

# Prefix-Suffix Neutrality In Evaluative Morphology

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## 1. Introduction: The “Suffixing Preference”<sup>1</sup>

A well-known and often discussed issue in the studies on morphology, in particular on morphological typology, is the somehow puzzling asymmetry languages display in the use of the different morphological strategies they have at their disposal. We refer to the fact that suffixes are largely preferred to prefixes, and that these are preferred to other types of affixes (infixes, circumfixes, etc.). This has become a leitmotiv in the studies on morphological typology at least since Greenberg’s (1963) fundamental and seminal work on language universals. This asymmetry in the distribution of prefixes and suffixes among World’s languages, usually called ‘suffixing preference’, has been related to two typologically relevant parameters (use of prepositions vs. use of postpositions and VO vs. OV basic word orders).

The following table sums up the results of this correlation:

(1)

	Prefixes	Suffixes
VO / Pr	X	X
OV / Po	∅	X

(Hawkins/Gilligan 1988: 219)

As expected, among the World’s languages, all those which use prefixes are prepositional and VO (i.e., head-initial languages); and as expected as well, all postpositional and OV languages (that is, ‘head-final’ languages) use suffixes. Nevertheless, and unexpectedly, many prepositional and VO languages use suffixes too. This fact shows that many languages prefer using suffixes rather than prefixes *in any case* to express their grammatical relationships.

The first row of the table can be interpreted as follows:

- (a) intra-linguistic interpretation: a VO and prepositional language (or, in other words, a head-initial language) can have both inflexional prefixes and inflexional suffixes. For example, in Berber verbs, third person singular is

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<sup>1</sup> We are grateful to Andrew McMichael for having reviewed the English text, to our informants for having filled up our questionnaire, and to the colleagues that participated in the ‘animated’ discussion which followed the presentation of this paper at the 4<sup>th</sup> Mediterranean Meeting on Morphology. Their questions, comments, criticisms and suggestions have been a great spur to correct and improve (we hope) some crucial points of our study.

marked by a prefix (*y/i-* for masculine and *tɔ-* for feminine), but third person plural is marked by a suffix (*-ɔn* for masculine and *-ɔn(t)* for feminine)

- (b) cross-linguistic interpretation: in VO and prepositional languages (that is, in head-initial languages), an inflectional category can be cross-linguistically expressed both by prefixes and suffixes. For example, number is marked by a suffix in Italian (*alber-o* ‘tree’ vs. *alber-i* ‘trees’) and by prefixes in Swahili (*m-tu* ‘man’ vs. *wa-tu* ‘people’).
- (c) a third possibility, though conceivable, is not attested within the World’s languages: in a single language, an inflectional category is always expressed either by prefixes or by suffixes, but never by both.

It should be specified that table (1) has been drawn up on the basis of a wide cross-linguistic comparison of inflectional categories. In fact, it is undeniable that inflectional categories are cross-linguistically more constant than derivational ones and so it is easier to compare inflection than derivation. Nonetheless, if derivation had been taken into account too, the table would probably not have an empty slot.

(2)

	Prefixes	Suffixes
VO / Pr	X	X
OV / Po	(X)	X

In fact, derivational prefixes are attested even in some OV languages, although they are rarer than in VO languages (as indicated by the round brackets).

As for inflection, also for derivation there are two possible interpretations of the two rows of the table:

- (a) intra-linguistic interpretation: a language (independently of the position of the head) can have both derivational prefixes and derivational suffixes (for example, in Romance languages relational adjectives are formed by adding a suffix to the base-word, but negative adjectives are formed by adding a prefix to the base-word);
- (b) cross-linguistic interpretation: a derivational category can be cross-linguistically expressed both by prefixes and suffixes. For example, agent nouns are formed by suffixes in English (i.e. *sing* > *sing-er*) and by prefixes in Malay (*nyanyj* ‘sing’ > *pe-nyanyj* ‘singer’).
- (c) even in this case, the other conceivable interpretation seems to be excluded or, at least, seems to show a very low degree of occurrence: in a single language a derivational category tends not to be expressed both by prefixes and suffixes.

Different explanations have been proposed to take into account this asymmetry, including psycholinguistic factors, such as the greater relevance of the beginning of a word for processing than of its end (cf. Cutler *et al.* 1995, Hawkins / Gilligan 1988); diachronic tendencies for grammaticalization of free elements (cf. Hall 1988), or

observations concerning the fact that prefixes are usually considered as non prototypical affixes (in comparison to suffixes), since they are learnt later in language acquisition, lost earlier in aphasia, etc. (cf. Mel'čuk 2000).

In this paper, we would like to investigate the real value of such an asymmetry, and the link it may have with the expression of different semantic and functional categories. It is uncontroversially assumed that prefixes and suffixes can equally serve to express both inflectional and derivational categories, and that the same semantic value can be expressed, in different languages, by either strategy (see, for example, Italian and Swahili plural forms or English and Malay agent nouns presented above). Nevertheless, some systematic relationships between semantic functions and the position occupied by the morphemes used to express them have been observed. For instance, case, mood, and valence are almost always expressed by suffixes<sup>2</sup>, while there seems to exist a strong preference for negative morphemes to be prefixes (cf., for example, negative verbal prefixation in Indo-European languages). A major problem with all these generalizations is the fact that – as we stated above – they are almost all based on inflection, with no reference to derivation. Even regardless of the difference between inflection and derivation, as we have already pointed out, the crucial point is that in a single language one semantic value can be expressed either by prefixes or by suffixes never by both. It is usually assumed that this generalization is undoubtedly true for inflection, but it seems to hold also for derivation. There is, however, a remarkable exception that has rarely been taken into account by scholars: evaluative affixes, which, in many genetically and typologically unrelated languages, seem to disregard the suffixing preference, favouring – as we will see in the next paragraph – a sort of ‘prefix-suffix neutrality’.

## **2. Evaluative Derivation: A Case of Prefix-Suffix Neutrality?**

If we go back to Tables 1 and 2, we can wonder which of them describes the situation for evaluative morphology<sup>3</sup>, since – as many scholars have pointed out – evaluative morphology usually lies on the borderline between inflexion and derivation.

A first cross-linguistic survey of the data suggests that evaluative affixes behave just like derivational affixes: both evaluative prefixes and suffixes are attested both in OV and VO languages. But if evaluative morphology is concerned, all three possible interpretations of the tables are widely attested. In fact,

- (a) a single language can have both evaluative prefixes and suffixes (e.g. Italian *gatto* ‘cat’ > *gattino* ‘kitten’ and *moto* ‘motor-cycle’ > *maximoto* ‘big motor-cycle’);
- (b) the same evaluative function can be cross-linguistically expressed by prefixes and suffixes (e.g. Italian diminutive suffix *-ino* in *ragazzino* ‘little boy’ and Shona diminutive prefix *ka-* in *kakomana* ‘little boy’);

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<sup>2</sup> Hawkins & Gilligan (1988: 234) present some data on prefixal vs. suffixal marking of 11 different semantic and functional classes in some 220 different languages.

<sup>3</sup> We recall that what we call ‘evaluative morphology’ is the morphological expression of semantic and functional relationships along the two axes SMALL ↔ BIG and GOOD ↔ BAD (see Grandi 2002 for details).

- (c) a single evaluative function can be formally expressed both by prefixes and suffixes even in the same language (e.g. Italian *appartamento* ‘flat’ > *appartamento* / *miniappartamento* ‘small flat’).

So, if we pass from inflection (and derivation – although to a lower degree) to evaluative morphology, the so-called ‘suffixing preference’ seems to become a sort of ‘prefix-suffix neutrality’. What is really interesting from a typological point of view is that there seems to be some semantic functions that are insensitive to the well-know and cross-linguistically widespread prefix-suffix asymmetry. This typologically unusual situation is best exemplified by Indo-European languages:

- (3) i. Indo-European languages

Romance languages:

Diminutive prefixes:	It., Sp., Port., Fr. <i>mini-</i> , <i>micro-</i> etc.
Diminutive suffixes:	It. and Sp. <i>-ino</i> , Port. <i>-inho</i> , It. <i>-etto</i> , Fr. <i>-et(te)</i> etc.
Augmentative prefixes:	It., Sp., Port., Fr. <i>maxi-</i> , <i>macro-</i> , <i>mega(lo)-</i>
Augmentative suffixes:	Sp. <i>-ón</i> , It. <i>-one</i> , Port. <i>-ao</i> etc.

Modern Greek:

Diminutive prefix:	μικρο-
Diminutive suffixes:	-άκι, -ούλι, -ίτσα etc.
Augmentative prefix:	μακρο-
Augmentative suffixes:	-άς, -άκλα, -άρα etc.

The data in (3) show that the same semantic instructions ‘small X’ and ‘big X’ can be expressed cross-linguistically either by suffixes, by prefixes (or circumfixes and infixes) or even by both types of affixes within the same language. Needless to say that this is an anti-economic and, consequently, typologically unusual situation.

At this stage we will restrict our observations to the Indo-European languages of Europe (henceforth simply European languages). The four evaluative semantic values (SMALL, BIG, GOOD, BAD) are spread similarly within all these languages (see the languages from Italian to Greek in Table B in the Appendix). In particular, we may notice some regularities: the meaning SMALL and the meaning BIG are (almost) always expressed both by prefixes and by suffixes in European languages, the meaning GOOD is (almost) always expressed by prefixes and the meaning BAD is always expressed (if it is expressed morphologically), by suffixes. The last issue, in particular, would certainly deserve to be investigated in more detail, and could provide matter for further work. The maps at the end of the paper summarize the situation.

It should be noticed, however, that the emergence and spread of evaluative prefixes in all European languages (not only Indo-European) is primarily due to the emergence of a pan-European cultural lexicon, by which almost all European languages borrowed a large number of Latin and Greek morphemes (such as *super-* or *hyper-*). This fact may actually cause some distortions in the observed data (for instance, French and English, two languages which possess very few evaluative suffixes have a wide set of evaluative prefixes). However, the fact that non-learned evaluative prefixes exist in

the majority of these languages (as they existed in Latin and Ancient Greek) suggests, in our opinion, that European languages do have a prefixal evaluation<sup>4</sup>.

For European languages, a first survey of the data suggests that what we called ‘prefix-suffix neutrality’ involves morphemes expressing the meaning SMALL, and partially involves morphemes expressing the meaning BIG (in particular for Romance languages, Slavic languages and Greek). It could be said, then, that it concerns the ‘quantitative’ side of evaluation (SMALL vs. BIG), but not the ‘qualitative side (GOOD vs. BAD).

Interestingly, this phenomenon is also attested – though to a smaller extent – in languages belonging to other families and spoken in other geo-linguistic areas:

(4) i. Ugro-Finnic languages

Finnish:

Diminutive prefix: *pikku-*  
Diminutive suffix: *-nen*

ii. Afroasiatic languages

Berber:

Diminutive suffix: *-ush*  
Diminutive circumfix: *t\_\_t*

ii. Niger-Congo languages

Bantu languages:

Diminutive prefixes: usually class 12/13 (but also 2, 7, 8, 11, 14, 19, 20)  
Diminutive suffix: *-ana*  
Augmentative prefixes: class 3, 4, 5, 10, 21, 22 etc.  
Augmentative suffix: *-hadi / -kati* etc.

Once again, only the “quantitative” side of evaluation is involved.

In the following sections of this paper, we aim to focus on this “prefix-suffix neutrality” in a typological perspective in order to understand how far this unusual situation is spread among languages other than Indo-European ones and, secondly, to understand if this phenomenon correlates with other typological features (or, in other words, if there are typological correlations that can favour or disfavour it). In this case, three parameters will be taken into account: the morphological type, the presence of prepositions vs. postpositions and the VO vs. OV word order.

### **3. Prefix-Suffix Neutrality in a Typological Perspective**

The sample on which we tested the occurrence of “prefix-suffix neutrality” and the possible correlations with the previously mentioned typological parameters includes 55 languages, belonging to different families (Indo-European, Uralic, Altaic, Afro-Asiatic,

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<sup>4</sup> For a discussion on the status of prefixal vs. suffixal evaluation in Italian, cf. Grandi / Montermini (forthcoming).

Sino-Tibetan, Kam-Tai, Austric, Austronesian, Oceanic, Niger-Congo, Caucasian, Eskimo-Aleut, Amerind and Chukotko-Kamchatkan; also a few isolated languages were investigated). The data presented in this paper were collected from a questionnaire submitted to native speakers of the languages<sup>5</sup>. The whole list of languages is in the first column of tables A and B at the end of the paper. Before going into detail, we have to point out that the sample is unbalanced in favour of head-initial languages; as a consequence, it cannot be said to be really representative of the World's languages.<sup>6</sup> It is important, then, to lay stress on the fact that our results are still partial and incomplete (this paper, in fact, represents just the first step of a wider project whose aim is to draw a 'typological map' of derivational morphology in languages). Consequently, our conclusions must not be read as proven, but as possible clues to general typological tendencies.

The languages of the sample have been analyzed in order to single out:

- (a) the morphological type;
- (b) the order of verb and direct object (VO vs. OV);
- (c) the presence of prepositions or postpositions;
- (d) a list of all the morphological strategies with evaluative meaning;
- (e) the formal (not only morphological) strategies used to express each evaluative meaning.

Tables A and B in the Appendix summarize the data we took into account. The information corresponding to points (a-d) above are located in the third, fourth, fifth and sixth columns of table A. The information corresponding to point (e) is displayed in table B.

When reading and analysing Table A, it should be kept in mind that it is often difficult – sometimes even impossible – to indicate some typological tendencies in a clear, univocal and, above all, concise way. This holds especially for morphological types or word order typology. So, the values in the third and fourth columns of Table A are to be considered as the expression of statistically relevant tendencies. If two or more values are present in the same slot, the one in capital letters corresponds to the prevailing tendency. Furthermore, question marks indicate typologically entangled situations or the presence of morphological items which cannot be classified in a clear and precise way.

The parameters to be related to the presence / absence of evaluative affixes have been chosen taking into account the results of the works by Greenberg, Hawkins / Gilligan and others on the 'suffixing preference'. First of all, we referred to the 18 implicational universals listed in Hawkins / Gilligan (1988), who relate the choice of prefixes or suffixes to express categories such as case, mood, etc. to the internal structure of the adpositional phrase (namely to the presence of prepositions or

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<sup>5</sup> All the informants have some 'metalinguistic competence'.

<sup>6</sup> Languages of the sample can be grouped as follows: 38 VO / Pr languages; 12 OV / Po languages and 5 languages with other typological configurations.

postpositions) and of the verbal phrase (i.e. to the relative order of verb and direct object).

Among the languages of our sample, the distribution of evaluative affixes can be represented as follows:

(5)

	Evaluative morphology								
	Pref	Inf	Suf	Pref / Inf / Suf	Pref / Suf	Pref / / Inf	Inf / Suf	No eval. morph.	Other stra- tegies
VO & Pr (38)	4	6	5		18		2	3	2
VO & Pr/Po (2)					2				
VO & Po (1)			1						
OV & Po (12)	2		8		1				1
OV & Pr (2)			1					1	

N.B.: the total of the first row of the table is 40 instead of the expected 38 because Moroccan and Tunisian Arabic have been counted twice. In fact, these languages uses both infixes and suffixes, but the meaning of these strategies do not overlap: infixes have a diminutive meaning, suffixes have an augmentative meaning. So, Moroccan and Tunisian Arabic cannot be placed in the ‘Inf / Suf’ slot. Berber, which makes use of the diminutive circumfix *t\_\_t* and of some diminutive suffixes has been inserted – maybe forcibly – into the ‘Pref / Suf’ slot.

The slots containing the values we consider as being the most relevant are marked in grey. It is useful to express these figures as percentages, in order to show the results of this survey in the clearest way. 52% of VO/Pr languages exhibit some kind of affixal neutrality (mostly between prefixes and suffixes, but also between infixes and suffixes). The remaining VO / Pr languages are equally divided into prefixal languages, infixal languages, suffixal languages, languages with no evaluative morphology and languages that use other strategies to form diminutives and augmentatives. So, the incidence of affixal neutrality among VO / Pr (or, in other words, among head-initial languages) seems to be high.

But if we turn to OV / Po languages, the situation is radically different: in our sample, the only language which displays a prefix-suffix neutrality is Hindi (an Indo-European language). As it could have been easily foreseen, suffixes are the most favoured strategy in evaluative morphology of OV / Po languages (they are attested in 66% of the languages in our sample).

Thus, the cross-linguistic distribution of ‘affixal neutrality’ also seems to be asymmetrical, favouring head-initial languages.

Table B gives a detailed picture of the situation: all the formal strategies used by each language of the sample to express the four main evaluative meanings (SMALL, BIG, GOOD, BAD) are grouped on the basis of their meaning. The grey areas correspond to the cases of neutrality between prefixes and suffixes (or between infixes and suffixes). The table contains 220 slots; 117 of them are empty. This means that the corresponding semantic value is not morphologically expressed. The great majority of empty slots refers to the ‘qualitative’ side of evaluative morphology, represented by the GOOD / BAD opposition. As to the filled slots, 38 out of 113 (about 33%) correspond to some kind of neutrality; but just 2 of them refer to the ‘qualitative’ side of evaluation:

(6)	SMALL	23 instances of affixal neutrality
	BIG	13 instances of affixal neutrality
	GOOD	1 instance of affixal neutrality
	BAD	1 instance of affixal neutrality

Therefore, data provide evidence for the hypothesis that prefix-suffix neutrality is a characteristic of the quantitative side of evaluative morphology. Moreover, very interestingly, about 92% of these slots (35 out of 38) correspond to VO languages (belonging above all to the Indo-European family, but also to the Afro-Asiatic family and to the Niger-Congo family).

Thus, data confirm that the absence of a ‘suffixing preference’ in evaluative morphology and the presence of the typologically unusual ‘prefix-suffix neutrality’ are widely (but not exclusively) attested in Indo-European VO languages.

There are probably two ways of interpreting these data. At first, one can wonder why prefix-suffix neutrality has emerged in many Indo-European VO languages and in a couple of head-initial non Indo-European languages.<sup>7</sup> But, on the other hand, one can wonder why this neutrality has not taken place in the evaluative morphology of OV languages, although derivational prefixes are attested in many of them. In our opinion, this is the most puzzling aspect of the situation. In the last section of this paper, we will focus specifically on this issue, in order to explain the absence of prefix-suffix neutrality in head-final languages.

#### 4. Conclusions

Although the sample taken into account is not balanced either genealogically or typologically, the data discussed in this paper convey, in our opinion, some promising hints and suggestions. The ‘prefix-suffix neutrality’<sup>8</sup> seems to be a peculiarity of VO/Pr languages, possibly independently of their genetic affiliation (even if the degree of occurrence of the phenomenon we have investigated is particularly high in Indo-European languages). This unusual ‘affixal neutrality’ can thus be viewed as a typological characteristic of head-initial languages. In this picture, the problem is to understand why it is almost absent in head-final languages.

The hypothesis we suggest is that the possible explanation for this further asymmetry is to be looked for in the typological outline of morphological systems. It is well known that consistent OV languages tend to be agglutinative in their morphology (cf. Lehmann 1973: 47). Agglutinative languages tend to preserve a one-to-one correspondence between form and meaning. Prefix-suffix neutrality is a clear violation of this tendency: in this case, we have more formal items to express just one meaning. Such a situation would be very problematic for agglutinative languages. So, one can easily predict that languages with a low index of fusion tend to avoid these morphological strategies.

So, there are two possible answers to the question concerning the asymmetrical distribution of ‘prefix-suffix neutrality’ in evaluative morphology. In fact, we could state that the combination of VO word order and of a high index of fusion favours the development of ‘prefix-suffix neutrality’. But we could state also that the combination of OV word order and a low index

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<sup>7</sup> Some of these non Indo-European languages are directly influenced by some Indo-European languages (cf. Maltese).

<sup>8</sup> We keep this expression as a broad term covering not only prefixes and suffixes but also discontinuous affixes.



of fusion disfavours the development of ‘prefix-suffix neutrality’. Which is the right path to follow? Bantu languages, which combine VO word order and agglutinative morphology, can play an important role in solving this problem. They can be a sort of ‘litmus paper’ to test our hypothesis. In fact, evaluative suffixes (which, to a certain extent, correspond to Indo-European evaluative prefixes) are a very recent innovation in Bantu languages. As a consequence, it is still not clear if their domain of application and that of evaluative prefixes do really overlap, at least partially. So, it will be very interesting to monitor the development of these suffixes in the coming years, in order to understand which is the strongest factor in conditioning prefix-suffix neutrality between VO word order and agglutinative morphology. Of course, if prefix-suffix neutrality widely takes place in Bantu languages such as in Indo-European languages, then VO word order (attested both in Bantu and Indo-European languages) should be considered as the prevailing factor in favouring prefix-suffix neutrality. On the contrary, if the spread of evaluative suffixes in Bantu languages is not wide enough to generate a real ‘prefix-suffix neutrality’, then agglutinative morphology (which distinguishes Bantu languages from Indo-European languages) should be considered as the strongest factor in disfavoursing prefix-suffix neutrality.

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Appendix

TABLE A

Language	Classification <sup>9</sup>	Morph. Type	VO/OV	Pr/Po	Evaluative morphology
Italian	Indo-European/Italic	Fusional	VO	Pr	SUFFIXES, Prefixes
French	Indo-European/Italic	Fusional	VO	Pr	SUFFIXES, Prefixes
Spanish	Indo-European/Italic	Fusional	VO	Pr	SUFFIXES, Prefixes
Catalan	Indo-European/Italic	Fusional	VO	Pr	SUFFIXES, Prefixes
Romanian	Indo-European/Italic	Fusional	VO	Pr	SUFFIXES, Prefixes
German	Indo-European/Germanic	Fusional	VO	Pr	SUFFIXES, Prefixes
Dutch	Indo-European/Germanic	Fusional	VO	Pr	SUFFIXES, prefixes
Swedish	Indo-European/Germanic	Fusional	VO	Pr	Prefixes
Danish	Indo-European/Germanic	Fusional	VO	Pr	Prefixes
Norwegian	Indo-European/Germanic	Fusional	VO	Pr	Prefixes
Icelandic	Indo-European/Germanic	Fusional	VO	Pr	Prefixes
Russian	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Polish	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Czech	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Bulgarian	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Croatian	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Slovene	Indo-European/Slavonic	Fusional	VO	Pr	SUFFIXES, Prefixes
Irish	Indo-European/Celtic	Fusional	VO	Pr	Suffixes
Albanian	Indo-European/Albanian	Fusional	VO	Pr	Suffixes
Greek	Indo-European/Greek	Fusional	VO	Pr	SUFFIXES, Prefixes
Modern Stand. Armenian	Indo-European/Armenian	Agglutinative	VO	Pr/Po	SUFFIXES, Prefixes (only loan prefixes)
Hindi	Indo-European/ Indo-Iranian/Indic/Central	Fusional	OV	Po	Prefixes, SUFFIXES
Kâmv'iri	Indo-European /Indo-Iranian/Nuristani /Northern	Fusional	OV	Po	Suffixes
Hungarian	Uralic/Finn-Ugric/Ugric	Agglutinative	OV	Po	Suffixes
Finnish	Uralic/Finno-Ugric/Finnic	AGGLUTINATIVE/Fusional	VO	Pr/PO	Suffixes, Prefixes
Turkish	Altaic/Turkic/Southern	Agglutinative	OV	Po	Suffixes
Evenki	Altaic/Mongolian-Tungus/Tungus/Northern	Agglutinative	OV	Po	Suffixes,
Basque	(isolate)	Agglutinative	OV	Po	Suffixes
Modern Standard Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Infixes
Moroccan Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Suffixes, INFIXES
Tunisian Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Suffixes, INFIXES
Libyan Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Infixes
Egyptian Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Infixes
Syrian Arabic	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Infixes

<sup>9</sup> Classification is from Ruhlen (1991<sup>2</sup>). The typological information in the third, fourth and fifth columns are from Comrie (1990<sup>2</sup>) and Campbell (2000).

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Maltese	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Arabic	Fusional	VO	Pr	Suffixes, INFIXES
Hebrew	Afro-Asiatic/Semitic/West/Central/Arabo-Canaanite/Canaanite	Fusional	VO	Pr	Suffixes, Infixes
Berber (Tamazight)	Afro-Asiatic/Berber/Northern/Atlas	Fusional	VO	Pr	CIRCUMFIX, subtractive morphology, Suffixes
Mandarin Chinese	Sino-Tibetan/Sinitic/Chinese	Isolating	VO	Pr	Pref/Suf
Korean	Korean-Japanese	Agglutinative	OV	Po	No (vowel and consonant alternations)
Japanese	Korean-Japanese	Agglutinative	OV	Po	Prefixes (consonant alterations)
Thai	Kam-Tai/Tai	Isolating	VO	Pr	Pre-nominal free (?) forms
Vietnamese	Austriac/Viet-Muong	Isolating	VO	Pr	Post-nominal free (?) forms
Malay	Austronesian/Western/Malayo-Polynesian/Malayic/Malayan	Agglutinative	VO	Pr	Pre-nominal (?) free forms
Makassarese	Austronesian/Western Malayo-Polynesian/Celebes/South Sulawesi	Agglutinative	VO	Pr	No (reduplication)
Samoa	Oceanic/Central Pacific/Polynesian/Samoic Outlier	Agglutinative	VO	Pr	No
Pileni	Oceanic/Central Pacific/Polynesian/Samoic Outlier	Agglutinative	VO	Pr	No
Swahili	Niger-Congo/Bantu/Central Bantu/Swahili	Agglutinative	VO	Pr	PREFIXES, Suffixes
Shona	Niger-Congo/Bantu/Central Bantu/Shona	Agglutinative	VO	Pr	PREFIXES, Suffixes
Yukaghir	Uralic-Yukaghir/Yukaghir	Agglutinative	OV	Po	Suffixes
Avar	Caucasian/North/Daghestanian	Agglutinative	OV	Po	Suffixes
Inuktitut (East. Canadian Inuit)	Eskimo-Aleut/Eskimo/Inuit	Polysynthetic	OV	Po	Suffixes
Mapudungun	Amerind/Andean/Southern	Polysynthetic	OV	Pr	No
Potawatomi	Amerind/Northern/Algonquian	Polysynthetic	OV	Pr	Suffixes
Nahuatl	Amerind/Uto-Aztecan/Aztec	Agglutinative	VO	Po	Suffixes
Chukchi	Chukotko-Kamchatkan/Northern/Chukchi	Incorporating	OV	Po	Suffixes

TABLE B<sup>10</sup>

Language	SMALL	BIG	GOOD	BAD
Italian	Pref / SUF	Pref / SUF	PREF / Suf (?)	Suf
French	Pref / SUF	Pref	Pref	Suf
Spanish	Pref / SUF	Pref / SUF	Pref	Suf
Catalan	Pref / SUF	Pref / SUF	Pref	
Rumanian	Pref / SUF	Pref / SUF	Pref	Suf
German	Pref / SUF	Pref		
Dutch	Pref / SUF	Pref		
Swedish	Pref	Pref		
Norwegian	Pref	Pref		
Danish	Pref	Pref	Pref	
Icelandic			Pref (?)	
Russian	Pref / SUF	Pref / SUF	Pref (?)	Suf
Polish	Pref / SUF	Pref / SUF	Suf	Suf
Czech	Pref / SUF	Pref / SUF	Pref	
Bulgarian	Pref / SUF	Pref / SUF	Pref (?)	Suf
Croatian	Pref / SUF	Pref / SUF		
Slovene	Pref / SUF	Pref	Pref	
Irish	Suf			
Albanian	Suf	Suf		
Greek	Pref / SUF	Pref / SUF		
Modern St. Armenian	Pref / SUF	Pref		
Hindi	Pref / SUF	Pref / SUF	Pref	Pref
Kâmv'iri	Suf			
Hungarian	Suf			
Finnish	Pref / Suf	Pref	Pref	
Turkish	Suf			
Evenki	Suf			
Basque	Suf			
Modern Stand. Arabic	Inf			
Moroccan Arabic	Inf	Suf		
Tunisian Arabic	Inf	Suf		
Libyan Arabic	Inf			
Egyptian Arabic	Inf			
Syrian Arabic	Inf			
Maltese	INF / Suf	Suf		Suf
Hebrew	Inf / Suf			
Berber (Tamazight)	CIRCUMFIX / Suf	subtractive morphology		
Mandarin Chinese	Pref / Suf		Suf	
Korean	vowel and consonant alternations			
Japanese	Pref		Pref	Pref / CONSONANT ALTERATION
Thai	pre-nominal free (?) forms	pre-nominal free (?) forms		

<sup>10</sup> As to this table, we have decided not to make a distinction between native morphemes and borrowed morphemes. For example, Swedish prefixes are non-native, since they represent a consequence of the spread of the cultural pan-European lexicon we have mentioned in § 2. Of course, all the borrowed morphemes included in the table are fully integrated in the languages involved; in other words, their use is not limited to formal varieties of the languages.

*Prefix-Suffix Neutrality In Evaluative Morphology*

Vietnamese	post-nominal free (?) forms	post-nominal free (?) forms		
Malay	pre-nominal free (?) forms	pre-nominal free (?) forms		
Makassarese	reduplication			
Samoan				
Pileni				
Swahili	PREF / Suf	PREF / Suf		
Shona	PREF / Suf	PREF / Suf		
Yukaghir	Suf	Suf		
Avar	Suf			
Inuktitut (Eastern Canadian Inuit)	Suf	Suf	Suf	Suf
Mapudungun				
Potawatomi	Suf			
Nahuatl	Suf			
Chukchee	Suf	Suf		

N.B. In case of affixes with two possible meanings, only the primary one has been taken into account.

Pref = prefixes / Suf = suffixes / Inf = infixes

Appendix: Maps



SMALL



BIG



GOOD



BAD

