Inflection and Derivation

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Ein internationales Handbuch zur Flexion und Wortbildung
An International Handbook on Inflection and Word-Formation

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38. Inflection and derivation

1. Differences between inflection and derivation

The main distinction between inflection and derivation is a functional one: derivation (i.e. word-formation except compounding) is that kind of morphology that serves to create new lexemes, whereas inflection serves to create different forms of the same lexeme. Therefore, it is also said that derivation, unlike inflection, creates words for new concepts. However, one should realize that derivation has a secondary function in that it is also used to make stylistic variation possible. For instance, of the following two alternative phrasings of a referring expression, the second makes use of derivation (of *reader* from *read*):

(1) (a) *He who reads this book*
(b) *The reader of this book*

Derivation differs from compounding, another type of lexeme formation, in that in compounding (at least) two lexemes are involved, and combined into a complex word, whereas the input to derivation is a single lexeme (cf. Art. 37).

The formal means by which inflection and derivation are expressed are often the same. In both, the processes of affixation, vowel change, reduplication etc. may be used. For instance, in many Indo-European languages inflection is expressed primarily by suffixation, which is also a kind of morphological operation used in derivation.

Whether a sharp demarcation of inflection with respect to derivation is possible, is a classical problem in morphological theory. Whereas some linguists claim that there is no sharp demarcation between the two, and that there is a cline from prototypical derivation to prototypical inflection (Bybee 1985; Dressler 1989; Plank 1994), others do make a sharp distinction which is reflected by their organizational model of the grammar (Perlmutter 1988; Anderson 1982; 1992).

In order to come to grips with this demarcation problem, I will review the different arguments and criteria proposed in the literature for distinguishing between the two (see also Scalise 1986 and Dressler 1989).

1.1. Change of word class

The first criterion is that derivation, unlike inflection, may change the word class of the input word. That is, derivation may cause **transposition** of word class. This may be seen as a consequence of the lexical enrichment and stylistic variation functions of derivation, which do not apply to inflection. However, since derivation does not necessarily change word class, the fact that a morphological process does not change word class, is no proof of its inflectional nature. First, a category-determining affix may happen to attach to a word of the same category. An example is the Dutch nominalizing suffix *-er* that may be affixed to nominal bases, e.g. *wetenschap* 'science' – *wetenschapper* 'scientist'. Second, languages may have **evaluative morphology** that is, like inflection, transparent for the syntactic category and the gender of the base, but that is felt as derivation as far as the semantic change involved is concerned. For instance, the Italian diminutive suffix *-ino/ina* can be attached to nouns to form nouns, and to adjectives to form adjectives: *ragazzo* 'boy' – *ragazzino* 'little boy', *ragazza* 'girl' – *ragazzina* 'little girl', *giallo* 'yellow' – *giallino* 'yellowish'. This shows that the Italian diminutive suffix is transparent for the syntactic category and gender of its stem. On the other hand, Dutch diminutive suffixes are category-determining, and always create nouns, e.g. *blond* 'blond' – *blondje* 'girl with blond hair'. Moreover, the Dutch diminutives are always neuter, unlike their base words: *de stoel* 'the chair (non-neuter)' versus *het stoeltje* 'the little chair (neuter)'. Thus, Dutch diminutives are a clearer case of derivation than the Italian ones.

A problem for the demarcation criterion discussed here is that inflection can change the syntactic category of its inputs too (Haspelmath 1996). For instance, infinitives do not only exhibit verbal properties, but also nominal ones. This is illustrated by the Dutch infinitival phrase *het boeken kop-en* 'the books buy-INF (the buying of books)'. The syntactic distribution of the infinitive is that of a noun, since it occurs with the determiner *het* 'the'. On the other hand, it behaves as a verb with respect to its complement, since it allows for a preverbal preposition-less noun phrase complement, *boeken*. Other examples of Dutch infinitives, preceded by a determiner and a preposition are:

(2) (a) *Ik ben aan het fietsen*
I am at the cycle-INF
'I am cycling.'

(b) *Ik zette het op een lopen*
I put it on a walk-INF
'I started running.'

In Romance languages, infinitives also function as nouns, as in French *le parler* 'the dialect'.

Infinitives also feed nominal word formation. In Dutch, as in many Germanic languages, verbal compounding is unproductive, whereas nominal compounding is productive. Infinitives behave like nouns in this respect: Dutch has many compounds of the type *school-zwemmen* 'school-swim-INF (school-swimming)' which do not have finite forms, and thus cannot be interpreted as the infinitival forms of verbal compounds (Booij 1989).

In many languages, participles behave like adjectives in that they can be used attributively and as predicates, and agree in gender, number and case with the noun that they modify. On the other hand, participles still have verbal potential in that they case-mark

nominal phrase arguments, as in the following example from German (Haspelmath 1996):

(3) *ein den Richter überraschendes Faktum*
a the judge surprising fact
'a fact that surprises the judge'

Here, the participle *überraschendes* 'surprising' agrees in number, case and gender with its head *Faktum* 'fact'; yet it has an accusative-marked verbal complement *den Richter* 'DEF:ACC.SG.M judge'.

Participles also feed deadjectival word formation, as in English *spoiledness* and its Dutch equivalent *bedorvenheid*. They lexicalize quite often as adjectives with an idiosyncratic meaning, e.g. Dutch *gesloten* (past participle) 'closed', but also 'close-mouthed', and *woedend* (present participle) 'raging', but also 'angry'.

In Biblical Hebrew, participles may have the distribution of nouns. For instance, they can be preceded by a determiner, and they can be inflected for number, gender, and state (**construct state** when followed by a specifier or complement, **absolute state** if there is no specifier or complement). Yet, they are still verbal in that they allow for verbal complements marked with the accusative particle *et* (Dyk 1994).

Gerunds are another case of **transpositional inflection**: they are verbal forms with nominal properties. For instance, in *John's reading the papers* the gerund *reading* behaves externally as a noun since it assigns genitive case to *John*, whereas it behaves as a verb with respect to its nominal, prepositionless complement *the papers*.

An example from a non-Indo-European language is the Austronesian language Kambera. In this language the relative markers on verbs, *-pa* and *-ma*, which are inflectional elements, also have a nominalizing function (Klamer 1994: 320–326).

Other cases of category-changing morphology that might be interpreted as category-changing inflection are deadjectival adverbs such as *happily* (from *happy*), substantivized adjectives like Dutch *(de) lang-e* '(the) tall (person)', and deverbal adverbs (**converbs**, cf. Haspelmath & König 1995, eds.) such as Kannada *heel]$_V$-ade]$_{Adv}$* 'say-NEG.ADV (without telling)'. The fact that these morphological operations are possible for each relevant word, and are also required by the syntactic environment suggest that they belong to inflection (cf. section 1.3 and Art. 62).

A particular telling example of this is the category of possessive adjectives in Sorbian. In this language, denominal adjectives exhibit transparency as to gender of their nominal bases, a kind of transparency that is typically expected from inflection, not from derivation. The following example illustrates this transparency (Corbett 1987: 303):

(4) mojeho muž]$_N$ -ow]$_A$ -a sotra
1.SG-MASC.SG.GEN husband 's FEM.SG.NOM sister
'my husband's sister'

In this example, the possessive pronoun *mojeho* agrees in gender with the nominal stem *muž*, whereas *mužowa*, with the adjectival suffix *-ow*, agrees with the head noun *sotra* in gender and case.

1.2. Obligatoriness

The second criterion found in the literature is that derivation is optional, whereas inflection is obligatory. For instance, given that Latin nouns are inflected for number and case, each Latin noun must be inflected for these two categories, and has an ending indicating number and case. Whether this applies to all words and/or all languages, depends on one's analysis. For instance, the English noun *book* may be claimed to lack a specification for number, which is an inflectional category for English nouns, or considered as specified as singular by means of a zero-morpheme. In the first analysis, the word *book* is not specified for number, and thus contradicts the obligatoriness claim. Therefore, the criterion of obligatoriness is not always helpful as a demarcation criterion.

1.3. Paradigms

A characteristic difference between inflection and derivation is that inflection is often organized in terms of paradigms. Each cell in the paradigm specifies the form of a word for a particular value (property) of the relevant inflectional categories, such as number, person, tense, and case. A consequence of this view is the assumption of zero-markers in case there is no explicit marking for a particular inflectional property; thus a singular noun as *book* is given the morphological analysis

book-ø because *book* fills the cell for noun singular. The same applies to the expression of present tense in *works* which is analyzed as *work-ø-s* '*work*-PRES-3.SG'.

This difference between inflection and derivation seems, however, to be relativized by morphologists who assume zero-morpheme in derivation. Given data such as the following from Dutch:

(5) val]$_V$ 'fall' val]$_N$ 'fall'
vang]$_V$ 'catch' vang]$_V$-st]$_N$ 'catch'
beloof]$_V$ 'promise' belof]$_V$-te]$_N$ 'promise'

we may reason that each verb has a corresponding deverbal event noun with a nominalizing marker that is expressed as *-st* in the case of *vang*, *-te* in the case of *beloof*, and as zero in the case of *val*. This reasoning seems to presuppose that each verb has a paradigmatic cell for a deverbal event noun. However, there is a difference with inflectional zero-morphemes, because derivational zero-morphemes are only assumed if there are also non-zero morphemes for the relevant morphological category. Whereas we may assume a zero-morpheme for the English singular nouns without there being an overt counterpart, in derivational morphology at least one overt marker for the morphological category involved is usually required, the **overt analogue criterion**. This criterion then distinguishes derivation from inflection (cf. Sanders 1988).

Related to the paradigmatic structure of inflection, we often find that there is no one-to-one correspondence between inflectional properties and their formal expression: two or more properties may be expressed by the same form, or vice versa (Matthews 1991; cf. also Art. 64, 65). An inflectional property will be expressed in more than one way if the language involved has **inflection classes** (declensions for nouns, and conjugations for verbs); each class may have its own formal expression for a particular array of inflectional properties. Whereas in Latin *mensa* 'table' the properties 'NOMINATIVE' and 'SINGULAR' are expressed by the suffix *-a*, the same properties are expressed by *-us* in the noun *domus* 'house'. On the other hand, we also find **syncretism** (Art. 66) i.e. certain cells in the paradigm are filled with the same word-form: *mens-is* is both the dative and the ablative plural for *mensa*.

A characteristic of inflectional paradigms in many languages is that the formation of the inflectional forms involves more than one stem form. Latin, for instance, uses three **stem forms** for each verb, one for the present tense, one for the perfect, and one for the past participle. Thus, the verb *ponere* 'to put' has the stem forms *pone-*, *posu-*, and *posit-*, as in *pone-o* 'I put', *posu-i* 'I have put', *posit-us* 'put (past participle)' (cf. Art. 62).

This type of **stem allomorphy** is nevertheless no exclusive characteristic of inflection: we also find cases where different stem forms of a base word have to be used in derivation. For instance, in Germanic languages many non-native words have two stem forms, one for native derivational morphology, and another one for non-native derivation. A word like *drama* has two stem forms, *drama-* as in the plural form *dramas*, and *dramat-*, as in *dramat-ic* (Booij 1997).

Since the words of an inflectional paradigm are more closely connected to each other than derivationally related words, **analogy** applies more frequently within inflection. For instance, whereas Latin *honos* 'honor' changed to *honor* because of the genitive form *honor-is* (from underlying *honos-is*, through a rule that turns intervocalic |s| into [r]), a case of analogy, the derived adjective *honestus* 'honest' kept its |s|.

1.4. Generality and productivity

A number of properties of inflection reflect the basic generalizations concerning the differences between inflection and derivation discussed above.

First, if inflection is obligatory in the sense that for each word there is a paradigm of which the cells have to be filled (1.2), we expect that all words of the relevant category undergo the pertinent inflectional rules. That is, inflectional rules tend to be **general** (apply to all relevant words) and are **productive** (that is, new word-forms can be made in accordance with the rule). This is the main reason for considering certain types of class-changing morphology discussed in 1.1 as inflection.

Productivity of inflectional patterns is certainly a universal tendency, but not without exceptions: we do find **paradigmatic gaps**, i.e. words for which certain inflectional forms are not available. Dutch has a number of complex verbs that only exist in the infinitive, and do not have finite forms, for instance *bloemlezen* 'to make an anthology'. French has a number of verbs for which not all tense forms can be formed. The verb *frire* 'to fry', for example, has no plural forms for the present indicative (Morin 1995). Moreover, the

property of generality does not always hold. In English many nouns do not have a plural form at all (*courage*, *food*, *grace*, *March*, *assuredness*, etc.), and many English adjectives do not have comparative or superlative forms (instead, one has to use *more/most + adjective*). Conversely, languages may also have **pluralia tantum**, i.e. nouns that only occur in the plural, such as Dutch *Alpen* 'Alps', *notulen* 'minutes' and *hurken* 'haunches'.

1.5. Semantic transparency

Another corollary of the more general and productive nature of inflection is that it is semantically more transparent than derivation. Whereas derived words often have a meaning that is not purely a compositional function of the meaning of its morphological constituents, this is very rarely the case with inflection. Exceptions are some plural nouns: *brethren* has the special meaning 'members of a religious community' that *brothers* does not have necessarily, and whereas *cloth* means 'woven material', the plural *clothes* has the meaning 'garments'. Such inflectional forms exhibit the phenomenon of **lexical split**: the semantic relation between two formally related words is no longer transparent. It is a pervasive phenomenon in derivation, and relatively rare in inflection.

The criterion of semantic regularity is also involved in the issue whether the system of conjugational classes in Hebrew (the *binyanim*) and other Semitic languages is a matter of inflection or of derivation. Since the different *binyanim* of a verbal root often have unpredictable meaning aspects, one is inclined to consider this system as derivation. For instance, the verbal root *qtl* has the following active *binyanim* (the forms given are the 3.sg.masc.perf. forms (Aronoff 1994: 124)):

(6) *quatal* 'to kill', *niqual* 'to kill oneself', *qittel* 'to massacre', *hiqtil* 'to cause to kill', *hitquattel* 'to kill oneself'

On the other hand, the fact that the *binyanim* of a verbal root such as *qtl* 'to kill' form a kind of paradigm reminds us of inflection. The best interpretation appears to be that *binyanim* are inflectional classes, and that Hebrew derives new verbs by changing the inflectional class (*binyan*) of a verb. That is, transposition of conjugational class is a form of derivation (Aronoff 1994).

1.6. Psycholinguistic differences

The differences between derivation and inflection outlined in the preceding sections may also have a psycholinguistic reflex in that products of derivation will more readily be stored in the **mental lexicon**, whereas inflectional forms, being mostly regular and formed according to productive rules, will often be made 'on the spot' (cf. Art 165). This will in particular be the case for languages with rich inflectional systems, for which it is simply impossible to store all the possible inflectional forms of a lexeme.

The distinction between storage and rule does not completely coincide, however, with that between inflection and derivation. Irregular inflectional forms, and regular forms with a high token frequency appear to be stored, whereas regular inflectional forms with a low frequency are produced by rule (Stemberger & MacWhinney 1988). On the other hand, there are very productive and regular derivational categories that can easily be extended by rule, and for which it is therefore implausible that all its members are stored in the mental lexicon. This is in particular the case for languages with agglutinating morphology like Turkish where with one root we may have millions of different word forms which cannot possibly be stored (Hankamer 1989). A related observation reported in the literature is that in speech errors inflectional morphemes are much more easily put in the wrong place than derivational morphemes.

The distinction between inflection and derivation has also been investigated in studies of aphasia, with unclear conclusions. Badecker & Caramazza (1989) investigated the language of an Italian aphatic who made many inflectional errors, but almost no derivational ones. They therefore concluded that the grammar must distinguish inflection and derivation, although, as they point out, this does not imply that inflection and derivation belong to two different components of the grammar (as in the **split morphology** hypothesis, cf. 2). On the other hand, there are also speakers with **agrammatism** (Broca aphatics with poor syntax and almost no function words) whose inflectional morphology is not affected, and as well preserved as their derivational morphology (De Bleser & Bayer 1988). A survey of possible psycholinguistic differences between inflection and derivation is given in Bertinetto (1995).

1.7. Recursivity

A consequence of the functional differences between derivation and inflection is that, whereas an inflectional process is applied only once to a word in order to create a word form that fills a cell of the paradigm, derivational morphology may apply recursively because each derivational step may add some additional meaning. For instance, in the Dutch adjective *werke-loos-heids-loos* 'being without unemployment', the suffix *-loos* 'without' occurs twice. Recursive application of derivational morphology is also found for a number of languages in the domain of evaluative morphology. For instance, we find two consecutive diminutive (endearment) suffixes in Polish *koteczek*, underlying form | kot-ek-ek | 'dear little cat', with two instances of the diminutive suffix *-ek*, and in Afrikaans *huis-ie-tjie* 'dear little house' (*-ie* and *-tjie* are allomorphs of the diminutive suffix).

The possibility of recursivity in derivation reflects the fact that derivational morphology often consists of the linear concatenation of morphemes, similar to compounding, whereas inflection is often of the fusional, non-agglutinative type.

1.8. Syntactic relevance

An important demarcation criterion often proposed in the literature is that inflection is that part of morphology that is relevant to syntax (e.g. Anderson 1982: 587). Particular inflectional forms of words may be required by the syntactic context, i.e. they are determined by **agreement** or **rection** (i.e. **government**). This is what is called **contextual inflection** in Booij (1994). Typical examples are agreement in number and person between subject and finite verb, and the selection of particular case forms of nouns by verbs and prepositions. Note, however, that not all inflection is dependent on syntax. For instance, the number of a noun in subject position is not determined by syntactic context, but is a matter of free choice by the speaker. That is, there is also **inherent inflection** (e.g. number of nouns, tense, aspect, comparatives, and superlatives), which is closer to derivation than contextual inflection. The distinction between inherent and contextual inflection is reflected by the fact that inherent inflection tends to be more idiosyncratic than contextual inflection (lexical split, defective paradigms, forms without base words, etc., cf. Booij 1994).

This difference between inherent and contextual inflection has also been observed by Kuryłowicz who distinguished between inflectional categories with a primarily syntactic function such as case and inflectional categories with a primarily semantic or autonomous function. He pointed out that number is "a semantic trait of the noun" (Kuryłowicz 1964: 31), and that "degrees of comparison [...] represent the autonomous inflection of the adjective. This inflection is intrinsically semantic and never assumes a special syntactic function" (Kuryłowicz 1964: 34).

The criterion that syntactically relevant morphology is inflection is not so easy to apply in all cases. Note that derivation is also relevant to syntax in that it often determines the syntactic category and the syntactic valency of the words it creates. For instance, the Dutch prefix *be-* creates transitive verbs from verbs and nouns. The transitivity effect shows that *be*-prefixation is syntactically relevant. Yet, we consider *be*-prefixation derivation, because of its potential for word class transposition, and the often unpredictable meaning of the *be*-verb.

We meet a similar problem when we want to determine whether the formation of adverbs in *-ly* in English is inflection or derivation. The use of the adverb(ial form) *happily* in *They sang happily* is required by the syntactic context. This does not necessarily imply that *-ly* suffixation is a matter of inflection: one might also say that the syntactic context requires an adverb, and that suffixation with *-ly* is the morphological answer to this need, i.e. morphology creates adverbs. Similarly, the use of a *than NP* phrase requires the use of an adjective, as in *John is bigger than Peter*, but we can also use the comparative form without a *than*-phrase. On the other hand, in the noun phrase type *something + adjective*, e.g. *something good*, the Dutch equivalent is the phrase *iets goed-s* in which the class-changing nominalizing suffix *-s* is obligatorily added to the adjective *goed* 'good'. That is, what we meet with here is syntactically required word class changing derivation. Thus, the criterion of syntactic relevance does not always distinguish between derivation and inflection (cf. van Marle 1996).

1.9. Order of morphemes

In a complex word with both derivation and inflection, inflection is usually peripheral with respect to derivation. For instance, in

the Dutch diminutive *moedertjes* 'little mothers', the diminutive suffix *-tje* precedes the plural suffix *-s*, and a form like **moederstje* is ill formed. This is one of the most important formal reasons for distinguishing between inflection and derivation: derivational suffixes are not attached to words in the concrete sense, but to stems, i.e. words minus their inflectional endings (in the Italian example given in 1.1, the diminutive suffix *-ino* is not attached to *ragazzo* 'boy', but to the stem *ragazz-*).

The peripherality of inflection has been stated as a universal by Greenberg (1963: 93):

(7) "*Universal 28*. If both the derivation and the inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection."

Some morphologists have claimed that German diminutives such as *Kinderchen* 'small children' are counterexamples to the claim that inflection is always peripheral with respect to derivation, because the plural morpheme *-er* precedes the diminutive suffix *-chen*. However, it is not so certain that the morpheme *-er* in this example has a plural function; it can also be reinterpreted as an extension of the stem of the lexeme *Kind* 'child'; this implies that the plurality is expressed by zero, just as is the case for all other words in *-chen* such as *Mädchen* 'girl'.

As we saw in 1.8, inherent inflection appears to share a lot of properties with derivation; this is in line with the generalization that contextual inflection tends to be peripheral with respect to inherent inflection. For instance, in Dutch finite verbs, the (contextually determined) number suffix is peripheral with respect to the (inherent) tense-suffix, e.g. *werk-te-n* 'work-PAST-PL'.

Morphologists who do not accept a rigid distinction between inflection and derivation, have tried to establish principles for the ordering of affixes within a complex word. The best known proposal is that of Bybee (1985). According to her, the order of affixes is determined by the degree of relevance of an affix for the meaning of the word. Since derivational affixes such as the causative suffix, have a considerable and specific effect on the meaning of the word, and thus have a higher semantic relevance, they occur close to the stem, whereas affixes for aspect, tense and the like are more peripheral: they have more general, hence vaguer meanings. Moreover, inflectional markers often do not pertain to the meaning of the complex word itself, but express the relation of a word to situation and context. Tense, for example, expresses the time relation between the event or situation expressed by the verb and the moment of speaking, and case expresses the relation of a noun to other parts of the sentence.

Bybee (1985: 35) established the following tendencies in the ordering of verbal inflectional markers with respect to the stem:

(8) stem-aspect-tense-mood-number/person

This scheme reflects that contextual inflection tends to be peripheral with respect to inherent inflection (Booij 1994). To put it differently, syntactically relevant morphemes tend to occur at the periphery, in order to be visible for the syntax (Williams 1981). For instance, as Greenberg pointed out, there is a strong universal tendency for case affixes to be peripheral with respect to number affixes. This is in line with the observation that inherent inflection is more like derivation than contextual inflection (Greenberg 1963: 95):

(9) "*Universal 39*. Where morphemes of both number and case are present and both follow or precede the noun base, the expression of number almost always comes between the noun base and the expression of case."

In sum, the following universal tendency appears to occur: contextual inflection is peripheral with respect to inherent inflection, and inherent inflection is peripheral with respect to derivation. This generalization therefore supports the inflection-derivation distinction.

2. Split morphology?

The differences between inflection and derivation discussed above have led some linguists to assume an organizational model of the grammar in which there is a strict separation of derivation and inflection. Derivation is located in a pre-syntactic morphological component and functions to enrich the lexicon. Inflection, on the other hand, is located in a post-syntactic component of morphological spell-out rules, since the correct inflectional form of a word depends on its position in syntactic structure. This model is called the model of **split morphology** (Perlmutter 1988), and is also advocated in Anderson (1982; 1992). An additional reason for this separa-

tion is that, whereas in derivational morphology there is usually a one-to-one relation between form and meaning, this is different for inflection, since more than one inflectional category may be expressed by one morpheme (e.g. number and case in Latin), or one inflectional category by more than one morpheme (e.g. the Greek perfect is expressed both by reduplication, a particular suffix, and a specific ending: *lyo – le-ly-k-a* 'I have loosened'). Therefore, inflection rules are seen as realizational rules or spell-out rules that specify the formal expression of each array of inflectional properties.

A variant of this organizational model is proposed in Beard (1994): derivation is pre-syntactic as far as semantic and syntactic properties are concerned, inflection is post-syntactical. Both derivational properties (e.g. agent, action), and inflectional ones are spelled out by the same realizational component. The reason for this conflation of the formal expression of derivational and inflectional categories is that derivation and inflection often make use of the same affixes. For instance, the Dutch suffix *-s* expresses both '3.SG.PRES' for verbs, 'PLURAL' for nouns, and deadjectival nominalization as in *goed-s* 'the good', and English *-er* is both the comparative and the deverbal agentive suffix.

It should be realized, however, that the fact that the choice of a particular inflectional form is determined by syntax does not necessarily imply that inflection is post-syntactic. One can also assume that inflection applies pre-syntactically, and that rules such as subject-verb agreement only have a checking function: they check whether the relevant morphosyntactic properties of words in a specific syntactic construction are compatible. For instance, since the English nouns *people* and *books* are marked as plural, the second due to an inflectional process, they both require a plural finite verb if they are the head of a subject noun phrase. That is, the presence of a singular finite verb will qualify such a sentence as ungrammatical.

The position that all morphology is pre-syntactic is called **strong lexicalism**, and the position that only word-formation is pre-syntactic is called **weak lexicalism**.

An additional argument for the split morphology hypothesis is that it predicts that inflection does not feed derivation, i.e. that we never find inflectional morphemes inside derivational morphemes. Thus, this model directly accounts for the peripherality of inflection with respect to derivation.

Another organizational variant in which derivation and inflection are not completely separated, but distinguished within the lexical component, is the hypothesis of **level-ordered morphology** (Kiparsky 1985). In this model, a variant of strong lexicalism, morphological processes are assigned to different, ordered strata or levels in the lexicon. The idea then is that derivation is located at an earlier level (or earlier levels, if more than one derivation level is assumed) than (regular) inflection. This ordering predicts that inflection cannot feed derivation. On the other hand, such an organizational model maintains the possibility that derivational and inflectional processes induce the same phonological processes, which is often, but not always, the case (cf. Art. 35).

The basic problem for the split morphology hypothesis is that inflection sometimes does feed derivation (Booij 1994; 1996). For instance, plural nouns occur in Dutch derived words with the collective suffix *-dom* such as *scholierendom* 'set of pupils'. In most European languages past participles feed deadjectival word formation, as in Dutch *gevreesd-heid* 'feared-ness'. Similar observations on Romance languages can be found in Rainer (1996). In Breton, the diminutive suffix is not only attached to singular nouns, but also to plural nouns such as *bagoù* 'boats' (Stump 1990: 104):

(10) sg. dim. pl. pl. dim.
bag bag-ig bag-où bag-où-ig-où

Breton plural nouns also feed two other derivational processes, the formation of denominal verbs and of deverbal adjectives (Stump 1990: 108):

(11) *aval* 'apple' *aval-où* 'PL' *aval-où-a* 'to look for apples'

In sum, both the split morphology hypothesis and the level ordering hypothesis have problems with the types of interaction of inflection and word formation presented above.

The discussion in this section up to now presupposed that derivation is always pre-syntactic. Even that presupposition is not shared by all linguists. Certain types of derivational morphology can be analysed as syntactic incorporation. For instance, in language with deverbal causative verb formation, the causative suffix might be analysed as the verbal head of a clause that is moved

to a higher clause, and is adjoined to the verb of that higher clause, a case of **Head Movement** (Baker 1988). The movement is obligatory because the cause-verb is specified as a bound morpheme that has to be attached to another word in surface structure. In such analyses the difference between derivation and inflection cannot coincide with the distinction between pre-syntactic and post-syntactic morphology.

3. References

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