as a whole, but only for their individual senses.

### 2.4 Noun to adjective, for one sense

Sense (ii) of the adjective *fett*, as given above (CONTENTIVENESS/EFFICACY), is plausibly explicated in terms of the noun *Fett*, that is, of sense (ii) of the noun (SUBSTANCE): 'rich in fat<sub>N</sub> content'. Defining senses the other way round would be conceptually more difficult. Also, this way it is in line with other instances of pairs of words where one designates a substance and the other, overtly derived, means 'containing (large amounts of) that substance': for example, *Öl* – *öl-ig* 'oil – oil-y', *Tran* – *tran-ig* 'blubber – blubber-y', *Harz* – *harz-ig* 'resin – resin-ous', *Wachs* – *wächs-ern* 'wax – wax-en', *Wasser* – *wässr-ig* 'water – water-y'. Which is not to say that in ALL such pairs the noun must perforce be basic: *Nass* – *nass* 'wetness – wet' is an example where the adjective would seem basic, just as in the pair *Näss-e* – *nass*, with wetness conceived of as a state rather than a substance; still, derivational basicness of nouns is the general rule for substances, like water, oil, or fat. It requires some sophisticated factual knowledge for the SUBSTANCE word *Fett* to be conveniently available to define the PROPERTY word *fett*: before that oily substance which naturally occurs in animals and plants and which we call *fat* was actually known, let alone its chemical composition discovered, there was no noun sense (ii) in terms of which an adjective sense (ii) could have been defined. (Such factual knowledge should not have been beyond early hunters-gatherers and especially livestock farmers; what is less clear is when a unitary generic concept of fat-as-substance was attained.) An ancestral adjectival sense might instead

have been 'CAUSING people and animals to get fat(ter) upon consumption', based on the awareness of a causal connection between being large in bulk, itself expressed through an adjectival (or deverbal) concept, and consuming (a lot of) food of a certain kind.

The conclusion that, with respect to sense (ii), the SUBSTANCE noun *Fett* is basic and the CONTENTIVENESS/EFFICACY adjective *fett* is (zero-) derived<sup>8</sup> is confirmed by an adjectival form which does take the standard derivational suffix for deriving adjectives from nouns, *fett-ig* 'fatt-y' (and also compare *grease-greas-y*), and which is (quasi-) synonymous with unaffixed *fett* in sense (ii), and especially in its sense 'marked by an accumulation of oily or greasy matter on the surface', but not in sense (i). Formal complexity, as is to be expected, matches semantic complexity, crucially determining derivational direction.

There is also a simplex verb, *fett-en* 'to apply fat to; to cover with fat', which operates on the same sense (ii) of the noun. On semantic grounds, the direction of derivation here is clearly from noun to verb, from SUBSTANCE to ACTION.

## 2.5 Adjective to noun, for another sense

With respect to senses (i), DIMENSION/SHAPE/SIZE (adjective) and BODILY STATE (noun), matters are rather different. The criterion of interdefinability is not so conclusive here. In stating the relevant nominal sense, '(excessive) accumulation of fatty tissue in the body of people and animals', *fatty* was used above; but this formulation is somewhat technical, and by using an everyday concept like 'flesh' (bulk of a body not due to the bony frame) the adjective *fat* could easily be avoided. In stating the relevant adjectival sense, 'large in bulk, owing to excessive fatty tissue', a nominal expression, 'fatty tissue', was used that is reminiscent of the noun sense at issue; but again, another formulation is easily found where reference to the noun is avoided, such as 'large in bulk, because (too) well-fed'.

Highly suggestive evidence, however, comes from the general categorial 'style' of the language concerning the word-class semantics of its basic vocabulary. Property concepts of the type DIMENSION/SHAPE/SIZE are regularly expressed through basic adjectives in German (as well as in English): compare quasi-synonyms and opposites of *fett*, applicable to human bodies and their parts, such as *feist* 'plump', *dick* 'stout', *drall* 'buxom', *dünn* 'thin, slim', *dürr* 'scraggy', *mager* 'slender' (also, per sense (ii), 'lean'), *schlank* 'slim', *rank* 'slim', *hager* 'haggard', or also *stark* 'strong, corpulent' and *schmal* 'narrow, slim'. Though *fett* is originally the resultative participle of a transitive verb (itself a deadjectival causative), such company must have been conducive to *fett/feist* being reanalysed as morphologically simple through phonological contraction (obscuring the participial suffix: *\*fait-id-a-* > *fett*). This is the only way we can explain the reanalysis. Far less numerous and far less salient in this conceptual domain are derivatives, none apparently zero-derived; a denominal example is *be-leib-t* 'corpulent' (lit. be-body-ed, calqued on Latin). It is common practice in German to derive nouns designating object states or qualities from basic DIMENSION/SHAPE/SIZE adjectives by overt affixation (e.g., *Dick-e* 'thick-ness', *Dick-icht* 'thicket', unsuffixed *durch Dick und Dünn* 'through thick and thin'; and with the all-purpose state or abstract suffix

*Mager-heit/keit* 'slenderness' etc., also *Fett-igkeit* 'fatness' itself, with suffix extension *-ig* present for prosodic reasons, as distinct from *Fettig-keit* 'greasiness', derived from *fett-ig* 'fatty, greasy'. Also, adjective-to-noun conversion in general, for a variety of concepts, is reasonably productive in German (Fleischer & Barz 1992: 215–217).

An argument from analogy can therefore be made for considering the STATE noun *Fett* in sense (i) to be derived from the DIMENSION/SHAPE/SIZE adjective *fett* in sense (i). If this is to be reflected in asymmetric meaning definitions, then noun sense (i) would be along the lines of 'largeness in fleshy bulk, from being (too) well-fed'.

Operating on the same sense (i) of the adjective, there used to be zero-derived inchoative and causative verbs in earlier German as well as its Germanic relatives, meaning 'to cause to become fat, through feeding well' (cf. English *to fat(ten)*). Given the participial nature of the source of the adjective, *\*fait-id-a-*, the lack of attestation of such a finite verb in earliest Germanic seems somewhat surprising. But then, it is also missing in contemporary German, where the deadjectival verb *fett-en* is of a more specialised PROCESS meaning, relating not to adjective sense (i), but to the 'fatty/greasy' variation of sense (ii), 'to become fatty'. 'Cause to become fat (ii), through feeding well' is expressed through another verb, *mäst-en*, also of very long standing and dubiously assumed to have always been denominal (Germanic *\*masta-*, Indo-European *\*mazdo-* 'largeness in fleshy bulk; process of feeding an animal so as to become large in fleshy bulk').<sup>9</sup>

## 2.6 Diachrony

This is not the occasion to reconstruct the diachrony of the adjectival, nominal, and verbal meanings of *fett/Fett/fett-en*, but a plausible scenario would seem to be one which mirrors the categorially criss-crossing synchronic asymmetries. Accordingly, with a (de-participial) adjective sense 'large in fleshy bulk, from being (too) well-fed' (i) as the point of departure (in common Germanic, if not Indo-European), the first step would have been to complement it with a noun, meaning 'largeness in fleshy bulk, from being (too) well-fed' (i), conceived of as BODILY STATE or QUALITY (in German attested at least since the ninth century in the old form, *feiztî*, and the fifteenth century in the new form, *Fett*). An inchoative-causative verb '(to cause) to become large in fleshy bulk, through feeding well' (i) would have been accompanying the DIMENSION/SHAPE/SIZE adjective all along. With a causal connection made between being large in fleshy bulk and what about one's food intake it is that is responsible for it, however poor the biochemistry, the nominal concept of the substance 'fat' would have been available.<sup>10</sup> (In Old, Middle, and early Modern High German there were in fact a whole range of nouns for such a concept, or family of concepts, alongside *feiztî* 'fat-as-substance', all arguably derived, including *smeri/Schmeer* 'smear, grease'; cf. Linke (1961: 240–244).) From this SUBSTANCE concept (ii) the CONTENTIVENESS/EFFICACY concept 'rich in fat content' (ii) and the ACTION concept 'apply fat to' (ii) would be derived. For the otherwise parallel history of *mager* 'small in fleshy bulk, from being ill-fed' > *Mager-keit* 'smallness in fleshy bulk' / *ab-mager-n* 'to become smaller in fleshy bulk' > *mager* 'poor



in fat content', the SUBSTANCE concept and the applicative ACTION concept would naturally be a step to be skipped.

### 3 Conclusions and implications

#### 3.1 Deriving senses rather than lexemes

It has been argued here that in a particular case of zero-derivation between an adjective and a noun in German, both correspondingly polysemous, the direction of derivation is not uniform, but goes from adjective to noun or from noun to adjective depending on which of their senses is implicated – from DIMENSION/SHAPE/SIZE (adjective) to BODILY STATE (noun) and from SUBSTANCE (noun) to CONTENTIVE-NESS/EFFICACY (adjective). Although in the correspondences of adjective and noun on the one hand and verb on the other different meaning components were involved too, at least the direction of derivation was uniformly from adjective/noun to verb.

This conclusion is at odds with the assumption that it is lexical items (or lexemes) as such, categorised by word class, which are involved in derivation, one being basic and the other derived. In the case at hand, it is not lexical items, but individual senses – combined in single lexical items subject to the contingencies of historical semantic developments creating polysemy – which separately figure in derivational relationships.

As such, this can hardly be uncommon, however rarely it is acknowledged even in approaches to word (lexeme) formation where a point is being made of segregating meaning and form: the preoccupation has tended to be with the polysemy of affixes rather than the polysemy of what affixes are combined with.<sup>11</sup> Thus, when the verb *foot* is zero-derived from the noun *foot*, it is really individual senses which are implicated: the verbal sense 'to traverse by foot' derives from the nominal sense '(lowest part, below the ankle, of) one of the paired body parts on which humans and other vertebrates stand and walk', and the other verbal sense, 'to add up and set the sum at the foot of a bill', derives from the metaphorical nominal sense 'lower or lowest part'.

And it is not only in derivation, but equally in inflection that individual senses, rather than lexical items as a whole, need to be made reference to. For example, a different exponent of plural, namely *-en* plus change of the stem vowel, has to be selected for the sense 'male fellow member of a religious community (especially a male order)' of *brother* than for the other senses of this English count noun, 'male sibling' and 'close male acquaintance', 'male fellow human being', 'male fellow member of a professional community (trade union, guild)', the latter all undergoing regular pluralisation through suffix /-(I)z/.

#### 3.2 Lexical unity

A question raised by such examples is whether the individual senses separately accessed by morphological operations, whether derivational or inflectional, are sufficiently close to one other still to justify their subsumption under one lexical item.

The answer would seem to be clearly affirmative in the case of *fett/Fett*: both the adjectival senses of *fett* on the one hand, of DIMENSION/SHAPE/SIZE and CONTENTIVENESS/EFFICACY type, and the nominal senses of *Fett* on the other, of BODILY STATE and SUBSTANCE type, are plausibly combined in single lexical items, instantiating non-unique patterns of ‘sense change/extension’ polysemy.

As to the inflectional example above, the sense ‘male fellow member of a religious community (headed by a Father Prior and ultimately God Father)’ shows the closest of family resemblances with ‘male fellow offspring of the same parents (with the father as the family head)’ in a Christian cultural context; and it is not only in *brother* that this kind of religious-companionship sense is found to be combined in one lexical item with a kinship sense, but in all other core kin terms as well (*sister*, *father*, *mother*, and probably *son* and *daughter* too), if without inflectional differentiation. The senses ‘female parent’ and ‘small piece of metal or other material with a spiral ridge or thread running round the inside for screwing on to the end of a bolt to secure it’ would seem incomparably more distant, although the extension of the kin sense was also metaphorical and is perhaps still recognisable as such (cf. the English term *female screw*): rather than being combined under a single lexical item such senses would be expected to be distributed over two lexical items – which in German happen to be homonymous, *Mutter*, both of feminine gender, but inflectionally differentiated, with unlauted *Mütter* as the plural of the kin term and weakly-suffixed *Mutter-n* as the plural of the tool term. (Though inflectional differentiation as such, also observed with English *brother-s/brethren*, should not be taken as sufficient evidence for lexical non-unity.)

Returning to derivation, the verbal senses of *foot*, ‘to traverse by foot’ and ‘to add up and set the sum at the foot of a bill’, would likewise seem to be rather distant from one another, and accordingly to militate against lexical unity, too, however close the metaphorical bond between the corresponding senses in the source noun.

To give a clear example of lexical independence with reference to derivation: English productively zero-derives (monosemous) nouns from (polysemous) verbs, OBJECT/PERSON meanings from ACTION meanings: e.g., verbs *perMIT*, *conVICT* → nouns *PERmit*, *CONvict*, with both bases and derivatives in line with principles of English word stress (the foot is a trochee; parsing goes from right to left; the last segment of verbs and the last syllable of nouns is extrametrical). The single senses of such zero-derived nouns may then in turn be the bases for zero-derived verbs: nouns *PERmit* ‘written authorisation’, *CONvict* ‘person convicted of crime and undergoing punishment’ → verbs *PERmit* ‘to issue permits’ (i.e., to do what one is most likely to do with permits), *CONvict* ‘to call someone “convict”’ (a delocutive verb; Plank 2005), with the zero-derivatives-at-one-remove (‘level 2’, in one theoretical reconstruction) retaining the word stress of their bases, regardless of the word-class difference. With the senses of such verbal zero-derivatives-at-one-remove fully predictable only from their immediate nominal bases, but not from the verbal bases of these, they will be able to gain autonomy as lexical items separate from the ultimate verbal bases – as is confirmed by the stress difference (also by their inflectional regularity, where relevant: e.g., verb *stand*, past *stood* → noun *stand* ‘piece of furniture on/in which to place things’ → verb *stand*, past *standed* ‘to place on/in a stand’).

### 3.3 Polysemy of bases and of derivatives

A more general empirical question raised by any such examples of sense-specific derivation is whether it is in fact the norm that derivatives, and in particular zero-derivatives, share their polysemy with their bases, however separate the meaning components are in principle.

Presumably, if this is compatible with the general semantics of the relevant word classes and with the specific semantics of the relevant derivational categories, polysemies will tend to be shared; otherwise they will presumably be able to diverge. For example, the adjective *scheu* in German is polysemous, combining a HUMAN/ANIMAL PROPENSITY sense (essentially shared with its English counterpart, *shy*), ‘being by propensity uneasy in company, hence given to avoiding close contact’, with a STATE sense (especially a state of horses), ‘to be in a state of sudden fright’ (which latter is expressed in English through a verb, *to shy*). The verb zero-derived from the adjective, *scheu-en*, essentially retains these two senses, now given an ACTION turn, as befits verbs: ‘to avoid close contact from a propensity of being uneasy in company’ and ‘to take fright and suddenly move away’. There is also a corresponding noun zero-derived from the adjective, *die Scheu* (feminine); but being an abstract noun, the PROPENSITY sense is the only one it inherits, ‘human/animal propensity of being uneasy in company, hence given to avoiding close contact’.

### 3.4 Organising units of the mental lexicon

Crucially now, whereas in the cases of *foot* as noun and verb and of *scheu* as adjective and verb the direction of derivation is the same for both meanings, with *fett* as adjective and noun it is different for the senses involved. It is impossible, as a result, to say whether such a lexical item is ‘basically’ an adjective or ‘basically’ a noun, although it can be said that *fett* is not basically a verb: for adjective and noun, basicness depends on particular senses, and is not uniform across all senses.

In effect this suggests that lexical items are less central to grammar, or at any rate to word (lexeme) formation, and are less integral units than has often been assumed in lexicological theory and its lexicographic applications.

In experimental work on the mental lexicon the question of how central and unitary lexical items are, vis-à-vis the individual senses they combine, has been broached in several research paradigms, but has not yet received the sort of answer to settle a theoretical issue.

In the priming paradigm it is commonly assumed that the units which activate one another, or do not, are lexical items. On the reasoning of the present paper, it would be individual senses, rather than lexical items as such, which are to be seen as being activated and as doing the activating, especially in semantic priming. Thus, adjectives such as *drall* ‘buxom’ and *feist* ‘plump’, with DIMENSION/SHAPE/SIZE senses only and without CONTENTIVENESS/EFFICACY components, would be expected to semantically prime, not the adjectival lexical item *fett* as such, but only its DIMENSION/SHAPE/SIZE sense, to the exclusion of its CONTENTIVENESS/EFFICACY sense; and

further adjectives with CONTENTIVENESS/EFFICACY senses, such as *öl-ig* 'oily' or *tran-ig* 'blubbery', would equally remain unactivated. If this is the right way of seeing it, the conception of a representation of words as separate unitised nodes in lexical memory would be less appropriate than one where the primary processing units are distributed features of meaning and of form (as in connectionist modelling).<sup>12</sup> What seems clear, at any rate, is that the semantic content of words is not accessed exhaustively in comprehension, and is not accessed selectively in the way simple context-dependent models would have it, either (Moss & Marslen-Wilson 1993; Rodd, Gaskell, & Marslen-Wilson 2002).

On the other hand, the results of several MEG studies aimed at distinguishing between homonymy and polysemy have been interpreted as supporting separate-entry lexical models for homonymy, with different lexical entries competing for activation and consequently inhibiting one another, and single-entry models for polysemy (Beretta, Fiorentino, & Poeppel 2005; Pykkänen, Llinás, & Murphy 2006). But then, the MEG evidence for polysemy also suggests separate representation of the individual meaning components supposedly combined in a single entry, being themselves competitors for activation and hence inhibiting one another. It is the precise kind and extent of mutual independence of these separate components which is the empirical issue and whose theoretical modelling awaits experimental confirmation.

### 3.5 The role of word class

A tacit assumption made above, one widely shared among lexicologists and lexicographers, is that lexical items are always, or at any rate in languages such as German and English, specified for just one word class: when there is a difference in word class there will perforce be a corresponding distinction of lexical items, regardless of similarities in meaning and form. The noun *foot* is assumed to be a separate lexical item from the verb *foot*, zero-derived from it; the verb *buy* is assumed to be a separate lexical item from the noun *buy*, zero-derived from it.

If, contrary to this assumption, the mental lexicon were instead organised by meaning, along the pathways defined by patterns of polysemy, such noun-verb pairs would be subsumed under one organising unit each, and so would be all senses and uses of *fett/Fett/fett-en*. Derivation in terms of meaning components as well as corresponding categorial spell-outs, with the word class constant or altered, would then take place internal to the construct to be called the 'lexical item'.

### 3.6 Direction of derivation reversed

It is especially when semantic relatedness is seen as ranking above word-class identity in organising form-meaning matchings in the mental lexicon that the empirical question of how such complex asymmetries as in the case of *fett/Fett* can come about is highlighted. If *fett/Fett* turns out to be a unique case – or indeed a non-case, should the analysis above be found invalid – we would have identified a (rarely violated or indeed unviolable) constraint on the distribution of meaning asymmetries over word classes.

One condition on the appearance of a pattern as in *fett/Fett*, as analysed above, is that the individual meaning components of single lexical items have gained some independence of one another, owing to inherent (rather than contextual) semantic specialisation upon lexicalisation. For *to foot*, ‘to traverse by foot’ and, rather more specialised, ‘to add up and set the sum at the foot of a bill’, this condition would seem to be met.

What is required in addition are historical circumstances, of whatever kind, which are conducive to a reversal of the direction of derivation of one of the newly-autonomous senses from the other. There continues to be nothing in life or in language to recommend deriving ‘lowest part’ from ‘to add up and set the sum at the lowest part of a bill’. For *fett/Fett*, the derivation of a BODILY STATE sense, ‘largeness in bulk, because (too) well-fed’, from a PROPERTY sense, ‘large in bulk, because (too) well-fed’ (DIMENSION/SHAPE/SIZE), was and continues to be in line with the general pattern of conceptual and categorial asymmetries as favoured in German(ic). The asymmetry was, however, bound to be reversed with the emerging awareness of a causal substance ‘fat’, sharing its expression with the (PROPERTY-derived) sense ‘largeness in bulk, because (too) well-fed’, and its associated PROPERTY sense ‘rich in fat content’ (CONTENTIVENESS/EFFICACY), again in line with general patterns in the language, regularly deriving ‘containing a substance’ from ‘substance’.<sup>13</sup>

While the verbal senses touched on above – ‘to apply fat to, to cover with fat’, ‘(to cause) to become fat, through feeding well’ – would invariably be derived from the relevant SUBSTANCE or PROPERTY senses, other substances of ambivalent solid-fluid consistency seem specially ambivalent in this respect: this illustrates changes in derivational direction as occasioned by inherently unstable asymmetries of the senses involved. In English as well as in German, the noun *smear/Schmier-e*, or rather its SUBSTANCE sense, ‘substance lending itself to a “spreading” manner of application to surfaces’, is arguably derived from the verb *smear/schmier-en*, or rather its ACTION sense, ‘to apply a substance to a surface, to cover a surface with a substance, by spreading it’; but this is a reversal of derivation, with the SUBSTANCE sense having been basic in Germanic *\*smērwa-* (or indeed Indo-European *\*smeru-*), where a derivational suffix *-j* causing umlaut (Old English *smierwan*, Old High German *smirwen*) is clear evidence of the verb, or rather verbally expressed sense, being derived. (German marginally retains the old unumlauted noun, *Schmer* ‘lard’.) Presumably the ACTION sense gained the edge on the SUBSTANCE sense once it attained generic status, covering any application of substances to surfaces in that manner epitomised by the solid-fluid prototype, fat. Among the examples mentioned above, though now basically SUBSTANCE-designating in both English and German, *wax/Wachs* is another candidate where derivational direction may have been reversed at some point of its long history: while the ACTION sense ‘to apply wax to’ is now clearly derived, the original source sense seems to have been ‘to weave’ (Indo-European root *\*ueg-*), an action, spawning the derivative MATERIAL OBJECT sense ‘fabric’ (= what results from weaving).

Instead of taking for granted that semantic complexity invariably motivates the same directions of morphological derivation for all relevant lexical items and across all languages, it is an empirical issue to determine, for particular derivational oppositions and for particular semantic subsets of senses, whether asymmetries are diachronically

stable or unstable and crosslinguistically uniform or diverse.<sup>14</sup> Designations of substances whose consistency is not solidly solid are instructive examples where basic word-class categorisations as nouns, adjectives, or verbs and corresponding derivations of SUBSTANCE, PROPERTY, and ACTION senses from one another are somewhat fluid.

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### **Notes**

1. Bauer & Valera (2005) gives an idea of recent approaches and implementations.
2. As has often been suggested, if rarely uncontroversially, for languages supposedly lacking relevant or indeed any word-class distinctions (such as Austronesian, Salish, or Iroquois). See, e.g., Broschart 1997, Foley 1998, Himmelmann 2008, Kroeger 1998, Vonen 1994.
3. Much the same point could be made with English *fat*; but there are also subtle differences which may make a pertinent difference and to which I cannot do justice here. The factual basis for the following considerations, apart from the intuitions of a few native speakers informally consulted, are standard dictionaries for German and English, including etymological ones, supplemented by the specialist studies of Linke (1961) and Schützeichel (1964).
4. English *fat* does have this second sense too, but appears to be applied with greater culinary restraint: meat and dairy products can be called *fat*, but *a fat broth* or *fat olives*, for example, though on the historical record (the *Oxford English Dictionary*'s attestations date from 1607 and 1701), are not now the happiest collocations.
5. English prefers *greasy* for this meaning.
6. In English, *lean* would specialise for that latter purpose, 'poor in fat content', with *meagre*, a Germanic word but later re-borrowed from French, essentially continuing the DIMENSION/SIZE/SHAPE meaning 'small in bulk'.
7. No major differences here from the English noun *fat*.
8. A standard handbook, Fleischer & Barz (1992: 48–50, 276) only recognises rather marginal instances of zero-derived denominal adjectives (such as *klasse* 'classy'). The most extensive historical survey for early to late Modern High German, Pounder (2000: 668, *passim*) does not find this conversion type productive either. Nonetheless ...
9. Its English cognate, *to mast* 'to feed animals on mast (= fattening food, esp. fruit of forest trees fed to swine)' is now obsolete.

10. For English, the *Oxford English Dictionary*, s.v. *fat*, sees the origin of the noun *fat* in this sense in the adjective *fat*, of meaning (i), used absolutely: thus, the OED's first attestation, *Take the fatte [scil. part] of capons or hennys* (1393). Such noun ellipsis does not seem to me a plausible mechanism of change here.
11. An explicit acknowledgement is found in Pounder (2000: 128, 675–9). Her 'classic' example, however, seems somewhat dubious. Pounder assumes that the German noun *Lust* 'desire, pleasure' is polysemous between a non-sexual and a sexual reading, and that one derivative (suffixal rather than zero), *lust-ig* 'giving pleasure; feeling pleasure', implicates the former, and another derivative (also suffixal), *lüst-ern* 'lustful', the second. One problem here is that the adjective *lüst-ern* is not productively derived from the noun *Lust*: regular derivatives in *-ern* only come with nouns for substances and mean 'consisting of the material of N' or 'being metaphorically like N'; *lüst-ern* (or rather *lüst-er*, with final /n/ a secondary addition) is historically related to the collective noun *Ge-lust*, plural *Ge-lüste* 'sensual desire(s)' or the corresponding verb (*ge-*)*lüst-en* 'to feel a sensual desire'. (See the Grimms' *Wörterbuch*.) Second, I see no grounds for assuming a lexical contrast  $\pm$ SEXUAL, for this noun or for others. (Even *lüst-ern* is not perforce sexual: cf. compounds such as *kriegs-lüstern* 'bellicose', *sensations-lüstern* 'sensationalist'.) The real polysemy of *Lust*, as of its English cognate, is between '(unfulfilled) desire' and 'fulfillment of desire'; and it would seem that *lust-ig* only implicates the latter and *lüst-ern*, insofar as it is synchronically related to the noun, only the former – thereby indeed making Pounder's general point.
12. See Neely (1991: 292–294) for general discussion, not very convincingly opting for unitised nodes.
13. For other reversals of derivational direction, though with attendant lexical splits, see above, verbs *perMIT*, *conVICT* → nouns *PERmit*, *CONvict* → verbs *PERmit*, *CONvict*.
14. This theme is continued in Plank 2009 and Plank & Lahiri 2009.

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