

# Gender and word formation: The PIE gender system in cross-linguistic perspective

*Silvia Luraghi – Università di Pavia*

## 1. Introduction

The category of gender has traditionally puzzled linguists and grammarians. Among its most striking features is its double faceted nature, which locates it somewhere in between syntax and the lexicon: gender is not inflectional in nouns, the lexical category for which it is most relevant, but its trademark is its agreement triggering force, which variously manifests itself on adjectives, pronouns, verbs, or other lexical categories associated with nouns. Far from being a peculiarity of the Indo-European languages, the double faceted nature of gender is its distinctive feature in all languages endowed with some sort of gender system. It is the purpose of this paper to explore derivational and inflectional properties of gender as reconstructed in PIE in cross-linguistic perspective, in the light of data from the Indo-European languages and from other language families.

The paper is organized as follows. In sec. 2 I start by discussing prototypical features of inflection and derivation, and explore the position of gender and other categories of nouns in such a framework. In sec. 3 I go deeper into the relation between gender and other more or less prototypical word formation processes. I then survey the features of different systems of nominal classification, still in connection with word formation. Sec. 4 contains a discussion of formal aspects involved in the derivation of nouns that denote female animate entities from nouns that denote males. In this framework, I distinguish between gender motion and gender shift, that is derivation through the addition of a derivational affix (not of a stem formation affix) from derivation brought about by means of inflectional class change (that is, involving different stem formation). Sec. 5 calls attention on similarities and interplay between gender and two other non-prototypical categories, diminutives (non-prototypical derivation) and number (non-prototypical inflection). In sec. 6 I summarize the development of the PIE gender system, arguing that the change that led the suffix *\*-h<sub>2</sub>* to become the feminine marker must be understood as chronologically disconnected from the change that let it to become the ending of the nominative/accusative neuter plural. I show that attempts to order the two changes chronologically has raised a number of issues, including the question why the suffix appears throughout the paradigm in feminine nouns, while it is limited to the nominative/accusative endings in the neuter. This and similar problems find a solution if one conceived of the two changes as independent developments. In sec. 7 I turn to the function of gender in syntax and discourse, and show that gender behaves as inflectional categories in this respect. Sec. 8 is devoted to the possible origins of

gender systems. It describes data from different languages, in which genders came about through grammaticalization of nominal classifiers, of derivational affixes, or of differential case marking. Based on the developments surveyed in sec. 8, in sec. 9 I elaborate on the rise of agreement in PIE, distinguishing between the earlier animacy-based two-gender system, and the later sex-based three-gender system. In sec. 10 I describe some instances of noun modifier agreement through derivational affixes. Sec. 11 contains the conclusion.

## 2. Inflectional and derivational morphology

### 2.1. Definitions

The traditional distinction between inflectional and derivational morphology is based on a series of characteristic functions, prototypically fulfilled either by inflection or by word formation (see Dressler 1989, Dressler et al. 1987). They are summarized in Table 1.

Table 1.: PROTOTYPICAL DIFFERENCES BETWEEN INFLECTION AND DERIVATION

INFLECTION	DERIVATION
no change of word class	change of word class
obligatory (=high productivity)	non-obligatory (=limited productivity)
syntactic function	no syntactic function

Among categories of nouns, case is prototypically inflectional: inflection for case is obligatory for all members of the lexical classes that present it as a relevant category (in the Indo-European languages, such lexical classes are noun, adjective, pronoun, and to varying extents determiner where available); in addition, two forms inflected in different cases, as for example Latin *urbis* (gen.) and *urbe* (abl.), belong to the same word class but bear different information regarding their possible syntactic function.

As opposed to prototypical inflection, which serves syntax, derivation serves the lexicon, in the first place by creating new words, which prototypically belong to different lexical classes: for example, modal adverbs are typically made out of adjectives, while action nouns are mostly derived from verbs. In the second place, derivation motivates the lexicon, as it creates groups of words marked in the same way after some type of common feature: for example, English modal adverbs take the suffix *-ly*, German deverbal action nouns take the suffix *-ung*, and so on (see Dressler et al. 1987: 99).<sup>1</sup>

---

<sup>1</sup> These two functions of derivation (or word formation) are described as follows in Dressler et al.: “(a) lexical enrichment ..., i.e. forming new words, thus serving the cognitive function of language ... (b) morphotactic and semantic

## 2.2. *Non-prototypicality of gender*

It has long been noticed that not all morphological categories display all prototypical features of either inflection or derivation. Kuryłowicz (1964: 17) has the following observations regarding number, which he compares to case on the one hand and to prototypical derivation on the other:<sup>2</sup>

If the two inflexional forms differ semantically only, like Latin *urbs* (singular): *urbes* (plural), the status of such a pair will be intermediate between the relation basic word:derivative and the relation *urbs: urbem*. [...] *urbs:urbanus* = two different words; *urbs:urbes* = one word, with forms semantically different and having secondary syntactical functions; *urbs:urbem* = one word, with forms semantically identical, syntactically different (Kuryłowicz 1964: 17).

Note further that, in the Indo-European languages, number also serves syntax, as it has the function of cross-referencing the subject and the finite verb. This is not necessarily so cross-linguistically, as we will see in sec. 5.2.

Gender has a further peculiarity with respect to number and other nominal categories: it is inherent in nouns, that is, it is specified in the lexicon. Nouns are assigned a specific gender, and do not inflect in the other genders available in a language. This distinguishes nominal gender from adjectival and pronominal gender, which is not inherent but inflectional. Indeed, gender of adjectives and pronouns (such as demonstratives and anaphoras) has a syntactic function, since it either indicates constituency or serves for cross-reference through concord (see sec. 7).

Thus, gender of nouns is closer to the derivational pole than number, since nouns are assigned a

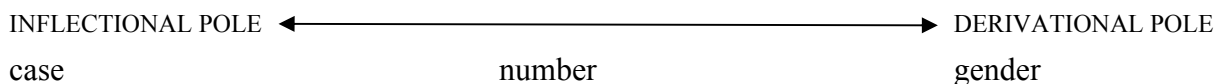
---

motivation of existing words, thus facilitating the communicative function of language ... as well as storage in memory” (1987: 99).

<sup>2</sup> This difference is also captured through the distinction between inherent vs. contextual inflection, described as follows by Boij: “Inherent inflection is the kind of inflection that is not required by the syntactic context, although it may have syntactic relevance. Examples are the category number for nouns, comparative and superlative degree of the adjective ... Contextual inflection, on the other hand, is that kind of inflection that is dictated by syntax, such as person and number markers on verbs that agree with subjects and/or objects, agreement markers for adjectives ...” (1996: 2). Following this approach, even some manifestations of case are not always prototypically inflectional, as so-called semantic cases have a meaning by itself, and their occurrence is not triggered by the context. As a consequence, they may have a function within word formation, while strictly syntactic cases may not. Regarding case, Boij remarks: “[t]raditionally, a distinction is made between structural case and semantic case. In Hungarian, for instance, nominative and accusative are structural cases (i.e. contextual inflection), whereas there is also a number of semantic cases, such as the inessive ('in') that functions as inherent inflection. As predicted by our hypothesis that it is only inherent inflection that feeds word formation, semantic cases do occur inside Hungarian complex words, unlike structural cases.” (1996: 10).

specific gender, while they inflect in different numbers. This is shown in Fig. 1:

Figure 1. IE NOMINAL CATEGORIES – INFLECTION AND DERIVATION



When we compare gender to prototypical derivation, the difference that most strikes us is that, even though the same nominal root with different genders results in two separate lexemes, these lexemes belong to the same lexical class, as shown in Fig. 2:

Figure 2. GENDER AS NON-PROTOTYPICAL DERIVATION

N ---> N ---> no change of class  
*vrkaḥ* ---> *vrkīḥ*

As indicated in Table 1, prototypical derivational processes cause a change in lexical class, i.e. the derived lexeme does not belong to the same lexical class as the base of derivation. Since other derivational affixes share this property of gender, I will set gender in the wider framework of Indo-European denominal nouns in the next section.

### 3. Gender as non-prototypical derivation: semantic aspects

#### 3.1. Derivation

As remarked above, gender shift is not the only process that can derive a noun from another noun: indeed, denominal nouns are commonly found across languages. Note that in this section I use ‘gender shift’ rather than ‘gender motion’, because I prefer to leave this latter term for occurrences in which the feminine is indicated by a derivational affix (i.e. an affix which is synchronically analyzable as a derivational morpheme), rather than by change of inflectional class, as in the examples listed in the table. This difference is traditionally captured in terms of word formation vs. stem formation (see Pimenova 2004). I will elaborate further on the difference between these two process in sec. 4.2.

To limit our observations to the Indo-European languages, we can find various examples of word formation by which nouns are derived from nouns, some of which, both from ancient and from modern Indo-European languages, are listed in Table 2. I have included instances of derivation

through gender shift to highlight the parallel with other types of denominal nouns.

Table 2.: SOME DENOMINAL NOUNS IN THE INDO-EUROPEAN LANGUAGES

diminutives	<i>putrah</i> ‘son’ ---> <i>putrakah</i> (Skr.) <i>funis</i> ‘rope’ ---> <i>funiculus</i> (Lat.) <b><i>Hund</i> (m.)</b> ‘dog’ ---> <b><i>Hündchen</i> (nt.)</b> (Germ.) <i>gatto</i> ‘cat’ ---> <i>gattino</i> (It.) <b><i>donna</i></b> ‘woman’ ---> <b><i>donnino</i></b> (It.)
augmentatives	<b><i>palla</i> (f.)</b> ‘ball’ ---> <b><i>pallone</i> (m.)</b> (It.)
agent nouns	<b><i>mercatus</i></b> ‘market’ ---> <b><i>mercator</i> (m., f.: <i>mercatrix</i>)</b> ‘merchant’ (Lat.) <sup>3</sup> <b><i>Kunst</i></b> ‘art’ ---> <b><i>Künstler</i> (m., f.: <i>Künstlerin</i>)</b> ‘artist’ (Germ.) <i>science</i> ---> <i>scientist</i> (Engl.)
names of place	<i>granum</i> ‘grain’ ---> <i>granarius</i> ‘granary’ (Lat.) <i>acqua</i> ‘water’ ---> <i>acquaio</i> ‘sink’ (It.)
names of trees	<b><i>malum</i> (n.)</b> ‘apple’ ---> <b><i>malus</i> (f.)</b> ‘apple tree’ (Lat.) <b><i>mela</i> (f.)</b> ‘apple’ ---> <b><i>melo</i> (m.)</b> ‘apple tree’ (It.) <b><i>banana</i> (f.)</b> ‘banana’ ---> <b><i>banano</i> (m.)</b> ‘banana tree’ (It.) <i>cerise</i> ‘cherry’ ---> <i>cerisier</i> ‘cherry tree’ (Fr.) <i>pomme</i> ‘apple’ ---> <i>pommier</i> ‘apple tree’ (Fr.)
abstract nouns	<i>phúsis</i> ‘nature’ ---> <i>phusikē</i> ‘physics, science of nature’ (Gr.) <i>lingua</i> ‘language’ ---> <i>linguistica</i> ‘linguistics’ (It.)
collectives	<i>Berg</i> ‘mountain’ ---> <i>Gebirge</i> ‘mountains’ (Germ.) <b><i>frutto</i> (sg.)</b> ‘piece of fruit’ ---> <b><i>frutta</i> (sg.)</b> ‘fruit’ (It.) <b><i>muro</i> (sg.)</b> ‘wall’ ---> <b><i>mura</i> (pl.)</b> ‘city walls’ (It.)

The above list highlights similarities between gender shift and other types of derivation, and shown that, following the definition by Dressler and his associates regarding the function of derivation given in sec. 2, both gender and other noun formation devices shown above do not only create new words, but also motivate the lexicon, as the affixes involved indicate classes of entities.

An important difference lies in the degree of semantic motivation. Most frequently, gender shift is connected with referential gender (sex); however, as well known, nouns with animate female referents are far from accounting for the whole feminine gender in most Indo-European languages: the most frequent situation is one in which feminine nouns also refer to a big number of inanimate entities. This partly happens randomly, and sets gender apart from other types of derivational processes, which are better motivated semantically.

This is not to say that the classificatory power of gender is not further exploited, even in

---

<sup>3</sup> The feminine *mercatrix* is only attested in Medieval Latin. See sec. 10.1 for more details on the development of this suffix after Classical Latin.

languages with sex-based gender systems. The classificatory function of gender assignment to various types of inanimate nouns, as well as to nouns that refer to animals, has been described for example for German (see Zubin, Köpke 1986); in Italian various sub-classes of inanimate entities are consistently assigned either the feminine or the masculine (often hyponyms are assigned the same gender of the hyperonym, cf. Thornton 2003), and the same can be said for other gender systems. As shown in Table 2, both in Italian and in Latin there is a systematic gender shift that motivates two noun classes, that is, names of fruits and names of trees, whereby in Italian the former are feminine and the latter masculine, while in Latin the former are neuter and the latter feminine.<sup>4</sup> Note that the non-correspondence between gender and type of entity across the two languages rules out possible semantic motivations for gender assignment to either specific type (as for example that trees are feminine because they bear fruits: it could seem to hold in Latin, but it does not in Italian).

Gender shift in Italian further keeps distinct several other pairs of nouns, without allowing semantically motivated classes to be set up, as in *foglio* ‘sheet of paper’ / *foglia* ‘leaf’; *gobbo* ‘hunchback’ / *gobba* ‘hump’; *tavolo* ‘table, desk’ / *tavola* ‘kitchen table, table in a book’ (see Koch 2001: 1166 for possible semantic connections between members of such lexical pairs in Italian). Here semantic opacity is maximized, contrary to what commonly happens with other types of derivation. However, it must be pointed out that some opacity also characterizes other derivational processes. The most typical in this respect is constituted by evaluative morphology: in particular, diminutives display similarities with gender in this respect. I will elaborate on the similarity between gender and diminutives in sec. 5.1.

### 3.2. *Nominal classifiers*

As noted by several scholars, word formation as a lexicon motivating device is functionally parallel to other strategies of nominal classification, in the first place to nominal classifiers, such as attested in various languages, for example in Australia, Amazonia and South-East Asia (see Aikhenvald 2000). As opposed to genders, classifiers are non-obligatory and non-agreement triggering, semantically motivated devices of nominal classification.<sup>5</sup> Seifart (2009) argues that the primary function of classifiers in Miraña, an Amazonian language, is word formation, as shown in example (1). Note that such nominal classifiers are similar to prototypical derivation also because they are

---

<sup>4</sup> In Table 2, I have assumed that the direction of derivation goes from the noun that denotes the fruit to the noun that denotes the tree. Reasons of space do not allow me to discuss this matter further here; note only that in the Indo-European languages in which either type of noun bears a specific derivational affix, it is the name of the tree which is usually derived.

<sup>5</sup> Classifiers are mostly attested in languages that do not have a gender system, or that have at the most pronominal gender. Beside nominal classifiers, numeral classifiers are cross-linguistically common. They exist for example in Chinese and Japanese (see ex. (3) and (4) below). See Corbett (1991) and Aikhenval (2000) and (2006).

not obligatory: lexical bases are not obligatorily assigned to a lexical group indicated by a classifier.

- (1) a. *uʰi*  
banana ‘banana(s), banana bunch(es), banana plant(s), etc.’
- b. *uʰi-ʔo*  
banana-**SCM.3DIM.oblong** ‘banana fruit’
- c. *uʰi-ʔi*  
banana-**SCM.bunch** ‘bunch of bananas’
- d. *uʰi-ko*  
banana-**SCM.1DIM.pointed** ‘banana plant’
- e. *uʰi-ʔa.mi*  
banana-**SCM.1DIM.pointed-SCM.leaf** ‘leaf of a banana plant’
- f. *uʰi-dʒi.hu-ro*  
banana-**SCM.powder-SCM.bottle** ‘bottle of banana powder’

Things are somewhat more complicated with gender, since, as noted earlier, all nouns in a language with gender are assigned to a specific gender. This may be seen as one of the causes for higher semantic opacity in gender systems: as argued in Corbett (1991), virtually all gender systems include a ‘semantic residue’, that is, nouns that are assigned to a specific gender without any detectable semantic motivation. Indeed, gender is non-prototypical both with respect to derivation and with respect to inflection. Obligatoriness is one of the features that renders gender closer to the inflectional pole; together with agreement, it is taken as distinctive of gender systems (see sec. 7 on the consequences of these properties for our understanding of the nature of gender).

### 3.3. *Nominal classification and derivation*

A definition of gender based on obligatoriness and agreement, as indicated above, also includes noun class systems such as that of the Bantu and other Niger-Congo languages. Similar to the sex-based gender systems of the Indo-European languages, Bantu noun classes are obligatory (each noun must be assigned to a noun class in the singular and one in the plural), and they trigger agreement on adjectives and pronouns. Indeed, noun class is considered synonymous of gender in this sense (see Corbett 1991), and both are distinct from nominal classifiers systems, which, as remarked above, are not obligatory and do not trigger agreement. Note that the interplay between number and gender is especially high in the Bantu languages. For this reason, Grinevald and Seifart (2004) distinguish noun class from gender: following a common practice in African linguistics, they use ‘noun class’ for each group of nouns identified by a single affix, regardless of number, and gender for the agreement classes involving the same lexical bases in the singular and in the plural. The number of genders in this sense, i.e. classes of agreement that also account for patterns depending on number, is clearly not the same as the number of noun classes as traditionally

calculated.

Also in the case of Bantu noun classes, similarity with other word formation devices is easily to shown, and has accordingly been noted by various authors (see for example Walter 1982: 225-226), to such an extent that word formation is sometimes regarded as the basic function of noun class prefixes: “[t]he basic function of noun classes beyond classification itself – imperfectly ensured in any case – is to form nouns. That noun classes play a role in derivation has naturally been recognized in all studies on the subject”. (Mufwene 1980).

Example (2) from Tswana illustrates the issue:

- (2)    a.    cl. 1 *mo-sadi* ‘woman’  
              cl. 2 *ba-sadi* ‘women’  
              cl. 7 *se-sadi* ‘feminine behavior’  
              cl. 9 *Ø-tshadi* ‘group of women’  
              cl. 11 *lo-sadi* ‘group of women’  
              cl. 14 *bo-sadi* ‘womanhood’
- b.    cl. 3 *mo-retlwa* ‘tree of the species moretlwa’  
              cl. 2 *me-retlwa* ‘trees of the species moretlwa’  
              cl. 9 *Ø-thetlwa* ‘fruit of the moretlwa tree’  
              cl. 10 *di-thetlwa* ‘fruits of the moretlwa tree’  
              cl. 11 *lo-retlwa* ‘thicket of moretlwa trees’ (from Grinevald, Seifart 2004)

Insofar as gender, even in a relatively small system such as the PIE one (three genders), or in more reduced systems (two genders) identifies at least in part classes of entities, it fulfils a classifying function, similar to larger systems of noun classes or to systems of non-obligatory classifiers. The relation between nominal classification and noun formation is correctly summarized as follows in Khim (2005):<sup>6</sup>

Let me just indicate for the present that there is nothing surprising in the fact that **noun** formation, in a sense to be clarified presently, and classification should go hand in hand. Indeed, it belongs to the inherent properties of nouns that they denote entities that can (perhaps must) be allotted to different **classes** of *things*, by virtue of innate and culturally informed cognitive processes, diversely expressed in languages. (Khim 2005)

#### 4.     **Gender as non-prototypical derivation: formal aspects**

---

<sup>6</sup> Koch (2001: 1066) shows that gender (or noun class) alternation in Swahili and in Italian functions basically in the same way as a formal motivation device.



#### 4.1. Interplay of gender and other word formation processes

Table 2 also highlights the interplay between gender and other derivational affixes. As is well known, some of these assign gender to the derivate noun: for example, diminutives are all neuter in German, regardless of the gender of the base (see further sec. 5.1). Agent nouns are by default masculine in the Indo-European languages, and if a feminine needs to be made out of them, then some other derivational affixes must be employed. This keeps apart gender shift, when indicated by inflectional class change, from other word formation devices: the fact that gender is obligatory for nouns, and that each noun must necessarily belong to a gender, has the obvious consequence that other word formation devices, i.e. derivational affixes, which are not obligatory, must necessarily enter some sort of relation with the gender of the noun to which they are affixed.

This fact has a bearing also on gender motion as intended in sec. 3.1, which is in itself a type of derivation. Gender motion affects animate (mostly human) nouns; it derives feminine nouns from masculine bases through the addition of a specific derivational suffix. This suffix is formally different from the thematic (or stem building) vowel that indicates gender shift through change of inflectional class. In addition, the semantic motivation of a purely derivational motion suffix is higher than the possible semantic motivation of a stem building suffix such as the thematic vowel. Consider Table 3:

Table 3: ANIMATE BEINGS: GENDER SHIFT VS. GENDER ‘MOTION’

	masculine	feminine	
i	<i>vrkaḥ</i> ‘wolf’	<i>vrkīḥ</i>	(Skr.)
ii	<i>devaḥ</i> ‘god’	<i>devī</i>	(Skr.)
iii	<i>theós</i> ‘god’	<i>theá</i>	(Gr.)
iv	<i>amicus</i> ‘friend’	<i>amica</i>	(Lat.)
v	<i>amico</i> ‘friend’	<i>amica</i>	(Fr.)
vi	<i>ragazzo</i> ‘boy’	<i>ragazza</i>	(It.)
vii	<i>rex</i> ‘king’	<i>reg-in-a</i>	(Lat.)
viii	<i>gallus</i> ‘cock’	<i>gall-in-a</i>	(Lat.)
ix	<i>Freund</i> ‘friend’	<i>Freund-in</i>	(Germ.)
x	<i>geni-tor</i> ‘parent’	<i>gene-trix</i>	(Lat.)
xi	<i>bevi-tore</i> ‘drinker’	<i>bevi-trice</i>	(It.)

Items (i) through (iv) involve gender shift through change of inflectional class. In the feminine forms, the inflectional class is signaled by a vowel which ultimately goes back the suffix \*-(ə)h<sub>2</sub>. This suffix, which has become the marker of specific inflectional classes in the Indo-European languages, was morphologically no longer on the same plane as other derivational suffixes already

at the stage of late PIE. The development involved will be discussed at length in sec. 6. Nouns in (v) and (vi) show how inflectional class change not only continues existing Latin pairs of masculine vs. feminine, as in (v), but is productively used in Italian to create new feminine out of masculine (the same holds for other Romance languages).

Nouns (vii) and (viii) show the interplay of  $-(\partial)h_2$  with another derivational suffix,  $-\bar{i}n-$  of relational nouns/adjectives. Together with  $*-(\partial)h_2$  this suffix is used for some feminine nouns in Latin, even though not productively. In much the same way as the suffix  $-\bar{i}c-$  of feminine agent nouns (see below), it also contains the suffix  $*-h_2$ , as it is formed by  $*-i-h_2-n-$ . The same suffix is well attested in Germanic; in Modern High German, the suffix  $-in$  has become the normal, and very productive, motion suffix for deriving human feminine nouns (see further sec. 4.2. and 5.1).

*Genitor* in (x) is an agent noun: in Latin, the suffix  $-tor$  had a feminine in  $-tr\bar{i}x$ , which was originally formed as  $*tr-i-h_2-k-s$ . Feminine agent nouns were not especially productive in Classical Latin, possibly due to pragmatic reasons (there was no need for forming feminine counterparts of most agent nouns), but their number grew during the Middle Ages. Already in Latin, this suffix could also build deverbal adjectives, a category which became very productive in some Romance languages. In Italian, as we will see below, it has been described as constituting a non-prototypical type of agreement marker (see sec. 10.1).

#### 4.2. *Inflectional class change as a derivational process*

While the suffix  $*-(\partial)h_2$  started out as a derivational suffix in PIE (see sec. 6), by the time at which the Indo-European languages are attested it had become the marker of one (or more) inflectional class(es). Thus, the parallel between this and other ways of making feminine nouns out of masculine ones is only partial, if viewed on the synchronic plane of each specific language. However, the diachronic origin of stem vowels, which can often be reconstructed as deriving from derivational suffixes, often brings about confusion. Pimenova correctly points out that “in synchronic perspective, such derivational functions of stem building suffixes are relatively without problems, as they go back to the derivational role of stem formation in the Indo-European prehistory” (2004: 252).<sup>7</sup> To avoid confusion on the synchronic plane, one should better refrain from speaking of ‘derivational function of the stem building suffix’, but rather consider this type of derivation as “derivation through attribution of a lexeme to a different paradigm” (Pimenova 2004: 253),<sup>8</sup> that is, derivation through inflectional class change (see further Dressler, Doleschal 1990).

Let us concentrate on Latin (but the same holds for other languages), and let us compare the lexical pairs *amicus/amica* and *genitor/genetrix*. At first sight, one could have the impression that the process by which *amica* is derived from *amicus* is the same by which *genetrix* is derived from

---

<sup>7</sup> “Aus diachroner Sicht sind derartige derivationalen Funktionen von Stammbildungssuffixen relative unproblematisch, denn sie gehen auf die derivationalle Rolle von Stammbildung in der indogermanischen Sprachen zuruck.”

<sup>8</sup> “Wortbildung durch Einordnung des Wortes in ein neues Paradigma”

*genitor*: the bases occur with different suffixes, as they can be analyzed as *amic-a* vs. *amic-u-s* and *gene-trīc-s* vs. *geni-tor*. However, this is not the case, as both *-a* in *amica* and *-u (<o)* in *amicus* are not simply suffixes, but are markers of inflectional classes. Indeed, while *genitor* and *genetrīx* belong to the same inflectional class, and follow the same inflection (athematic), *amica* and *amicus* belong to two different inflectional classes, and are inflected differently. Thus, in Latin *-a* cannot be analyzed as a motion suffix as *-trīc-*: synchronically it is not the suffix that changes the gender of the base, but the shift from the second to the first declension, that is, the change of inflectional class.<sup>9</sup>

Association of gender and inflectional class is a common feature of all Indo-European languages. It was partly brought about by the introduction of the  $*(\partial)h_2$  suffix and its change from derivational suffix to thematic vowel: in most languages, *-o-* stems are all either masculine or neuter (with the exception of Latin and Greek), while *-ā-* stems are feminine: masculine *-ā-* stems only occur in Latin, Greek, and Baltic, but in the latter two branches they were formally distinct from feminine; note further that masculine *-ā-* are all referentially motivated (they all refer to human males). In some branches of the Indo-European family the association of gender with inflectional class has also increased with time, so as to affect the athematic declension: in Greek, for example, many athematic nouns moved to the declension of *-ā-* stems, in which feminine and masculine had always been kept distinct (see Luraghi 2004 for the details of the diachronic evolution of gender and nominal paradigms from Mycenaean to Modern Greek).

In several Indo-European languages inflectional class change for nouns with human referents had the effect of functioning as a word formation device, as in Latin, and brought about gender shift, thus partly functioning as derivational affixes that indicated gender motion. This is not true of all languages, however. Let us consider Modern High German. In this language, nouns that end in *-e* and do not belong to the *-en* declension are by the greatest majority feminine (the only neuter being *Auge* and *Ende*). However, there is no association of *-e* stems with feminine gender that can motivate derivation: no nouns that refer to human females can be synchronically derived from nouns that refer to human males just by transposing the latter in the inflectional class of feminine *-e* stems. Instead, and contrary to what we have just observed for Latin and Italian, this type of derivation is productively accomplished through the motion suffix *-in*. This state of affairs partly reflects the situation at the Old High German stage: all *-ō* stems were feminine, as they must have been in Proto-Germanic, since they reflected the  $*(\partial)h_2$  stems, and some feminine derived through gender shift exist, such as *herra* ‘lady’ from *herr* ‘lord’, but the suffix *-in* was already being used, and by the Middle High German time it had become the productive way to derive feminine nouns

---

<sup>9</sup> The association of gender with inflectional class for *-a* stems has become complete in Italian: all *-a* nouns with *-e* plural are feminine; masculine in *-a* belong to a different inflectional class with *-i* plural (such as *poeta/poeti* ‘poet’, animate, and *tema/temi* ‘theme’, inanimate; see Luraghi, Olita 2006).

(Doleschal 1992: 30-31).<sup>10</sup> Apparently, the association of gender and inflectional class was not salient enough to be used for derivation of referentially motivated feminine.

## 5. Gender and other hybrid categories

### 5.1. *Gender and evaluative morphology*

Evaluative morphology is frequently found cross-linguistically. It involves derivate lexemes such as diminutives, augmentatives, pejoratives, and so on. In this section I will describe some properties of diminutives in Indo-European and other languages, which make it similar to or connected with gender.

In sec. 3.1, it was remarked that one of the differences between derivation through gender shift and derivation through derivational affixes lies in the higher semantic motivation of the latter: groups of nouns distinguished through gender shift can be associated by various semantic features, some of which quite abstract (referential sex, hyperonyms vs. hyponyms, basic level vs. more specific categories, etc.); often, no common semantic motivation can be detected that singles out a group of nouns. On the other hand, nouns motivated by a derivational affix display a higher degree of semantic coherence. Somewhat in between is the degree of motivation displayed by diminutives. Indeed, diminution is a highly polysemous field cross-linguistically, as various conceptual associations as at stake, partly pragmatically motivated. Diminutive affixes convey a vast array of meanings beside the meaning ‘small’, sometimes in conflict with each other and ranging from pejorative, but also meliorative, etc. (see Dressler, Merlini Barbaresi 1994). Jurafsky (1996) accounts for semantic extension of the core meaning ‘small’ in terms of a radial category, that is, a category in which members are related to the center, but not necessarily with one another (see Lakoff 1987: 91-114).

Besides semantic vagueness, diminutives (and evaluative morphology in general) are similar to gender in various respects: for example, they are most typical of nouns, but can also spread to other lexical classes in numerous languages (see Bauer 1997). Accordingly, in various Indo-European languages diminutive suffixes can also occur with adjectives (as e.g. in Latin and Sanskrit; see further sec. 10.2).

As derivational affixes, diminutives are non-prototypical as they do not change the lexical class of the base: in this respect, diminutives display a property typical of inflection. In addition, there is evidence from the Bantu languages for agreement triggering diminutives. Remarkably, evaluative morphology in the Bantu languages displays inflectional features to varying extents, even though noun classes identified by evaluative prefixes are apparently less integrated in the noun class system

---

<sup>10</sup> According to Pimenova (2004: 252 fn. 10), derivation through inflectional class change seldom used in the case of feminine nouns with human female referents in the ancient Germanic languages.

than other. This borderline status of diminutives with respect to other noun classes also has reflexes on the reconstruction of the noun class system of Proto-Bantu. Traditionally, this system is reconstructed to include classes 12/13 of diminutives, a class which is attested for example in Kikuyu, in which diminutives trigger agreement on adjectives and pronouns (see Bauer 1997). However, there is little evidence for these classes in numerous Bantu languages, some of which provide evidence for derivational diminutives disconnected from the noun class system, as shown by Heine and Kuteva: “In many southern Bantu languages, such as Venda, Tonga-Inhambane, or Herero, there is a diminutive suffix typically of the form *-ana*, which is derived from the Proto-Bantu nominal root *\*-yana* ‘child’ ...; for example, Venda *-ana* diminutive suffix”. (2004: 66)

In the Indo-European languages, diminutive suffixes consistently occur after other derivational suffixes if present. In a sense, they are similar to the thematic vowel, because they follow more prototypical derivational suffixes; only the (even less prototypical) thematic vowel can follow them (see also Scalise 1984, Bauer 1997). Finally, diminutives are cross-linguistically extremely productive: in a language with some sort of diminutive affixes, a diminutive can be built on virtually any noun. Such a high degree of productivity is typical of inflectional categories, while derivation is renownedly much more idiosyncratic, and it constitutes another feature of diminution as non-prototypical derivation (Bauer 1997). The borderline position of diminutives, located in between derivation and inflection, is another common feature with gender.

The Indo-European languages provide evidence for semantic contacts between feminine and diminutive.<sup>11</sup> The suffix *-in-*, originally forming relational adjectives, later extended to relational nouns. This motivates further extension to feminine (with the addition of *-\*h<sub>2</sub>* as shown in sec. 3.4) so Latin *gallīna* indicates the female entity that pertains to *gallus*. A similar extension has led the suffix *-in* to become the standard gender motion suffix in German. Another semantic extension based on the relational meaning of the suffix brought it to indicate diminutive in some Romance languages, most notably Italian.

In addition, gender assignment by diminutive suffixes in the Indo-European languages is remarkable. Contrary to most other derivational suffixes used in the formation of nouns, diminutives do not assign gender in numerous Indo-European languages. This is another formal feature that diminutives share with inflection, rather than with derivation: indeed, inflectional categories such as number or case do not change the gender of the base (this is obvious, considering that they do not create new words).

However, in the languages in which diminutives do assign gender to the base, they invariably assign neuter, also in cases of nouns with human referents: this is true of e.g. German, Modern Greek, Serbo-Croatian among other. In Italian, which, as the other Romance languages, has lost the neuter, some diminutives with female human referents are masculine, as shown in Table 1 (*donna* ‘woman’ / *donnino* ‘small woman’): the masculine continues the Latin neuter in such cases (see

---

<sup>11</sup> Far from being a peculiarity of the Indo-European languages, semantic contiguity of diminutive and feminine is cross-linguistically attested, see Jurafsky (1996: 546) on possible motivation.

Grandi 2002: 134).<sup>12</sup> Thus, diminution can interact with gender, and point to a connection with neuter. This is also true of another non-prototypical category, number, as we will see in the next section.

## 5.2. Gender and number

As remarked by Kuryłowics, quoted in sec. 2.2, number is a non-prototypical inflectional category. Affinities between gender and number are not limited to their non-prototypicality. The first association that comes to mind from the point of view of PIE is, of course, the common origin of the ending of the nominative/accusative neuter plural and of the marker of the feminine gender, which both originated from the suffix *-(ə)h<sub>2</sub>*. Given the relevance of this relation, and of the misunderstandings it has raised, I will discuss it sec. 6. In this section I survey other similarities between the two categories.

Cross-linguistically, sources for number markers seem to be pretty much the same as sources for gender markers. In sec. 8.1 we will see that in many languages gender markers develop out of grammaticalized demonstratives. The same origin for number markers has been detected by Frajzyngier (1997) on the evidence of Chadic. Another possible origin of gender markers is constituted by derivational morphemes (see sec. 8.2). In PIE, not only the nominative/accusative neuter plural is reconstructed as originating from a derivational suffix (collective), but also the dual, as shown e.g. in Malzahn (2000). Often, gender markers cannot be distinguished from number markers, as in the case of Niger-Congo noun classes described in sec. 3.3. In Kiowa (North American) there is an animacy-based two-gender system in which gender is connected with a sort of ‘inherent’ number (see Aikhenvald 2004: 1042 for this terminology): animate nouns are inherently singular while inanimate nouns are inherently plural; a so-called inverse suffix changes the number of the base accordingly (see Corbett 2000: 159-162). Similarly in Arabic, the suffix *-t* which has, among other things, the marker of the feminine gender, can have collective or singulative meaning, depending on the semantics of the base (see sec. 8.2).

The disappearance of the Latin neuter gender partly resulted in an interplay between gender and number in Romance. The last two lines of Table 2 highlight this phenomenon in Italian, in which feminine derivatives of masculine nouns can result in collective nouns, which are grammatically singular as various other non-derived collectives (e.g. *la folla* ‘the crowd’); to a limited extent, they also build collective plurals. Note that in both cases the base also has a count plural: *i frutti* ‘the fruits’, *i muri* ‘the walls’. Thus, the morpheme *-a* partly gained back its ancient collective meaning.

In sec. 2.2, it has been remarked that inflectional categories prototypically feed syntax, while

---

<sup>12</sup> Indeed the connection between evaluatives and masculine in Italian is not limited to diminutives, as also augmentatives of feminine nouns are sometimes masculine, and this can also affect nouns with human referents. Consider, beside *palla* ‘ball (f.)’ / *pallone* ‘football, balloon’ mentioned in Tab. 2 (with the diminutive *pallino*, masculine), *donna* ‘woman (f.)’ / *donnone* (m.); see Grandi (2002: 135-136, 275-279).

derivational ones feed the lexicon. In this respect, number as an inflectional category has the function of co-indexing the subject and the verb in the Indo-European languages. That this function is not exclusively fulfilled by number, but can also be carried out by gender is well known: in many Indo-European languages verb forms involving participles also display gender agreement with the subject. In the Semitic languages, verbal prefixes co-index the verb with the subject and agree with it both in gender and in number. In Cushitic, only gender marks agreement, while the syntactic function of number is limited:

Number is not an obligatory category. One can use an underived basic form of the noun that is neutral for number in situations where the specification of number is considered irrelevant. There is number agreement in the subject marking on the verb, but for several languages, agreement on the verb is with gender and not with number. (Mous forth.)

## 6. The suffix $-(\text{ə})h_2$ : from derivational suffix to marker of an inflectional classes

Since Brugman (1891) the PIE gender system is reconstructed as involving two stages: (a) two-gender system: animate/inanimate, morphologically corresponding to masculine/neuter in the later system; (b) three-gender system: masculine/feminine/neuter. The feminine gender involves the suffix  $-(\text{ə})h_2$ , whose original function was to form abstract nouns. The same suffix underwent a semantic extension from abstract to collective, and changed into the inflectional ending of the nominative/accusative neuter plural, as remarked as early as Schmidt (1889).

Over the last two centuries, scholars have been busy trying to find a semantic motivation that connects the collective meaning to the feminine. Since the change from a derivational suffix to an inflectional ending was already accomplished before the Anatolian branch split out, it is thought that this change must have preceded the extension of the suffix to the feminine gender, which did not exist in the Anatolian languages. Such relative chronology raises various morphological and semantic problems, which I am not going to discuss in detail here (see Clackson 2007: 7, and Luraghi 2009a, b for exhaustive discussion); in addition, it envisages a crucial role for a group of human collective noun formed with  $-(\text{ə})h_2$ , for which there is no evidence in the IE languages (see further Luraghi forth.). Recently, it has been suggested in Luraghi (2009a) that such problems can be avoided by assuming a different chronology, which does not connect the two changes. This hypothesis is summarized in Table 4:

Table 4.: DEVELOPMENT OF THE SUFFIX  $-(\text{ə})h_2$

1.	derivational suffix (non-obligatory)
2a.	neuter nouns:

	inflectional suffix (nominative/accusative plural, obligatory).	
2b.	i	- <i>ā</i> - stems: marker of inflectional class ('thematic vowel', obligatory)
	ii	first class adjectives: marker of inflectional class and feminine gender (obligatory)

Stages (1) and (2) are chronologically ordered, whereas stages (2a) and (2b) represent two separate developments:

(2a): a derivational suffix turns into an inflectional one, preserving (part of) its meaning;

(2b): a non-obligatory, meaningful suffix turns into a thematic vowel, i.e. a purely grammatical, obligatory item, which is also interpreted as the marker of a noun class (i.e. of a grammatical gender).

(Luraghi 2009a: 5-6)

Note that such a chronology also has the advantage of eliminating problems such as the presence of the suffix only in the nominative/accusative plural (in the case of neuter nouns) or throughout the paradigm (-*ā*- stems), a problem which would arise if one insists in considering the two changes chronologically connected. Indeed, a derivational suffix clearly appears in all inflected forms of a noun. In the case of the neuter plural, the suffix has become an ending, and as such it is mutually exclusive of other inflectional endings. How exactly such a change has come about goes beyond the scope of this paper, but a few remarks are in order. The resulting state of the neuter plural inflection implies that the extension of the suffix to collective happened at a stage when a complete plural paradigm for the neuter was not available: such a stage has been reconstructed for PIE for example by Risch (1980). Later, when the plural paradigm started to be built, the (derivational) collective was reinterpreted as nominative/accusative neuter plural, and as such integrated into the paradigm.<sup>13</sup>

Leaving aside the change that led the suffix to become the ending of the nominative/accusative neuter plural, let us focus on the second change, by which a derivational suffix became the marker of an inflectional class. Indeed, this is not so hard to explain: derivational suffixes, as we have seen above, identify groups of entities. In the Indo-European languages, they are attached to the root and appear before inflectional suffixes. Thus, a noun with a derivational suffix displays this suffix throughout the paradigm. Thematic vowels (such as -*o*- of the thematic declension) have a distribution which is partly similar to that of derivational affixes, because they precede inflectional

---

<sup>13</sup> Note further that the nominative/accusative plural is indeed a count plural also in the languages in which it takes singular agreement, such as for example attic Greek as it can occur with numerals. This seems to be at odds with its origin as a collective. However, this is not the case: the neuter plural is completely integrated into a number paradigm in the Indo-European languages, and collective is apparently not a possible value for the grammatical category of number, as pointed out in Corbett (2000: 117-119). One must not confuse the reconstructed origin with the actual function in the attested languages.



endings and occur throughout the paradigm. If no derivational suffixes occur, thematic vowels take the slot of derivational affixes, immediately following the root. (A derivational suffix may appear before the thematic vowel; this also happens with  $*(\partial)h_2$ , as shown in Table 3 in nouns like *gall-īn-a*, *reg-īn-a*, which shares the distribution of the thematic vowel in Latin.) We can reconstruct a situation in which a certain group of PIE nouns took the suffix  $*(\partial)h_2$ . This group of nouns developed agreement with adjectives and demonstrative/anaphoric pronouns: this is the crucial step for the suffix to become a gender marker, that is, the marker of an obligatory, agreement triggering category. Agreement must have risen when the suffix  $*(\partial)h_2$  was still a derivational suffix, semantically motivated by sex, that is, before it underwent the change that led it to become a thematic vowel, that is, the marker of an inflectional class. In what follows, I will turn to the rise of agreement in connection with different types of agreement triggering morphemes and different origins of gender markers. Before doing that, however, I would like to elaborate further on the relevance of gender and agreement outside nominal classification.

## 7. Gender as inflection: syntactic functions of gender

Following Hockett's classical definition, "[g]enders are classes of nouns reflected in the behavior of associated words" (1958: 231). Thus gender is defined by its agreement triggering property. Agreement cross-references items that refer to the same entity: it indicates which words belong to the same constituent, and allows recovering the reference of anaphoras. In other words, agreement feeds syntax. Thus, a definition of gender based on agreement is focused on its syntactic function, and aligns gender with inflectional categories.

Emphasis on agreement has led some scholars to minimize the classificatory function of gender and point to the identification of referents in discourse as its main function. Following this approach, Dahl states: "[i]t is a mistake to think of gender systems as systems for classifying things: to the extent that they do so it is secondary to their function to make it easier to keep track of links between constituents." (2000: 113). In a similar vein, Frajzyngier and Shay argue that "[t]he reason that gender is assigned to a noun is to enable anaphoric reference to that noun in discourse and deictic reference to that noun in the environment of speech." (2003: 180).

The identification of discourse referents is an important function of gender: agreement with anaphoric and deictic pronouns allows speakers and hearers to track participants. Indeed, even classifiers (non-obligatory) are sometimes used anaphorically, as shown in (3) and (4), in which numeral classifiers function anaphorically in Japanese and Chinese:

- (3) a. *nihiki no neko-wo kau*  
 2 NumCl GEN cat ACC raise  
 "(I) am raising two cats." Japanese

b. *nihiki wo kau*

2 NumCl ACC raise

“(I) am raising two (small animals).”

(4) *Wo mai-le liang-tiao xin tanzi. Yi-tiao hei-de, yi-tiao hong-de.*

I buy-Asp two-Cl new blanket one-Cl black-DE one-Cl red-DE

“I bought two new blankets. One is black and one is red.” Chinese

Such usage of classifiers in Chinese and Japanese is in accordance with Greenberg’s (1978) theory regarding the origin of gender markers, to which I now turn.

## 8. How does agreement come about?

### 8.1. From classifier to gender marker

In his seminal paper on the creation of gender markers, Greenberg (1978) indicates classifying demonstratives as crucial to the raise of agreement. According to Greenberg, nominal classifiers may spread to demonstratives: such a development leads to agreement between nouns and demonstratives, by which nominal classifiers acquire an anaphoric function similar to numeral classifiers in Japanese and Chinese, as shown in examples (3) and (4).

Evidence for the development of classifiers into gender markers is available from various languages, and has accordingly been observed by numerous scholars, see for example Craig (1986) on Jacaltec (Maya), Claudi (1983) on Zande (Niger-Congo), Grinevald, Seifart (2004) on Amazonian languages, and Dixon (1980: 273, 1982: 171) and Aikhenvald (2000: 372) on Australian languages. Such a development involves a grammaticalization process: classifiers become obligatory; in the meantime, they lose semantic motivation, that is, markers of noun classes undergo semantic bleaching as common in grammaticalization. Indeed, semantic motivation is lower in all types of gender system, including highly elaborated ones such as in the Bantu languages, as opposed to classifiers systems (see among others Aikhenvald 2000, Grinevald, Seifart 2004).

As for the ultimate origin of noun class/gender markers, while there is ample evidence for Greenberg’s hypothesis that they originate from generic nouns, this is not always the case. In particular, the noun class system of the Bantu and in general of the Niger-Congo languages does not seem to provide any evidence for this development, as argued in Grinevald and Seifart (2004: 256).<sup>14</sup>

---

<sup>14</sup> It must be mentioned that the Niger-Congo system is, by all evidence, very old: so, while these languages provide illustration for the decay of the noun class system, or the renewal of relevant morphology, the origin of noun classes can

## 8.2. Gender markers from derivational suffixes

According to Frajzyngier and Shay, “noun classes may reflect old derivational morphemes that once coded semantic characteristics and that are no longer transparent” (2003: 179). This is the reconstructed origin of the IE feminine gender; some other parallels exist that I will illustrate in this section.

The most well known instance of a derivational affix involved in gender marking is found in Afro-Asiatic. The Afro-Asiatic languages have a typical two-gender system, comprising a masculine and a feminine, in which many feminine nouns are marked by the suffix *\*-t* which also appears on agreeing categories. The gender system of the Afro-Asiatic languages has several points in common with the system of the Indo-European languages. In the first place, for nouns with human referents feminine nouns are derived from masculine, which serve as bases. In the second place, there is an important semantic similarity between the feminine genders in the two language families: similar to the PIE suffix *\*-h<sub>2</sub>*, the suffix *\*-t* of Afro-Asiatic also occurs in abstract nouns and collectives. In Arabic, for example, ‘feminine’ derivation has the effects summarized in Table 4 (adapted from Luraghi 2006):

TABLE 4: THE SUFFIX -AT IN ARABIC

1. <i>'arafa</i> ‘know’	<i>ma'erif-at-un</i> ‘wisdom’
2. <i>dam-un</i> ‘tears’ (collective; broken pl.)	<i>dam-at-un</i> ‘tear’ (singulative)
3. <i>hayawān-un</i> ‘animal’ (sing. count)	<i>hayawān-āt-un</i> ‘animals’ (collective)
4. <i>kalb-un</i> ‘dog’	<i>kalb-at-un</i> ‘she dog’

The difference between the Afro-Asiatic and the IE system lies in the absence of the neuter from the former language family. This also implies that, contrary to PIE, there was no gender in AA before the creation of the feminine: unfortunately, however, comparative evidence does not allow us to reconstruct such a stage. The Afro-Asiatic family is much older than the IE one, and the sex-based two-gender system is one of the most typical and uncontroversial features of all Afro-Asiatic languages. Evidence for the suffix in demonstrative and even interrogative pronouns is provided by some Afro-Asiatic languages, as for example Gidar, a Chadic language spoken in Northern Cameroon (see Frajzyngier 2008).

Gender markers from derivational suffixes are also known from Dravidian. The Dravidian languages vary between a two- and a three-gender system; according to Krishnamurti (2003) the

---

at the best be reconstructed, because the existing evidence points to the existence of a highly grammaticalized (i.e. obligatory and agreement triggering) system at all stages, see Grinevald, Seifart (2004: 256).

Proto-Dravidian gender system must be reconstructed as having two genders, the masculine and the feminine. With respect to other familiar sex-based two-gender systems, such as the Semitic or the Romance ones, Proto-Dravidian differs in having a masculine which is completely motivated semantically: it only includes nouns that refer to human males. The feminine, on the contrary, is only partly motivated, as it includes both nouns that refer to human females as well as all other nouns (what Corbett 1991: 13 calls ‘semantic residue’). In the South-Dravidian languages, a semantically motivated feminine includes nouns of human females. It is formed with the suffix *-al*, a derivational suffix that does not trigger agreement in the other Dravidian languages: “All Dravidian languages have derivative stems denoting female human by the addition of the suffix *-al*. This goes back to Proto-Dravidian, in view of *\*mak-al* ‘daughter’ as opposed to *\*mak-antu* ‘son’.” (Krishnamurti 2001: 138). Thus, following Krishnamurti (2001, 2003), South Dravidian has innovated by extending the suffix to demonstratives and other possible targets of agreement.<sup>15</sup>

Dravidian gender-marked pronouns are summarized in Table 5:

TABLE 5 DRAVIDIAN 3<sup>RD</sup> PERSON PRONOUNS

5A. PROTO-DRAVIDIAN

masculine	feminine+residue
<i>*awantu</i>	<i>*atu</i>

5B. PROTO-SOUTH-DRAVIDIAN

masculine	feminine	residue
<i>*awantu</i>	<i>*awal</i>	<i>*atu</i>

The Dravidian gender system is also different from the systems of the Afro-Asiatic and Indo-European languages because not only the feminine, but also the masculine is marked: indeed, the suffix *-antu* is an overt marker of the masculine. The evidence seems to point to an unattested stage at which there was no gender distinction, followed by one at which the derivational suffix which formed nouns referring to human males started triggering agreement. This stage is attested the Dravidian languages with a two-gender system. The creation of the feminine, arguably later, followed a similar path.

8.3. *Differential marking of core arguments and the rise of agreement classes*

As shown in Luraghi (forth.), this is not the only way in which agreement can arise. Often, the rise of a new class of agreement, and hence of a new gender, does not imply the creation of some new gender marker. It can rather be the consequence of the introduction of differential marking of core

---

<sup>15</sup> Gender and number interact with each other in complex ways in the Dravidian language, and the reconstruction of the Proto-Dravidian gender system and its development given by Krishnamurti is not agreed upon by all scholars.

arguments, such as differential object marking. This can be observed in Russian.

As a consequence of various phonological changes, the nominative and the accusative of masculine nouns had become identical in Common Slavic. Thus, the masculine gender became similar to neuter, while the distinction between nominative and accusative was retained in the feminine. In Medieval Russian, the genitive ending was increasingly extended to masculine nouns with human referents. This pattern, which triggered agreement with adjectives and pronouns, is now obligatory for all masculine nouns which refer to humans and to certain animals. In practice, this fourth class of agreement which, as such, can be regarded as a fourth gender, started as an instance of differential object marking (DOM): human nouns, especially highly individuated and highly topical ones, acquired a different marker that distinguished them from inanimate and low individuated ones.

Corbett (1991) mentions this development in Russian, but apparently views it as limited to further developments of existing gender systems (as it is in Russian). However, this is not necessarily the case. Indeed, as shown in Luraghi (forth.), the PIE two-gender system is the result of differential marking of subjects and objects. As well known, the PIE animacy-based two-gender system does not involve any specific gender markers: as already pointed out by Meillet (1921), the difference between the two earliest genders of PIE, animate and inanimate, was indicated by absence of endings for nominative and accusative in the inanimate gender. Agreement was achieved in the case of demonstratives by the existence of two separate forms, one for animate (*\*so*) and one for inanimate (*\*to*), which patterned accordingly<sup>16</sup>.

#### 8.4. *Differences and similarities among gender systems depending on their origin*

In the preceding section, we have seen that gender systems may arise in different way. In particular, they may originate from the grammaticalization of classifiers (6.1), or of derivational suffixes (6.2), or they can derive from special agreement patterns triggered by differential marking of core arguments (6.3). In the examples shown above, systems that derive from classifiers tend to have a big number of genders. On the other hand, the systems described in 6.2 and 6.3 have a similar development, in that they all started out with a small number of genders and built on it.

However, it must also be pointed out that gender systems based on older systems of classifiers and gender systems that rely on older derivational suffixes are also similar, since in both cases agreement triggering gender markers derive from semantically motivated non-agreement triggering markers, which had the function of singling out groups of nouns, either at the lexical level (derivational affixes) or at the syntactic level (classifiers). In addition, both types of system feature overt gender markers, while genders systems that arise from differential case marking do not (in Russian, there are no overt markers of animate and inanimate sub-genders within the masculine

---

<sup>16</sup> The existence of two different demonstratives constitutes a similarity between the PIE development and the development described by Greenberg, which is based on the existence of classifying demonstratives.

gender).

In connection to the differences described above, Luraghi (forth.) argues that gender systems may have different primary functions. Gender systems that originate from the grammaticalization of classificatory devices have classification as their primary function; on the other hand, gender systems that derive from special agreement patterns are identified by agreement: hence, their primary function is to track discourse referents, that is, to indicate, through agreement, co-referring items, such as nouns and modifying attributes or nouns and anaphoric/deictic pronouns. The two functions of gender coexist in all gender systems, but either one is maximized, partly depending on the origin of a system. In addition, one can expect classificatory function to be more relevant in systems with many gender distinctions: as there are many genders, many categories are available for grouping nouns and their referents.

## 9. The rise of agreement in Proto-Indo-European

If we now turn to the origin of agreement in PIE, we find two different patterns. In the case of the animacy based two gender system, agreement originated out of differential marking of subjects and objects: as well know, in PIE the neuter did not feature any specific ending for the nominative and the accusative, while the animate gender featured the endings *\*-s* and *\*-m*. This situation is reflected in the athematic declension of the IE languages; later, when the thematic declension was created, the ending *\*-m* of the animate accusative was extended to the nominative and the accusative of neuters. Thus, contrary to animate nouns, inanimate (neuter) ones did not have a distinction between the nominative and the accusative; in addition, in the athematic declension this lack of distinction was accompanied to the absence of an ending. In such a situation, agreement did not imply the extension of a specific marker to pronouns or adjectives: since pronouns and adjectives referred to the same (animate or inanimate) entities, their inflection followed the same pattern of corresponding nouns.

The situation is completely different for the creation of agreement in the sex based three gender system of late PIE. Contrary to the masculine (which continues the animate gender) and the neuter, the feminine bears an overt gender marker, which was a derivational suffix originally affixed to nouns. So the rise of agreement implies extension of the marker to agreeing categories.

The different origin of agreement classes, and hence of gender distinctions, in PIE also has implications on possible parallel between gender and other word formation devices: as noted above, the animate and the inanimate (neuter) do not feature overt gender markers, and do not display different inflectional classes, indeed, they are identical except for the nominative/accusative. Indeed there is no systematic ‘motion’ relation between groups of animate and neuter nouns similar to those in Table. 3 which involve masculine and feminine.

It is commonly thought that the spread of the suffix *\*-h<sub>2</sub>* first targeted demonstrative pronouns.

This is in accordance with Greenberg's (1978) theory regarding the acquisition of gender markers, and with developments observed in various non-Indo-European languages in which gender systems came about as the result of the grammaticalization of earlier systems of classifiers, as described for example in Claudi (1985) in the case of Zande. In addition, also in gender systems in which a new agreement class is the outcome of some special patterns of case marking, there is evidence for pronouns to be the first targets of agreement: this has been observed for example in Old Russian (see Huntley 1980).

In the next section, I would like to explore another possibility, that is, that agreement spreads first to modifying adjectives.

## 10. Agreement through derivational morphology

### 10.1. Modifiers from agent nouns

As remarked in sec. 4.1, agent nouns can build deverbal adjectives in Latin. Indeed, this is true of other languages, as we will see in this section. Based on data from Romance, Russian and Modern Greek, Dressler and Doleschal (1990) describe what they define 'agreement via derivational morphology'. Consider the following examples:

- (5) *Ille ut opes fractae Teucrum et Fortuna recessit res Agamemnonias uictriciaque arma*  
 "When the Trojans were conquered and their good faith vanished, he followed the Greeks and the conquering arms" Verg. Aen. 3,54
- (6) *Haec inquit a me Vercingetorix beneficia habetis quem proditionis insimulatis cuius opera sine uestro sanguine tantum exercitum uictorem fame paene consumptum uidetis.*  
 "These benefits - says Vercingetorix - you receive from me, whom you accuse of treason-me, by whose exertions you see so powerful and victorious an army almost destroyed by famine, without shedding one drop of your blood" Caes. Gal. 7.20.12

In (5) and (6) the forms *uictricia* and *uictorem* agree with their head noun in gender through the suffix: as the third declension, to which both *uictrix* and *uictor* belong, is not connected with gender, the two suffixes acquire the status of gender markers for this type of deverbal adjectives. This phenomenon is widespread in Italian:

- (7) *uno sguardo rivelatore/ una risposta rivelatrice*  
 "a revealing look (m.) / a revealing answer (f.)"
- (8) *\*sguardo rivelatrice / \*risposta rivelatore*

In Italian, adjectives display two patterns of inflection: (a) masculine in *-o/-i* / feminine in *-a/-e*; (b) *e/i* with no gender distinction (this continues the first and second class adjectives of Latin). In the case of adjectives displaying the second pattern, those with the suffix *-tore/-trice* constitute a subclass, marked for gender by the derivational suffix (Ricca 2004). Such phenomenon is typical for deverbal adjectives formed with agent suffixes with gender specific forms, as for example Modern Greek:

- (9) *I níkítria omáda* “the victorious team” / *O níkitrís Olimbiakós* “the victorious Olimpiakos”  
(Christofidou *et al.* 1990-1991: 72)

Example (8) shows that agreement via the suffix is obligatory if a deverbal adjective of this type occurs. However, similarities between this remarkable type of agreement and gender agreement as it was brought about by the spread of the suffix *\*-h<sub>2</sub>* in PIE ends here: deverbal adjectives described in this section do by no means occur only or especially with agent nouns which bear the same suffix. Indeed, the suffix has not spread historically from agent nouns to accompanying adjectives: rather, agent nouns have come to be used as adjectives. In addition, there is no evidence for occurrence of the suffix on pronouns, or for its possible function as anaphora.

## 10.2. Diminutives

As remarked in sec. 5.1, diminutive suffixes can also occur with adjectives in several Indo-European languages. To strengthen the meaning of the diminutive, a diminutive suffix can then appear both on a noun and on the adjectives modifying it: (10) is a well known example from Latin, which shows not only diminutive adjectives, but agreement in the category of diminution between the head noun and the modifiers:

- (10) *Animula vagula blandula* (Hadrian)

Examples can be found from other languages. Below I give some from Italian, in order to highlight the difference with the data examined in the preceding section. Note that similar examples could be mentioned with augmentatives:

- (11) *Spero che prenda un votino un pochino discretino* (Nicola Grandi, p.c.)  
“I hope s/he’ll get a slightly(dim.) decent(dim.) note(dim.)”  
(12) *Vuoi una porzione di piselli? Sì, ma proprio ina ina*  
“Would you like a serving of peas? Yes but really small”

Agreement in evaluation is not obligatory, and indeed it is not even frequent; however it constitutes



a true instance of spread of a suffix from the head noun to the modifier (in (11) even to the adverb *poco* ‘little’, which modifies the adjective *discreto* ‘decent’). The suffix expresses the same meaning both with the head noun and with the modifier: the same must be true of a derivational gender marker when it first spreads to lexical items associated with a certain noun and starts creating agreement. Example (12) also shows that the diminutive suffix can be used as free morpheme in Italian. A possible development of such usage could be the creation of a classifying demonstrative for diminutives (and augmentatives).

Now we see that the category of evaluation shares more similarities with that of gender than those seen in sec. 5.1: as gender it tends to spread to categories associated with nouns and build agreement. In this perspective, the hybrid nature of demonstratives in the Bantu languages becomes understandable and even predictable. Since most referents can be classified based on evaluation, the fact that some languages display agreement triggering noun classes of diminutives is only to be expected.

## **11. Conclusion**

In this paper I tackled the issue of gender as a non-prototypical category at the border between derivation and inflection. Accordingly, I explored derivational and inflectional properties of gender, setting the PIE gender system in the wider framework of nominal classification. I then compared gender with other types of non-prototypical categories, such as evaluation (non-prototypical derivation) and number (non-prototypical inflection) and described the rise and the development of gender systems taking agreement as their distinctive feature. Cross-linguistic data offer evidence for different patterns of development, based on differential marking of core arguments, on the grammaticalization of classifiers or of derivational affixes. Arguably, differential marking of core arguments is responsible for the rise of agreement in the earlier PIE animacy-based two-gender system, while grammaticalization of a derivational affix provided the basis for the later sex-based three-gender system. These two different origins mirror the double faceted nature of gender, which feeds syntax, in that it provides a means for reference tracking through agreement, and also serves the lexicon, as a means for creating new words and motivating groups of words. I ended indicating some possible evidence for mechanisms that may lead to the rise of agreement through the spread of a derivational affix.

## **References**

- Aikhenvald, Alexandra 2000. *Classifiers. A Typology of Noun Categorization Devices*. Oxford: Oxford University Press.
- Aikhenvald, Alexandra 2004. Gender. In G. E. Boij, Ch. Lehmann, J. Mugdan, S. Skopetas, eds., *Morfologie/Morphology. Ein Handbuch zur Flexion und Wortbildung/A Handbook on Inflection and Word Formation*, 2 Halbband. Berlin/New York: Mouton de Gruyter, 1031-45.
- Aikhenvald, Alexandra 2006. Classifiers and noun classes, semantics. Volume 1 (article 1111) of *Encyclopedia of Language and Linguistics*, 2nd edition, edited by Keith Brown. Oxford: Elsevier, 463-70.
- Bauer, Laurie, (1997), “**Evaluative morphology** in search of universals”, in *Studies in Language* 21: 3.
- Booij, Geert 1996. Inherent versus contextual inflection and the split morphology hypothesis. In G. Booij and J. van Marie (eds.), *Yearbook of Morphology 1995*. Dordrecht: Kluwer, 1-16.
- Brugmann, Karl 1891. Zur Frage der Entstehung des grammatischen Geschlechtes, *Beiträge zur Geschichte der deutschen Sprache und Literatur* (PBB) 15, 523-31.
- Christofidou, Anastasia, Ursula Doleschal and Wolfgang U. Dressler 1990-1991. Gender agreement via derivational morphology in Greek. *Glosslogía* 9-10, 69-79.
- Clackson, James 2007. *Indo-European Linguistics. An Introduction*. Cambridge: Cambridge University Press.
- Claudi, Ulrike. 1985. *Zur Entstehung von Genussystemen. Überlegungen zu einigen theoretischen Aspekten, verbunden mit einer Fallstudie des Zande*. Hamburg: Buske.
- Corbett, Greville 1991. *Gender*. Cambridge: CUP.
- Corbett, Greville 2000. *Number*. Cambridge: Cambridge University Press.
- Craig, Colette (ed.) 1986. *Noun Classes and Categorization*. Amsterdam/Philadelphia: Benjamins.
- Craig, Colette G. 1986. Jacalteco Noun Classifiers: A Study in Language and Culture. In Craig, (ed.), 263-293.
- Dahl, Östen 2000. Animacy and the notion of semantic gender. In B. Unterbeck, M. Rissanen, T. Nevalainen, M. Saari eds., *Gender in Grammar and Cognition: I. Approaches to Gender, II. Manifestations of Gender*, Berlin/New York: Mouton de Gruyter. 99-115.
- Dixon, R. M. W. 1980. *The Languages of Australia*. Cambridge: Cambridge University Press.
- Doleschal, Ursula 1992. *Movierung im Deutschen. Eine Darstellung der Bildung und Verwendung weiblicher Personenbezeichnungen*. München: Lincom EuropaDressler W. U. 1989. Prototypical Differences between Inflection and Derivation. *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 42, 3-10.
- Dressler, Wolfgang U. 1989. Prototypical Differences between Inflection and Derivation. *Zeitschrift für Phonetik, Sprachwissenschaft und Kommununikationsforschung* 42, 3-10.
- Dressler, Wolfgang U. and Ursula Doleschal 1990. Gender Agreement via Derivational Morphology. *Acta Linguistica Hungarica* 40, 115-137.

- Dressler, Wolfgang U., and Lavinia Merlini Barbaresi 1994. *Morphopragmatics: Diminutives and intensifiers in Italian, German and other languages*. Berlin: Mouton de Gruyter.
- Dressler, Wolfgang U., Willi Mayerthaler, Oswald Panagl and Wolfgang U. Wurzel 1987. *Leitmotifs in Natural Morphology*. Amsterdam/Philadelphia: Benjamins.
- Frajzyngier, Zygmunt 1997. Grammaticalization of number: From demonstratives to nominal and verbal plural. *Linguistic Typology* 1, 193-242.
- Frajzyngier, Zygmunt 2008. *A Grammar of Gidar*. Frankfurt: Lang.
- Frajzyngier Zygmunt and Erin Shay 2003. *Explaining Language Structure through System Interaction*, Amsterdam/Philadelphia: Benjamins.
- Greenberg, Joseph H. 1978. How does a language acquire gender markers? In J. Greenberg, ed., *Universals of human language*. Vol. 3: *Word structure*. Stanford: Stanford University Press, 47-82.
- Grinevald, Colette, and Frank Seifart 2004. Noun classes in African and Amazonian languages: towards a comparison. *Linguistic Typology* 8/2, 243-285.
- Hockett, Charles F. 1958. *A course in modern linguistics*. New York: Macmillan.
- Huntley, David 1980. The evolution of genitive-accusative animate and personal nouns in Slavic dialects. In: J. Fisiak (ed.) *Historical Morphology*. The Hague: Mouton, 189-212.
- Kihm, Alain. 2005. Noun class, gender, and the lexicon-syntax-morphology interfaces: A comparative study of Niger-Congo and Romance languages. In G. Cinque, R. S. Kayne, eds., *The Oxford Handbook of Comparative Syntax*. Oxford: Oxford University Press, 459–512.
- Koch, Peter 2001. Lexical typology from a cognitive and linguistic point of view. In Haspelmath, M., König, E., Oesterreicher, W. and W. Raible (eds.). 2001. *Language Typology and Language Universals*, v.1-2. Berlin: Walter de Gruyter., 1142 – 1178.
- Koch, Peter. 2001. Lexical typology. *Language Typology and Language Universals*. An International Handbook. Vol. 2. Pp. 1142-1173.
- Krishnamurti, Bhadriraju 2001. *Comparative Dravidian linguistics: current perspectives*. Oxford: OUP.
- Krishnamurti, Bhadriraju 2003. *The Dravidian Languages*. Cambridge: CUP.
- Kuryłowicz, J. 1964. *Inflectional Categories of Indo-European*. Heidelberg: Carl Winter.
- Lakoff, George 1987. *Women, fire, and dangerous things: what categories reveal about the mind*. University of Chicago Press.
- Luraghi, Silvia 2004. The evolution of the Greek nominal paradigms: economy and case syncretism from Mycenaean to Modern Greek. *Classica et Mediaevalia* 55, 2004, 361-379.
- Luraghi, Silvia 2006. La nascita del genere femminile in indoeuropeo. In S. Luraghi, A. Olita, eds., 89-106.
- Luraghi, Silvia 2009a. The origin of the feminine gender in Indo-European. An old problem in a new perspective. In V. Bubenik, J. Hewson & S. Rose, eds., *Grammatical Change in Indo-*

- European Languages*, Amsterdam/Philadelphia, Benjamins, 3-13.
- Luraghi, Silvia 2009b. Indo-European nominal classification: From abstract to feminine. In S. W. Jamison, H. C. Melchert, B. Vine, eds., *Proceedings of the 20th Annual UCLA Indo-European Conference*, Bremen, Hempen, 115-131
- Luraghi, Silvia and Anna Olita (eds.) 2006. *Linguaggio e genere*. Roma: Carocci.
- Luraghi, Silvia and Anna Olita 2006. Introduzione. In S. Luraghi, A. Olita, eds., 15-27.
- Luraghi, Silvia forthcoming. The origin of the Proto-Indo-European gender system: Typological considerations. *Folia Linguistica*.
- Malzahn, Melanie 2000. Die Genese des indogermanischen Duals. In M. Ofitsch, Ch. Zinko (Hg.), *125 Jahre Indogermanistik in Graz*. Graz: Leykam, 291-315.
- Meillet, Antoine 1921. La catégorie du genre et les conceptions indo-européennes. In A. Meillet, ed., *Linguistique Historique et Linguistique Générale*. Paris: Champion, 211-229.
- Mous, Maarten forthcoming. Cushitic. In Z. Frajzyngier and E. Shay, eds., *Afro-Asiatic languages*. Cambridge: CUP.
- Mufwene, Salikoko 1980. Bantu noun class prefixes: Inflectional or derivational? In J. Kreiman and O.J Ojeda (eds.), *CLS Working Papers in Linguistics*. Chicago, 246-258.
- Pimenova, Natalia 2004. Nominale Stammbildungssuffixe als Derivationsmittel im (Gemein)germanischen. In J. Clackson, B. A. Olsen (eds.) *Indo-European word formation*. Copenhagen: Museum Tusulanum, 248-268.
- Ricca, Davide 2004. Cumulative exponence involving derivation. In *Morphology and its demarcations*. Amsterdam/Philadelphia: Benjamins, 207-208.
- Risch, Ernst 1980. Betrachtungen zur indogermanischen Nominalflexion. In Ch. Lehmann, G. Brettschneider, Hrsg., *Wege zur Universalienforschung*. Tübingen: Narr, 259-267.
- Scalise, Sergio 1984. *Generative Morphology*. Dordrecht: Foris.
- Schmidt, Johannes 1889. *Die Pluralbildungen Der Indogermanischen Neutra*. Weimar: Böhlau.
- Seifart, Frank 2009. Multidimensional typology and Miraña class markers. In P. Epps, A. Arkhipov, eds., *New Challenges in Typology. Transcending the Borders and Refining the Distinctions*. Berlin/New York: Mouton de Gruyter, 365-385.
- THORNTON A.M. (2003a), *L'assegnazione del genere in italiano*, in F. SÁNCHEZ MIRET (a cura di), *Actas del XXIII Congreso Internacional de Lingüística y Filología Románica*, vol. I, Niemeyer, Tübingen, pp.467-481.
- Walter, Heribert 1982. Genus- und Nominalklassensysteme und die Dimension der Apprehension. In H. Seiler, Ch. Lehmann (Hrsg.) *Apprehension. Das sprachliche Erfassen von Gegenständen*. Teil I: *Bereich und Ordnung der Phänomene*. Tübingen: Narr. 1982:217-228.
- Zubin, David and Klaus M. Köpke 1986. Gender and folk taxonomy. In C. Craig, ed., 139-180.

Word count: 11,843 words, 78,056 characters

Prof. Dr. Silvia Luraghi

Dipartimento di Linguistica Teorica e Applicata  
Università di Pavia  
Strada Nuova 65  
I-27100 Pavia

[silvia.luraghi@unipv.it](mailto:silvia.luraghi@unipv.it)