

NOMINAL PARADIGMS IN ENGLISH¹

Abstract: The distinction between lexicon and grammar is made at the morphological subsystem, between the regular and irregular forms. For nominal and verbal regular forms, the redundancies can be generalized if the linguistic data are represented by grammatical paradigms. The inflection rules type makes a difference between rules applied to general, irregular and particular nouns. The object used in implementing the nominal structure is named *tflexsb* and the code respects the specifications of Delphi environment.

Keywords: noun, regular inflection, paradigm.

1.1. Regular inflection versus irregular inflection

Language and cognition have been explained as the products of the associative memory structure or of a set of genetically determined computational modules, in which rules manipulate symbolic representations. (S. Pinker, 1991: 530-535). The distinction between lexicon and grammar is made at the morphological subsystem, between the regular and irregular forms.

Regular inflection is generated by a logical operation, governed by rules which are generalized in complex constructs, as the nominal or verbal paradigms. Irregular forms are words acquired and stored without the recall of a morphological rule. They are words stored in lexicon, with a grammatical feature like “past tense” or “genitive, singular” incorporated into their lexical entries. The regular inflection is not reduced to declarative statements as the one “to create *past tense*, the rule concatenates the affix *-ed* to the verb stem”, but it implies paradigmatic statements, through a variable V (in our case, the lexical entry of any regular verb) and a morpheme (*-ed*, in this case) are related by string unification.

The next representation is an illustration of the Words-and-Rules (WR) theory: when a word must be inflected, the lexicon and grammar are accessed in parallel. If an inflected form for a noun or a verb exists in memory, as with irregulars, it will be retrieved; a signal indicating a match blocks the operation of the grammatical suffixation process. If no inflected form is matched, the grammatical processor concatenates the appropriate suffix with the stem, generating a regular form.

	Word stem (e.g. <i>wolf</i>)	
	Grammatical feature (e.g. singular)	
	Lexicon	Grammar
Used for:	roots, idioms, irregulars, some regulars	phrases, sentences, any regular forms
Form of computation:	lookup, association	combination, unification
Subdivision of:	declarative memory	procedural system
Associated with:	words, facts	rules, skills

Fig. 1: Illustration of the Words-and-Rules theory

An intriguing aspect of inflection is that irregular forms can sometimes turn up in regular form. Some of these regularizations are unsystematic – for example, doublets such

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as *dived/dove* and *dreamt/dreamed*, in which the regular form is used sporadically because the irregular form is low in frequency and hence poorly remembered.

But many are systematic: in particular contexts, the regular form is consistently used, such as *ringed the city*. These particular contexts are detailed by (S. Pinker, 2002, pp. 456-463) in this manner:

A. The word lacks a noun or a verb root

- onomatopoeia: dinged, pinged, zinged, peeped, beeped;
- quotations: 'I found three man's on page 1';
- names: the Julia Childs, the Thomas Manns, the Shelby Footes;
- truncations: synched, sysmans;
- unassimilated borrowings: talismans, mongooses;

B. The root cannot be marked for the feature

- verbs with noun or adjective roots: ringed the city, steeled myself, spitted the pig, bared his soul, righted the boat, stringed the peas;
- nouns with verb roots: a few loafes (episodes of loafing), a couple of wolfs (wolfing down food)

C. The word's structure is exocentric

- verbs based on nouns based on verbs: grandstanded, flied out, costed out the grant, encasted his leg;
- nouns based on names based on nouns: Mickey Mouses (simpletons), Renault Elfs, Top Shelves (frozen food), Seawolfs (aircraft), Toronto Maple Leafs;
- nouns whose referents are distinct from those of their roots: low-lifes, still lifes, sabretooths, Walkmans, tenderfoots;
- nouns based on phrases: Bag-A-Leafs, Shear-A-Sheeps.

Generally a complex English word inherits its features from its rightmost morpheme, its 'head'. For example, the head of *overeat* is *eat*; therefore, *overeat* is a verb (it inherits the 'V' category of *eat*), it refers to a kind of eating (because it inherits the semantic features of *eat*), and it has the irregular past-tense *overate* (because it inherits the stored past-tense form of *eat*).

If an irregular-sounding word changes in meaning, but retains a root in head position, it stays irregular:

- compositional prefixing: overate, overshot, undid, preshrank, remade, outsold;
- non-compositional prefixing: overcame, understood, withdrew, beheld, withstood, undertook;
- compounding: bogeymen, superwomen, muskoxen, stepchildren, milkteeth;
- metaphors: straw men, chessmen, snowmen, sawteeth, metrical feet, six feet tall, brainchildren, children of a lesser god, beewolves, wolves in sheep's clothing;
- idioms: went out with (dated), went nuts (demented), went in for (chose), went off (exploded), took off (launched), took in (welcomed), took over (usurped), took up (commenced).

For nominal and verbal regular forms, the redundancies can be generalized if linguistic data are represented by grammatical paradigms.

1.2 The logical schema to represent the nominal inflection

The logical schema to represent the nominal inflection applies two different string modification over two distinct types of nominal cells: regular nouns and irregular nouns. The inflection rules type makes a difference between rules applied to general, irregular and particular nouns (with affixes for Nom.Acc. singular which require phonetic alternations

and string adding, different from the general morpheme ‘s’, clue for plural number). The singular and plural forms for genitive case are generated by string adding for all the noun categories, and the difference is the intermediate case Nom.Acc.).

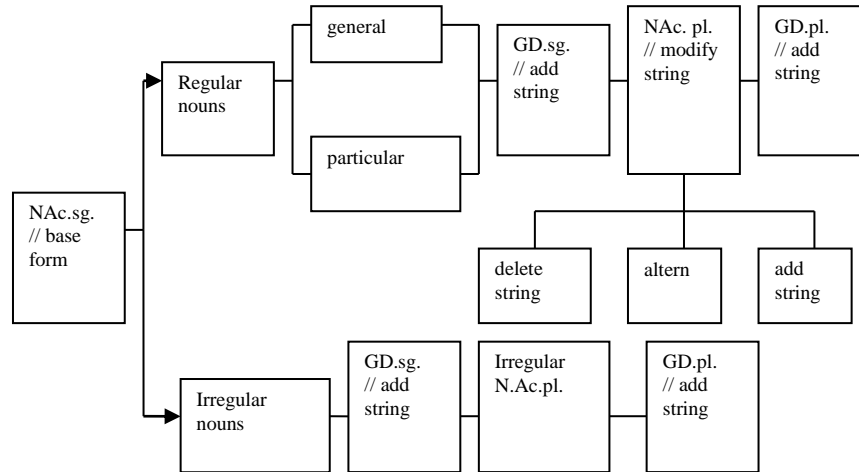


Fig. 2: Logical schema to represent the nominal inflection

1.3 Inflection rules

a. Plural

Most nouns ending in a consonant or a silent *e* form a regular plural by adding the morpheme “s”: *dogs, trees, turtles*. Words that ends in sibilants such as *ch, dge, ge, s, tch, x* or *z* add the morpheme “es”: *ages, boxes, busses, churches, dishes, foxes, waltzes, gases, ditches*. Words ending in a vowel plus *y* add “s” to form the plural (*boys, days, toys*). Exceptions: *colloquies, soliloquies, moneys / monies*. Words ending in a consonant plus *y* change the *y* to *i* and add “es”: *arteries, bodies, countries, stories*. Many of the nouns ending in *f, ff* just add the morpheme “s” to form the regular plural: *beliefs, chiefs, cliffs*. Others change the *f* to *v* and add the morpheme “es”: *elves, halves, leaves, lives*. Some words ending in a consonant plus *o* add *es*: *echoes, potatoes, vetoes, volcanoes*. The nominal irregular forms, stored in lexicon and called by lexical memory, generate the plural like the other parts-of-speech which haven’t the inflection information: *child – children, man – men, woman – women, goose – geese, mouse – mice, tooth – teeth, ox – oxen, die – dice, foot – feet, louse – lice*.

b. The genitive case

The genitive alternation should be regarded as morphosyntactic in nature. There are basically three main aspects in which the *s-genitive* and the *of-genitive* differ:

Morphosyntactic Differences	s-genitive	of-genitive
relational marker	POSS ‘s: more synthetic	preposition <i>of</i> : more analytic
grammatical the /a	determiner: (the / a king)’s	complement: the daughter of

function of possessor king	daughter modifier: a (king's daughter)	king modifier: the daughter of a modifier: a king of honor
word order	possessor- possessum	possessum- possessor

First, these two genitive constructions make use of different relational markers to link a possessor to a possessum, i.e. POSS 's versus the preposition *of*. Second, for both the *s-genitive* and the *of-genitive* the same surface form can encode various grammatical functions, which only partly overlap: while the possessor in the *s-genitive* can function as a determiner or a modifier, in the *of-genitive* it is either a complement or a modifier. Third, the *s-genitive* and the *of-genitive* provide two alternative ways of arranging possessor and possessum in linear order.

c. The dative case

The dative is built by taking into consideration the dependence between the preposition *to* and the nominal phrase with the head having the singular or plural grammatical information.

1.4. Implementing the noun paradigms

The object used to define the nominal structure is named 'tflexsb' and it is defined in this manner:

```
type tflexsb = class
public
    grupa, animat, caz, numar, articol, alternanta1, alternanta2, terminatie, auxiliar1,
    auxiliar2 :string;
    constructor create (grs, anims, cazs, nrs, arts, as1, as2, tes, aus1, aus2:string);
end;
```

where:

- grupa(grs) represents the endings group for English noun lemmas; there are 6 groups, and the classification takes into consideration conditions regarding the endings for nominal base forms;
- animat(anims) represents the semantic feature *animat*; this variable takes the value 'a' if the noun refers to an animate entity;
- caz(cazs) represents the noun case;
- număr(nrs) shows the category of number;
- articol(arts) includes the information about the noun's definiteness;
- alternanta1(aş1) represents the substring which will be deleted from the input string during phonetic alternation;
- alternanta2(aş2) represents the substring which will be added to the input string in order to close the phonetic alternation;
- terminatie(tes) is the string which will be added to the end of the input string, indicating the plural or the synthetic genitive;
- auxiliar1(aus1) is the string which will be added before the input string, as an individual lexeme, indicating the dative or the prepositional genitive;
- auxiliar2(aus2) represents the definite article (the proclitic article).

In the following lines, I will explain the utilisation of the object 'tflexsb' with a paradigm named 'fs1e1':

```
fs1e1:=tflexsb.create('g1','a','d','p','a','f','v','es','to','the');  
lflexsb.add(fs1e1);
```

The meaning of this paradigm for nominal inflection is the following:

- the nouns which are using this paradigm for inflection are in the group 1 of endings;
- the semantic feature has the value *a*, i.e., the entity referred by the noun is animate; when the semantic feature has no value, we consider that the entity is not animate;
- the noun which belongs to this paradigm illustrates the dative case;
- the number feature has the value *plural*;
- the noun has the definiteness feature *a*;
- the next two values shows the fact that the paradigm needs the alternation operation, so that the substring *f* will be replaced with the string *v*;
- the value *es* of the ending variable will be added to the end of the noun form;
- the variable *auxiliar1* has the value *to*, naming the casual information of dative; it will antecede the noun, as an individual affix;
- the last value included in the paradigm, *the*, is the definite article (i.e., the proclitic article); this one will have an intermediate position between the casual information of dative and the noun.

For the next steps of implementing the noun paradigm, the program initialises the variables which represent the morphological and semantic features, with values extracted from the morphological code of the word; it is established the group of nominal endings to which belongs the lemma; the program is looking for the paradigm which is matching the validating conditions, then it executes the modifications specified to generate the inflected form; this form is added to the string which represents the final stranslation.

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