Zero Sign (in Morphology

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0.1 Notion of Zero Linguistic Sign and the Principle for the Postulation Thereof

Strange as it may seem, in spite of wide-spread and fruitful use of zero signs in linguistics, there is, as far as I know, no universally accepted good definition of the concept itself of linguistic zero sign: a maximally general one which would cover all possible types of zero signs and, at the same time, be rigorous and logically satisfactory. Paradoxically, such a definition is easy to supply, proceeding from the basic concept of linguistic sign as a triplet $\langle$<Signified> ; /Signifier/ ; Σ(Syntactics)$\rangle$. Here, 'Signified' (= signatum, *signifié*) and 'Signifier' (= signans, *signifiant*) are taken in their Saussurian sense, and 'Syntactics' is a set of combinatorial properties, or features, of the sign that are determined neither by the signified nor by the signifier (these are such features as part of speech, grammatical gender, government pattern, etc.). Formally, then:

Definition 1: Zero linguistic sign

A *zero linguistic sign* **X** is a sign whose signifier is empty: $\mathbf{X} = \langle< X >; /\Lambda/; \Sigma_X\rangle$
(Λ stands for 'the empty set;' a zero sign is written as $\varnothing$; cf. Introduction, p. 00.)

Let it be emphasized that the signifier of a zero sign is by no means a perceptible phonetic pause - it is strictly the ABSENCE of a particular signifier in a particular position where such signifiers must be expected (Janda and Manandise 1984[234] against the identification of linguistic zeroes with phonetic pauses). The addressee of an utterance with a zero sign - such as, e.g., Rus. $ruk + \varnothing < of\,hands >$, where the zero suffix expresses <plural, genitive> -identifies the zero not because of a silence (the next wordform may follow *ruk* without any slightest pause), but because the perceptible form *ruk* is not followed by one of possible inflectional suffixes.

The concept of zero sign is thus obtained as a natural extension of the concept of linguistic sign-by allowing one of its three components, namely the signifier, to be empty.

However, even if Definition 1 is clear and rigorous, it is absolutely not sufficient: it does not constrain the use of zero signs by linguists. Zero is a powerful device, so that a linguist can be easily tempted into postulating zeroes everywhere, as soon as a zero helps to make his description more consistent or elegant. An unrestricted use of zeroes empties them of any positive content; they may become a sort of a convenient stopgap- LINGUIST'S zeroes, instead of being genuine linguistic signs, i.e. LANGUAGE zeroes. Zero signs should be an apt generalization of 'more normal' non-zero, i.e. overt, signs. As Haas 1968a[34] put it:"The novel ... use of the term ['ZERO sign'-IM] must not be allowed to interfere with the established ... uses [of the term 'OVERT sign'-IM]." Therefore, we need a stringent Principle that will guide our choices in the process of introducing zeroes, so that some presumed zeroes would not be admitted. Such a Principle is proposed immediately below. It is aimed at avoiding zeroes wherever you can avoid them:"If you can do without a zero, you **should** do without a zero" (Plungjan [149] translation is mine-IM).

Reasoning within the framework of the Meaning-Text theory entails, among other things, considering introduction of zero signs exclusively from the viewpoint of text synthesis, or of speaking-that is, in the process by which the speaker moves from meanings to texts. In simple terms, I study

how some meanings present in the Semantic Representation of the intended utterance are expressed on a higher level - syntactic or morphological - by the absence of 'physical' signals. Metaphorically speaking, a zero linguistic sign is a meaningful absence. The Principle presented below is an attempt to capture the essence of 'meaningful absence.'

0.1.1 Principle for the introduction of zero linguistic signs [= IZLS Principle]

Let there be an expression E -a clause or a wordform-of language L; a zero sign found at the clause level is a SYNTACTIC zero (= a zero wordform), while a zero sign found at the wordform level is a morphological zero (= a zero morph or a zero morphological operation).

The presence of a zero linguistic sign X in E is admitted if, and only if, the following three conditions are simultaneously satisfied:

1. Expressiveness: E carries a meaning $< X >$ or the value γ of a syntactic feature Σ[1] such that $\overline{(X)}/\gamma$ has to be ascribed to X as (a part of) X's signified/as (a part of) X's syntactics.

2. Exclusiveness: E does not contain a non-zero signifier to which $< X > /\gamma$ could be ascribed in a systematic and natural way at any level of representation.[2]

3. Contrastiveness: E admits, in the corresponding position, a semantic contrast between X and another non-zero sign X' [in other terms, X has a distinctive value].

A zero sign must always do a clearly circumscribed job (= <u>express</u> some content really present in the utterance, i.e. carry an information payload); it must do it in the absence of other contenders (= be <u>exclusive</u> on the job, i.e. the very last resort of our description); and it must be opposed to a non-zero sign (= <u>distinguish</u> two utterances, i.e. participate in a semantic contrast).

0.2 Different Types of Zero Signs

The above formulation of the IZLS Principle allows for various types of linguistic zeroes.

- First, along with better known morphological zeroes, there are NON-MORPHOLOGICAL ZEROES, that is, ZERO WORDFORMS or ZERO LEXEMES, which can be called syntactic, or lexical, zeroes. In most cases, zero wordforms are zero megamorphs: for instance, the Russian copula BYT $<$[to] be$>$ in the present of the indicative: $\emptyset^{BYT'}_{pres.ind,3sg}$; cf. *Ivan bolen* $<$Ivan [is] sick$>$ (where no overt copula is possible) vs. *Ivan* **byl** ⟨**budet**⟩ *bolen* (Ivan was ⟨will be⟩ sick$>$. Examples of zero lexemes include the Russian lexemes $\emptyset^{PEOPLE}$ and $\emptyset^{ELEMENTS}$ which appear as subjects in the syntactic structure of the sentences *Ivana ubili* $<$Some people killed Ivan$>$ vs. *Ivana ubilo* $\approx$ $<$Something mysterious killed Ivan$>$: see Mel'čuk 1997[178ff].

- Second, among morphological zeroes, we can also get NON-GRAMMATICAL zeroes, i.e. zero radicals in wordforms having non-zero affixal parts. I could cite three examples of zero radicals.

(1) Kirundi

Deictic demonstratives in Kirundi in different noun classes

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[1](IZLS Principle, p. 00) As an example of a zero sign carrying only some values of syntactic features but having an empty signified I consider empty zero signs in 5, p. 00ff.

[2]This requirement ("Don't introduce a zero sign in the presence of an explicit formal difference") was formulated, in a very clear manner, in Nida 1948[256]). It was later vigorously elaborated in Haas 1968b[35]; cf., for instance: "Two obvious carriers of a semantic distinction ... [should not be] ... ousted by the introduction of two ghosts-presence of zero and absence of zero" [speaking of a viewpoint according to which *go* and *went* are allomorphs of the same morpheme and are distinguished by a zero of the past tense in *went* 'contrasting' with an absence of a tense marker in *go*]. Haas called a fictitious zero used instead of a perceptible distinction a 'quid pro quo' zero.

noun class:	I	II	III	IV	V	V
1. <this-close to 1st person> (Sp. este)	uwu	aba	uwu	iyi	iri	aya
2. <this-close to 2nd person> (Sp. ese)	uwo	abo	uwo	iyo	iryo	ayo
3. <this-close to 3rd person> (Sp. aquel)	uryá	bárya	uryá	iryá	rírya	aryá
4. <that-very far from 1st& 2nd persons>	urííya	bárííya	urííya	irííya	ríriíya	arííya

In lines 2 - 4, we see the radicals **-o, -rya** and **-rííya**, preceded by class prefixes, which show the agreement with the modified noun: **u-, ba-, u-, i-, ri-** and **a**-. In the actual forms, we have the following three alternations: consonantization $/u/ \Rightarrow /w/$ and $/i/ \Rightarrow /j/$ (spelled y) before a vowel; truncation of $/a/$- before a vowel; and epenthesis of $/w/$ and $/j/$ between vowels. Moreover, if the form obtained is monosyllabic, the class prefix is preceded by an epenthetic vowel identical to its own vowel, for instance: $ba+o \Rightarrow bo \Rightarrow abo$ (class II); $ri+o \Rightarrow ryo \Rightarrow iryo$ (class V); etc.

Now, what is the radical of the wordforms in line 1? They consist of a class prefix preceded by an epenthetic vowel (because of forbidden monosyllabicity): $u \Rightarrow uu \Rightarrow uwu$, $ba \Rightarrow aba$, etc. But a class prefix is a PREFIX - it must precede a radical, which has to carry the deictic meaning. Therefore, these wordforms contain a zero radical: $-\emptyset^{THIS}$ a sign of the following structure:

$$-\emptyset^{THIS} = \langle \text{ <this-close to the 1st person> } ; /\Lambda/ ; \Sigma = \text{radical, demonstrative Adj, } \dots \rangle$$

(2) Serbo-Croatian
    3rd person pronominal clitics (MiliŤeviŤ 2000)
    They exist only in the genitive-accusative and the dative; I show their masculine and neuter forms in parallel with the corresponding full forms:

	singular (masculine and neuter)			plural	
	full form	clitic		full form	clitic
genetive = accusative	*nj+ega*	*ga*	*nj +ih*	ih
dative	*nj+emu*	*mu*	*nj+ima*	im

The radical of the pronoun {ON <he>} in the full forms of all cases of the two numbers, except for the nominative, is **nj-** $/N/$; **-ega, -emu, -ih** $/ix/$ and **-ima** are cumulative suffixes of gender, number and adjectival case. These are the same suffixes as those found in all the adjectives of the corresponding declensional type, e.g., VRUŚ <hot>:

[SG, MASC/NEU] GEN *vruŤ* +**eg(a)**, DAT *vruŤ* +**em(u)**,
[PL]   GEN *vruŤ* +**ih**,   DAT *vruŤ* +**im(a)**.

The clitic wordforms have only suffixes (abridged); the meaning <he> is expressed by the absence of a radical which would 'support' these suffixes, that is, by a zero radical allomorph of the morpheme ON <he>. The morphic representation of these clitics is as follows (for

economy's sake, I omit the genitive forms, homophonous with those of the accusative):

ga =	$\emptyset^{HE}$ =	⟨<he>	; /Λ/ ;	Σ = radical, clitic pronoun, 3rd person, ⟩
	⊕			
	ga =	⟨<masc, SG, acc>	; /ga/ ;	Σ = suffix, of a clitic pronoun, ⟩
mu =	$\emptyset^{HE}$ =	⟨<he>	; /L/ ;	Σ = radical, clitic pronoun, 3rd person, ⟩
	⊕			
	mu	⟨<masc, SG, dat>	; /mu/ ;	Σ = suffix, of a clitic pronoun, ⟩
ih =	$\emptyset^{HE}$ =	⟨<he>	; /Λ / ;	Σ = radical, clitic pronoun, 3rd person, ⟩
	⊕			
	ih =	⟨<pl, acc>	; /ix/ ;	Σ = suffix, of a clitic pronoun, ⟩
im =	$\emptyset^{HE}$ =	⟨<he>	; /Λ / ;	Σ = radical, clitic pronoun, 3rd person, ⟩
	⊕			
	im =	⟨<pl, dat>	; /im/ ;	Σ = suffix, of a clitic pronoun, ⟩[3]

Zero radicals are paradoxical entities, and as such they are rare in human languages. This is understandable: radicals are meant to designate a huge number of poorly organized signifieds (= lexical meanings), and it is difficult to use an absence to signify something if there is no fixed position in which a limited number of elements is supposed to appear, so that this absence could readily contrast with one of few 'presences'. For this reason, both of the above zero radicals are found in a strongly grammaticized part of the lexicon: among pronouns, where the number of possible signifieds is small and the oppositions well marked. Another example of a zero radical known to me is the radical of the verb meaning <give> in a Papuan language, Awa:

(3) Awa:

    a. ∅ +nuw   +éhq = Nuwéhq
        give my PAST.3_{SG}
        ([He] gave something mine>.

    b. Néne sòn   nuwéhq
        my   garden give.my.PAST.3_{SG}
        ([He] gave my garden>.

    c. Keki +nuw +éhq   = Kekinuwéhq
        burn my PAST.3_{SG}
        ([He] burnt something mine>.

    d. Néne òn   kekinuwéhq
        my   garden burn.my.PAST.3_{SG}
        ([He] burnt my garden>.

Comparing (3a, 3b) to (3c, 3d), we see that the meaning <give> is expressed by the absence of a radical before the inflectional ending **-nuwéhk**; this means a zero radical.

- Third, the grammatical morphological zeroes are all inflectional, i.e. they are inflectional zero affixes (= they always express grammemes). As stated in Section 12, derivational zeroes are not admitted.

- Fourth, the IZLS Principle does not limit us to zero segmental signs (= to zero morphs and zero megamorphs). It allows also for zero operation signs: zero reduplications, zero apophonies, and zero conversions. These are operations whose output is identical to their input; such 'null-modifications' are introduced only in opposition to non-zero operations; cf., for instance, Eng. foot, where the singular is expressed by a zero $A^{ΛΛ_{SG}}$ apophony opposed to the $A^{/u/}_{PL}$ apophony, which expresses the plural in feet. (For more on zero morphological operations, see Mel'čuk 1982[51, 101-102] and Mel'čuk 1993-2000[vol. 4: 286, 304, 321]

0.3 The Requirement of Non-Zero Alternants

The IZLS Principle does not require that a zero sign should necessarily have a non-zero alternant, that is, that any zero sign should have a fully synonymous non-zero (= overt) partner; a zero sign can be a unique allomorph of its morpheme or a unique lex of its lexeme. Thus, in the wordform book the singular is expressed by a zero suffix $-\varnothing_{SG}$, opposed to the plural suffix **-s**; this can be maintained even without having recourse to foreign overt singular markers as those in alumn+**us**, phenomen+**on** or virtuos+**o**, which could be quoted as non-zero alternants of $-\varnothing_{SG}$. After all, I admit the singular zero suffix in Spanish, where no non-zero alternant can be found: $libro+\varnothing_{SG}$ <book>, <rbol+ $\varnothing_{SG}$ <tree>, etc.

Haas 1968b[45-57] strongly rejects 'unsupported' zero signs, i.e. zero signs having no overt alternants. For him, the only justification for associating a meaning with a zero must be that the same meaning is also associated with a non-zero: since the meaning <singular> is never expressed by an overt form in English, "we should leave it merged in the total semantic values of forms like *cat, boy,* etc." (p. 47). The last statement raises, however, two serious objections:

- First, if we say that the meaning <singular> is included in the signified of the radical cat-, then the meaning <plural> of the suffix **-s** must be replacive for all English nouns: it will have to push out the meaning <singular>, which is already present in the radical, and take its place. However, 'unsupported' zeroes are widespread in different languages:
  $-\varnothing_{3_{SG}}$ in Serbo-Croatian (verb: <ita+$\varnothing$ <[he] reads> vs. <ita+**m** <[I] read>, <ita+á <[you$_{SG}$] read>, ...);

  $-\varnothing_{MASC}$ in Russian (verb: $spa+l+\varnothing$ <[he] slept> vs. $spa+l+a$ <[she] slept>, $spa+l+o$ <[it] slept>; or predicative adjective: $gotov+\varnothing$ <[he is] ready> vs. $gotov+a$ <[she is] ready>), $gotov+o$ <[it is] ready)>;

  $-\varnothing_{PRES.IND}$ in Spanish and French ($canta+\varnothing+mos$ <[we] sing> vs. $cantá+$**ba**$+mos$ <[we] sang>, $canta+$**r**$+emos$ <[we] will sing>,

  etc., just to name a few among the best known cases. As a result, if we agree with Haas, numerous inflectional meanings will turn out to be replacive. Although I admit replacive meanings in special situations (Mel'čuk 1991 and Mel'čuk 1993-2000, vol. 4: 45, 332, 402), I am not prepared to say that most grammemes are replacive. This would change the picture of linguistic morphology in too drastic a manner to be easily digested.
- Second, and more importantly, the radicals **cat-, boy-, book-**, etc. do not carry the meaning <singular>. This is clearly seen in compounds: a **mousetrap** is for catching mice, not one mouse; the **toothbrush** is for teeth, not for one tooth; and a **bookbinder** binds books rather than one book. What expresses the meaning <one book> is the complete wordform **book** rather than the (homophonous) radical *book-*; and this wordform does contain a singular zero suffix. The same consideration is valid for Spanish: the person who is **oj+inegro** <black-eyed> has black eyes (*ojos*), not one black eye (*ojo*); **pat+ituerto** <crooked-legged> has two crooked legs (*patas*), not just one (pata); etc.

The meaning <singular> cannot be associated directly with the radical in the case of English nouns (and in all similar cases); therefore, unsupported (= lacking overt alternants) zero signs must be admitted. An immediate corollary of this is the existence of zero -emes (sets of signs): a zero morpheme/zero lexeme that contains only a zero element (a zero morph/allolex). For instance, the Spanish morpheme SINGULAR is a zero morpheme, while the Russian lexeme $\varnothing^{people}$ and the Spanish lexeme $\varnothing^{impers}$ are zero lexemes. (Cf. Bazell 1949s remark on the possibility of zero morphemes: Bazell 1949[1966: 225, fnt. 26].) The morpheme {3SG} in Sierra Totonac is another good example

of a zero morpheme (from Nida 1948[46]: "The third person singular is never indicated overtly," i.e. this combination of grammemes is expressed only by a zero suffixal morph, which is the only allomorph of the corresponding zero morpheme):

$$
\begin{array}{llll}
1_{SG} & \textbf{k-} & 1PL & \text{-wi} \\
2_{SG} & \textbf{-ti} & 2PL & \text{-tit} \\
3_{SG} & \textbf{-}\varnothing & 3PL & \textbf{-q}\text{d}\gg
\end{array}
$$

0.4 Empty Zero Signs

Condition 1 of the IZLS Principle allows, among other things, for an EMPTY SYNTACTIC, or LEXICAL, zero sign, i.e. a sign whose both the signified AND the signifier are empty and which exists only because of its syntactics: it controls particular agreement somewhere in the clause. Such is the 'impersonal' zero pronoun in Spanish or Russian, which is found, for instance, in sentences with a meteorological verb, such as *Llueve* <[It] rains> or *Svetaet* <[It] dawns>: here, the empty wordform $\varnothing_{3sg}^{IMPERS}$ requires the agreement of the Main Verb in the 3rd person singular (in Russian, also in the neuter gender in the past). The wordform $\varnothing_{3sg}^{IMPERS}$ corresponds to the Fr. *il*, Germ. *es*, and Eng. *it*, these three being equally empty, but non-zero. On the other hand, the zero wordform $\varnothing_{neuter}^{ELEMENTS}$ in Russian, as in *Kräu sorval+o vetrom*, lit. <[It] tore the roof away with the wind>, is not empty: it means <mysterious/natural forces> and contrasts with $\varnothing_{pl}^{PEOPLE}$ (*Kryäu sorval+i vetrom*, lit. <[They ≈ Some people] tore the roof away>), as well as with non-zero subjects. (Each of these zero wordforms constitutes a one-lex zero lexeme, see above.)

An alternative description would be to say that meteorological (and other impersonal) verbs do not agree with anything, but appear always in the 3_{SG} form. Such a description is logically possible; however, it would destroy an obvious parallelism 1) between impersonal verbs and all other verbs (within a given language), 2) between impersonal and personal uses of the same verb (*Slony sorvali* ... <The elephants tore away ... > vs. *Sorvali* ... ([<They ≈ Some people] tore away ... >), and 3) between sentences with impersonal empty non-zero pronouns in some languages and structurally identical sentences, but without such pronouns in other languages (Fr. **Il** *pleut* vs. Sp. *Llueve*). Looking for a more homogeneous treatment, I prefer to stick to zero empty wordforms/lexemes.

Nevertheless, I have to point out that an empty zero subject wordform/lexeme is-unlike all other zero signs-non-contrastive; it is imposed by the syntactic context (the necessity of a subject in a clause for the Main Verb to agree with) and has an empty signified, so it cannot contrast semantically with anything. To accommodate it formally, we need an additional condition in the IZLS Principle. (I am indebted to N. Pertsov, who drew my attention to this fact.)

0.5 Zero as a Last Resort

Condition 2 of the IZLS Principle protects us against the proliferation of zeroes in all those cases where the information involved (= the meaning <X> or the value γ of a syntactic feature) is carried by another, non-zero sign. This means that, generally speaking, one should not look for a zero marker where one could see a real, 'physical', i.e. overt, difference: a zero sign must be exclusive as a possible carrier of the information in question or there is no zero. In other words, "ceteris paribus, accounts that do without zeroes are always to be preferred over ones that include them" (Janda and Manandise 1984[231]). A zero sign should be introduced only if there is no other linguistic means available to take care of the observed chunk of meaning to be expressed. Let it be emphasized that linguistic means include more than segmental signs, i.e. morphs; there are also reduplications, apophonies and conversions, and all these overt operation signs are valued higher than zero signs: they should be preferred over a zero. Let us consider the following simple example.

(4)   German

The wordform **Mütter** <mothers> has no plural zero suffix $-\varnothing_{PL}$, because Mütter contains a non-zero signifier to which the meaning <plural> can be ascribed in a natural and systematic way: this is the Umlaut alternation /u/ ⇔ /ü/, applicable to the corresponding singular wordform Mutter (without Umlaut). German has many plurals of this type:

*Va*ter	<father>	*Vä*ter	<fathers>
Apfel	<apple>	**Ä**pfel	<apples>
*Fa*den	<thread>	*Fä*den	<threads>
*Vo*gel	<bird>	*Vö*gel	<birds>
Ofen	<oven>	**Ö**fen	<ovens>
*To*chter	<daughter>	*Tö*chter	<daughters>
*Bru*der	<brother>	*Brü*der	<brothers>

All these pairs show an obvious phonemic difference with which the signified <plural> can be naturally associated. Therefore, the plural formation in (4) must be described by the apophonies $A_{PL}^{/a//\epsilon/}$, $A_{PL}^{/o//\ddot{o}/}$ and $A_{PL}^{/u//\ddot{u}/}$. The signified (singular) is expressed in corresponding nouns by the absence of any modification-in our terms, by the zero apophony $A_{SG}^{\Lambda\Lambda}$. On the other hand, since the wordform **Mütter**, which represents the nominative, the genitive and the accusative in the plural, contrasts with the plural dative form **Mütter+n**; therefore, the wordform **Mütter** contains a zero case suffix: $-\varnothing_{NOM/GEN/ACC}$, which is opposed to the -n of the dative. As a result, the wordform **Mütter** has the following morphic representation:

$$Mutter \oplus A_{PL}^{/u/\ddot{u}/} \varnothing_{NOM/GEN/ACC},$$

namely, a radical morph, a plural apophony and a zero case suffix. The wordform Mutter has of course a different morphic representation:

$$Mutter \oplus A_{SG}^{\Lambda\Lambda} \varnothing_{NOM/GEN/DAT/ACC}$$

We cannot say that the singular of **Mutter** is expressed by the radical itself (rather than by a zero apophony): in compounds, this radical does not necessarily imply <singular>, as, for instance, in **Muttertag** <Mothers' Day> or **Mutterschutz** <mother protection>, cf. 3.

0.6 Zero Signs and Parasitic Formations

Condition 2 helps us make a decision in the cases where one morphological form is built on another complete form-what is known as **parasitic formations** (Mel'čuk 1991 and Mel'čuk 1993-2000[vol. 4: 46-47]); as an example, I will present a well-known parasitic formation-secondary cases in Daghestanian languages.

(5)   Archi (Kibrik 1997[27-28]; the zero suffixes are my addition: in the left column, the first zero marks the singular, while the last zero in the first line marks the nominative)

The noun GEL <mug, tankard>		
	singular	plural
nominative	$gel+\varnothing + \varnothing$	$gel+um+\varnothing$
ergative	$gel+\varnothing + li$	$gel+um+\check{c}aj$
genitive	$gel+\varnothing + li + n$	$gel+um+\check{c}e +n$
dative	$gel+\varnothing + li + s$	$gel+um+\check{c}e +s$
comitative	$gel+\varnothing + li + llu$	$gel+um+\check{c}e +llu$
comparative	$gel+\varnothing + li + xur$	$gel+um+\check{c}e +xur$
…	…	…

Beginning with the genitive, all the cases are expressed by suffixes added to what seems the complete form of the ergative, marked by **-li** in the singular and by **-čaj/-če** in the plural. This situation can be described in two opposite ways:

- Either we say that the genitive, the dative, etc. are built on the complete form of the ergative; then we have to admit replacive signifieds: when the suffix of the genitive **-n** is added after the suffix of the ergative **-li**, the signified <genitive> replaces the signified <ergative>, previously brought into the wordform by **-li**. This is my viewpoint (cf. Mel'čuk 1991 and Mel'čuk 1993-2000, vol. 4: 47); however, I cannot enter now into the justification thereof. (Technically, in the form of the ergative, the suffix **-li** is selected for its signified; in the form of any other oblique case, it is selected automatically-together with the suffix of the corresponding case.)
- Or we say that all the oblique cases-the genitive, the dative, etc., including the ergative itself!- are formed from the *oblique stem* of the noun; the suffixes **-li** in the singular and **-čaj/-če** in the plural are then not markers of the ergative, but those of this oblique stem. This is the viewpoint of Kibrik 1992[81-82]Kibrik 1997[27-28][4]

If we accept the second viewpoint, we have to admit that the ergative is marked by a zero suffix, which would be in contrast with all other case suffixes, except, of course, for the nominative: the nominative also has a zero suffix. Then we have two forms-*gel* NOM and *gelli* ERG-that are said to differ only by two different zero suffixes, one of the nominative, the other of the ergative, while the perceptible difference (**-li**) is considered to be meaningless; cf. *man* vs. *mes* or *take* vs. took. However, such an ergative zero suffix would violate Condition 2 of our Principle: the signified <ergative> CAN be associated with the suffixes **-li** and **-čj/-če**, therefore it should-and thus we have to accept the first viewpoint. As a consequence, if we keep Condition 2 in the IZLS Principle, we have to agree to a description of secondary cases I.1b that admits case formation from a complete case form (and of course replacive signifieds).

0.7 Irrelevant Physical Distinctions Accompanying Zeroes

Condition 2 contains two important provisos: one which requires that the expression of the information in question be SYSTEMATIC AND NATURAL; and another one which requires that a possible candidate for the carrier of this information be absent at all levels of representation, i.e. including the deeper ones.

To illustrate the first proviso, let me consider a situation where there exists a physical distinction δ between two wordforms showing a semantic distinction $< \sigma >$, but where, in spite of this, the researcher has to posit a zero sign which expresses $< \sigma >$, ignoring δ: it is impossible to associate $< \sigma >$ with δ in a systematic and natural way. Here is an example.

(6)   Russian The paradigm of the noun SESTR(-*á*) <sister> has, among others, the following forms:

	singular	plural
nominative	/s'istrá/	/s'óstri/
genitive	/s'istrí/	/s'is't'ór/
dative	/s'istr'é/	/s'óstram/

The morphological structure of these forms is transparent enough: each of them is composed of two morphs, a radical and a number-case suffix.

- The underlying radical has the signifier /s'os't'or/. This signifier never appears as such on the surface; in the process of synthesis, it is modified by the following five morphonological rules,

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[4](5, p. 00) In most Daghestanian languages, the existence of a special oblique stem in the declension of the noun cannot be doubted. Thus, in Tsakhur the ergative is expressed by a suffix added to this oblique stem - just like all other case suffixes are. The above reas oning applies only to Archi. Note that under my analysis, the Archi ergative is quite different from other cases: it has a cumulative case-number marker, while all other cases are expressed agglutinatively.

which based on it, construct predictable allomorphs:

-substiution

/o/ ⇒ /i/

(after a palatalized consonant in an unstressed syllable, notated as);

-truncation

/o/ ⇒ Λ

(a fleeting /o/ falls in a radical marked as undergoing this rule, before a suffix
that begins with a vowel);

-substitution

/r/ ⇒ /r'/

(a consonant becomes palatilized before the suffix **-e**);

-substitution

/t'/ ⇒ /t/

(a dental consonant looses its palatalization before another consonant,
with which it comes in contact as a result of the fall of a fleeting vowel);

-substitution

/s'/ ⇒ /s/

(a fricative consonant looses its palatalization before a non-palatalized consonant).

- The cumulative suffixes of number and case are *-á, -í, é, ... , -i, −Ø;, -am*

It is the zero suffix of the genitive plural that is problematic: we postulate it in spite of the fact
that the forms /s'i**st**r+á/ [SG.NOM] and /s'i**s't'**ór/ [PL.GEN]-if we ignore the suffix **-a**-show a
physical difference: **/st/ ∼ /s't'ó/**. This difference, however, is a result of the application of
some morphophonological rules, which are extremely productive in Russian: they apply to thousands of
nouns depending on morphological/phonological context, but without any direct link to the plural
or the genitive. It is simply impossible to say that in /s'is't'ór/ the combination of grammemes
(plural, genitive) is expressed by the substitution operation /st/ ⇒ /s't'ó/. Even if truncation (or
insertion) of a fleeting /o/ is very frequent in Russian (it affects thousands of radicals), it is not
at all related to the expression of the plural or the genitive: thus, this fleeting /o/ appears in the
nominative of the singular in masculine nouns (*úg**o**l* <angle, SG.NOM> ∼ *ugl+á* <angle, SG.GEN>)
or in denominative adjectives (*ok**ó**n+n+yj* <window [pane]> ∼ *okn+ó* <window, SG.NOM>). The
presence/absence of a fleeting /o/ in Russian nouns depends only on morphonological conditions
(a fleeting /o/ is truncated in an unstressed syllable before a vocalic morph). Moreover, Russian
does not use any morphological operations to express any grammemes; therefore, the statement.
In /s'is't'ór/, the plural and the genitive are expressed by the substitution /st/ ⇒ /s't'ó/' is anti-
systematic and anti-natural to the highest degree. If we try to link the signified <plural, genitive>
to the /st/ ⇒ /s't'ó/ operation, we get an even muddier picture: the string /s't'ór/ belongs to the
signifier of the basic radical allomorph, so that we have to say that <plural, genitive> is expressed
by a zero substitution, while the string /st/ marks all the other forms different from the genitive
plural! This is clearly unacceptable.

The proviso under discussion loosens Condition 2 of the IZLS Principle ('No zero in the presence
of perceptible distinctions') a bit-in order to ensure a more systematic and natural description in
such cases as (6).

The second proviso, concerning different levels of representation, foresees different cases of ellipsis-
i.e. situations where the information is carried by a non-zero sign present at a given level of rep-
resentation, but eliminated closer to the surface by special rules (all sorts of deletion, such as that
of personal pronouns in Pro-Drop languages, etc.). Thus, the Spanish sentence *Estoy leyendo* <[I]
am reading> does not have the zero subject $*\emptyset_{1SG}$ <I>: in the surface-syntactic structure, this
sentence has the overt subject *YO* <I>; rules of Spanish syntax delete it in the passage to the
morphological string- after it has specified the agreement of the verb. In other words, this proviso

requires distinguishing ellipses (= elimination of non-zero signs) from zeroes. It plays a special role in the analysis of the Georgian example (7), which is considered in Section **10**.

0.8 No Non-Contrastive Zeroes

Condition 3 of the IZLS Principle stipulates that a zero sign should contrast semantically with at least one non-zero sign capable of occupying the same position; this requirement applies of course only to full zero signs, i.e. zero signs that have a non-empty signified. (NB : For empty zero signs such a contrast is, of course, impossible.) Note that this condition does not forbid two zero signs 'contrasting' in the same position, provided this position can also contain a non-zero sign (cf. example (5) below). Thanks to Condition 3, 'useless,' i.e. non-distinctive, or 'stopgap,' as Haas (1968)b called them, zero signs are avoided in two types of situations:

- where the absence of a sign is not significative, because the meaning involved is actually carried by a different non-zero sign;
- where the absence of a sign is significative, but it is a result of a morphological ellipsis-that is, of the deletion of a non-zero sign introduced on a deeper level of representation.

I will deal with the first case immediately and keep the problem 'zero vs ellipsis' for the next section. If the presumed zero sign cannot contrast (in the given position) with a non-zero sign, this can happen because the meaning observed is expressed by a different sign, for instance, by the radical of an invariable form. In such a case, the absence of an affix is not significative and, consequently, a zero sign postulated here would be a linguist's zero rather than a zero of the language. Three examples follow.

(7) English
The wordform **sheep**, as in *The sheep were grazing* ... , where, as the agreement of the verb shows, it is in the plural, does not include a plural zero suffix $*\mathcal{O}_{PL}$, because this $*\mathcal{O}_{PL}$ does not contrast with a non-zero suffix: the noun SHEEP is invariable. The wordform **sheep** must be characterized in the lexicon as either singular or plural, that is, we deal here with two different signs:

sheep = ⟨<domestic mammal of the genus *Ovis*, SG >; /á'p/ ; Σ = Noun, ... ⟩
and
sheep = ⟨<domestic mammal of the genus *Ovis*, PL> ; /ä'p/ ; Σ = Noun, ... ⟩

Both signs **sheep** are megamorphs (see Mel'čuk 1982[61, 105] and Mel'čuk 1993-2000[vol. 4: 353*ff*], lexes of the lexeme SHEEP; each of them realizes simultaneously two morphemes:

$$\{\text{SHEEP}\}, \{\text{SG}\} \Leftrightarrow \textbf{sheep} \text{ and } \{\text{SHEEP}\}, \{\text{PL}\} \Leftrightarrow \textbf{sheep}$$

Several other English nouns of the same type (*deer, elk, moose, grouse, trout,* ...) are described in the same way. (Janda and Manandise 1984[232], who emphatically reject a zero plural suffix in the plural form **sheep**.)

(8) French
An identical treatment is reserved for French nouns of the type **cas** <case>, which are invariable in written French:

cas = ⟨<case, SG> ; /ka/ ; Σ = Noun, masculine, ... ⟩
and
cas = ⟨<case, PL> ; /ka/ ; Σ = Noun, masculine, ... ⟩.

In spoken French, the situation is different. Since [un] cas intéressant <[an] interesting case> and [des] cas intéressants <interesting cases> may be pronounced differently-/kaε=teresa=/ [without *liaison*] vs. /kazε=teresa=/ [with a possible, although by no means obligatory, *liaison* in the plural]- the two forms have different morphic representations: **cas**+$\varnothing_{SG}$ in the singular and **cas**+**z** in the plural. The same situation obtains with virus <virus>: **virus**+$\varnothing_{SG}$ and **virus**+**z** (*[un] virus affreux* /**virüsafr**$\varnothing$/ <[a] horrible virus> vs. *[des] virus affreux* /**virüszafr**$\varnothing$/ <horrible viruses>), etc.

(9) Russian

A so-called invariable Russian noun distinguishes numbers and cases, as all Russian nouns do, but these are not expressed by zero suffixes. Thus, for instance, consider the declension of the noun PAL'TO <coat>:

a.

ot	*èt* +**ogo**	*pal'to*	<from this coat>
from	this	NEUT.SG.GEN	coat(NEUT)-SG.GEN
vs.			
k	*èt* +*P***omu**	*pal'to*	<to this coat>
to	this	NEUT.SG.DAT	coat(NEUT)-SG.DAT
vs.			
k	*èt* +**im**	*pal'to*	<to these coats>
to	this	PL.DAT	coat(NEUT)-PL.DAT

Nouns of this type cannot have any non-zero declensional suffix; therefore, Condition 3 of the IZLS Principle does not allow them to have zero suffixes. It is the radical megamorph that carries the grammemes of number and case:

b.

<coat, SG.NOM>	⇔	*pal'to*	<coat, PL.NOM>	⇔	*palto*
<coat, SG.GEN>	⇔	*pal'to*	<coat, PL.GEN>	⇔	*palto*
<coat, SG.DAT>	⇔	*pal'to*	<coat, PL.DAT>	⇔	*palto*
...		...	...		...

0.9   Different Zero Signs in the Same Position and Adjacent Zero Signs

The IZLS Principle bars neither two alternating zeroes in the same morphological position ('contrasting' zeroes), nor simultaneous zeroes in two adjacent positions. The first situation can be illustrated from English, the second, from Hungarian.

Consider verbs of the type PUT, CUT and HURT. The wordform **put** in *Alan put his hand on* ... has the past tense zero suffix $-\varnothing_{PAST}$, which contrasts with the present tense suffix **-s** *Alan puts his hand on* ... and with the **-ing** suffixes. Now, what about *I put my hand on* ... ? With other English verbs, the wordform such as walk in *I ⟨you, we⟩ walk* contains a present tense zero suffix $-\varnothing_{PRES}$ (not in the 3rd person singular), opposed to **-s** in the present and to **-ed** in the past.

By analogy, I would say that in *I put* in the present (*I put my book on the table and take my coat*), the wordform **put** has the zero suffix $-\varnothing_{PRES}$-as in *[I] walk*; on the other hand, in *I put* in the past (*I put my book on the table and took my coat*), put has the zero suffix $-\varnothing_{PAST}$. Moreover, **put** in *I have put* ... has the zero suffix $-\varnothing_{PPART}$, and put in *I want to put* ... has the zero suffix $-\varnothing_{INF}$, as all English verbs do. Thus, we can have a 'contrast' between four zero signs in the same position. This simply means that 'homophonous' zero signs (actually all zero signs are 'homophonous'!) can co-exist in the same paradigm. At the same time, the IZLS Principle admits several zero signs in one wordform, including adjacent zeroes.

(10) The Hungarian wordform **könyv** /kön'v/ <book> contains three successive zero suffixes:

-the zero suffix of (non-belonging> $-\emptyset_{NON-BEL}$, which contrasts with the non-zero suffix **-e** of <belonging>:

könyv+$\emptyset$ <book non-belonging [to anyone]> vs. **könyv**+**e** <book belonging to ... >;
-the zero suffix of <singular> $-\emptyset_{SG}$, which contrasts with the non-zero suffixes **-i** and **-k** of <plural>:

könyv+$\emptyset$ <book non-belonging ... > vs. **könyv**+**(e)k** <books non-belonging ... > or

könyv+**e**+**i** <books belonging to ... >;
-the zero suffix of <nominative> $-\emptyset_{NOM}$, which contrasts with numerous non-zero case suffixes:

könyv+$\emptyset$ <book, NOM> vs. **könyv**+**ben** <book, INESSIVE>,

könyv+**re** <book, SUPERLATIVE>,

könyv+**nek** <book, DATIVE>, etc.

Thus, the following wordforms can be contrasted:

könyv + $\emptyset_{NON-BEL}$ + $\emptyset_{SG}$ + $\emptyset_{NOM}$ < book >
and
könyv + **e** + **i** + **ben** <in books belonging to ... .>.
Each one of the three morphological positions available in a nominal wordform-belonging, number, and case-and every combination thereof can hold a zero suffix:

könyv + $\emptyset_{NON-BEL}$	+ **ek** + **ben**	<in books>	(i*könyvekben*)
könyv + **e**	+$\emptyset_{SG}$ + **ben**	<in [the] book belonging to >	(*könyvben*)
könyv + **e**	+ **i** + $\emptyset_{NOM}$	<books belonging to >	(*könyvei*)
könyv + $\emptyset_{NON-BEL}$	+ $\emptyset_{SG}$ + **ben**	<in [the] book>	(*könyvben*)
könyv + $\emptyset_{NON-BEL}$	+ **ek** + $\emptyset_{NOM}$	<books>	(*könyvek*)
könyv + **e**	+$\emptyset_{SG}$ + $\emptyset_{NOM}$	<[the] book belonging to >	(*könyve*)

It is easy to see that all these zeroes satisfy the IZLS Principle.[5]

0.10   A Zero Sign or an Ellipsis?

In some cases, it is impossible to associate a grammeme that is expressed by a wordform with an overt marker; however, a zero sign cannot be invoked either, because the morphological position under consideration does not allow a contrast between a zero sign and a non-zero sign (and such zeroes are rejected by the IZLS Principle). A possible solution in this situation is MORPHOLOGICAL ELLIPSIS -deletion of a non-zero sign that appears on a deeper level of representation. Let me illustrate this case with a summary description of a fragment of Georgian conjugation.[6]

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[5]To avoid unnecessary complications, I do not show the suffix marking the number-person of the possessor:
knyv+e+i+**m**+$\emptyset_{NOM}$ (book + belonging to ... + PL   + 1_{SG} + NOM)   = (my books)
knyv+e+i+**mk**+ben   (book + belonging to ... + PL   + 1_{PL} + INESS) = (in our books)
etc.

[6]Georgian verbal morphology has been discussed in a series of relatively recent publications, of which I mention here only Anderson 1986 [6-14] (an analysis of the pluralizer **-t**) and Anderson 1992[137-156], Spencer 1991[219-223], Aronoff 1976, Halle and Marantz 1993[116-120,] and Carmack 1997; these sources provide all further relevant references.

In Georgian, a form of a transitive verb in the present of the indicative expresses the person and the number of both the Subject and the Direct Object [= DirO], using the following non-zero markers (for simplicity's sake, I ignore the fact that some verbs can, in addition, express in their forms the person and the number of the IndirO):

(11) Georgian

a.

	Subject	Direct Object		Subject	Direct Object
SG			PL		
1	**v-**	**m-**	1	**v- … -t**	**gv-**
2		**g-**	2	**-t**	**g- … -t**
3	**-s**		3	**-en**	

The subject suffixes 3sg **-s**, 3pl **-en** and the object prefixes 1sg **m-** and 1pl **gv-** are cumulative: they express the person and the number together. The other three affixes are 'agglutinative:' they express either the person (1st person, subject: **v-**; 2nd person, object: **g-**) or the number (plural of the Subject or the DirO: **-t**). The paradigm of the transitive verb XAT́V(-a) <[to] draw, paint> (in the present of the indicative, the active voice) will illustrate the distribution of these markers (prefixes and suffixes).

b.

			Direct Object				Subject	
			singular plural					
		1	2	3	1	2	3
sg	1	-	**g**+xat́av	v+xat́av	–	**g**+xat́av+**t**	v+xat́av
	2	**m**+xat́av	–	xat́av	**gv**+xat́av	–	xat́av
	3	**m**+xat́av+**s**	**g**+xat́av+**s**	xat́av+**s**	**gv**+xat́av+**s**	**g**+xat́av+**t**	xat́av+**s**
pl	1	–	**g**+xat́av+**t**	v+xat́av+**t**	–	**g**+xat́av+**t**	v+xat́av+**t**
	2	**m**+xat́av+**t**	–	xat́av+**t**	**gv**+xat́av+**t**	–	xat́av+**t**
	3	**m**+xat́av+en	**g**+xat́av+en	xat́av+en	**gv**+xat́av+en	**g**+xat́av+en	xat́av+en

[Blanks in the table show the impossibility of forms with the same person of the Subject and the DirO: *<I - me>, *<I - us>, *< you$_{SG}$ - you$_{SG}$ >, … For the signifieds of this type, Georgian uses a reflexive construction with the noun TAVI <head> in the role of reflexive pronoun.]

Table (11:1) shows multiple discrepancies between the grammemes expressed in surface forms and the corresponding non-zero markers. Thus, in *gxat́av* <I draw you$_{SG}$ > (the first form of the second column), the prefix **g-** expresses the 2nd person of the DirO, but we do not find the marker which expresses the singular of this DirO (<you$_{SG}$ > rather than <you$_{PL}$ >), nor the marker for the meaning (I). Similarly, in *gxat́aven* <they draw you$_{PL}$ > (the last form of the fifth column), the same prefix **g-** expresses again the 2nd person of the DirO, while the suffix **-en** shows the 3rd person plural of the subject; but what expresses the plural of the DirO (<you$_{PL}$ > rather than <you$_{SG}$ >)? This should be the suffix **-t**, but it is not there. This type of question can be asked about most forms of table (11:2). A logically possible answer could be the introduction of zero affixes in all cases where we lack 'material' markers: a zero suffix to mark the singular of the object in *gxat́av*, another one to mark the plural of the object in *gxat́aven*, and so forth. But let us have a closer look at these eventual zeroes-to see whether they will be admissible from the viewpoint of the IZLS Principle. We will begin with the form *gxat́av* <I draw you$_{SG}$ >, which I have already mentioned.

1. x<1st person> of the subject must be expressed by the prefix **v-**, but we do not see it in the form. GenerI presuppose the order of prefixes **v-**+**g-** (rather than ***g-**+**v-**) because in the forms with the 3rd person IndirO prefix **s-**, for some speakers the sequence **vs-** is possible: *mi+v+s+cem* (I will give [this] to him); thus, the subject marker precedes the object

marker. (In the normative language, **s-** must be elided, so that the correct form is *mivcem*.) Cf. Footnote 9ally speaking, if a Georgian verbal form contains a non-zero object prefix (in this case, the 2nd person **g-**), no other non-zero prefix can be present in it. Therefore, we have no right to postulate here a subject zero prefix: it would never contrast with a non-zero prefix, so that it would be non-contrastive; Condition 3 of the IZLS Principle disallows such zeroes. The morphic representation of the form in question cannot be $*\emptyset_{1p} + \mathbf{g} + \mathbf{xatav}\text{-.iv}$ [7]

The correct description is different: the 1st person of the subject is expressed by the prefix **v-** , which, closer to the surface, is evicted by the prefix **g-**; this is a typical morphological ellipsis:

$$[\mathbf{v\text{-}} + \mathbf{g\text{-}}] \Rightarrow \mathbf{g\text{-}} \text{ [8]}$$

(I use square brackets to indicate sequence of linguistic signs which is ill-formed form the viewpoint of surface constraints.) This rule produces the correct (part of the) verbal form:

$$\mathbf{v} + \mathbf{g} + \mathbf{xat\acute{a}v\text{-}} \Rightarrow \mathbf{g} + \mathbf{xat\acute{a}v\text{-.}}$$

Note that the initial phonemic cluster **vg-** is possible in Georgian: $v+gv+i$ <[I] sweep>, $v+gzavn+i$ <[I] send>, $v+glez$ <[I] tear>, etc.; therefore, the substitution **v-+g-** $\Rightarrow$ **g-** cannot be described as phonemic alternation of cluster simplification.

In a general form, the ellipsis rule under discussion may be written as follows:

c. $\quad$ [pref'$\in \ldots$ SUB, pref"$\in \ldots$ OBJ] $\Rightarrow$ pref"

The morphotactic constraints of normative Georgian do not allow more than one non-zero subject/object marking prefix (and, as we will see in most cases, more than one subject/object suffix). It is this fact that I am trying to capture withellipsis rules such as (11c).

2. The form *gxat́av* <I draw you$_{SG}$ > contrasts with the form *gxat́avt* <I draw you$_{PL}$ >, where the suffix **-t** expresses the plural of the DirO; this proves the presence, in *gxat́av,* of a singular DirO zero suffix. We can then write, for <I draw you$_{SG}$ >, the following incomplete morphic representation:

$$\mathbf{v} + \mathbf{g} + xat\acute{a}v + \emptyset_{SG}\text{-.}$$

3. The form *gxat́av* contrasts as well with two other forms *gxat́avt*:

- the form *gxat́avt*, which means <we draw you$_{SG}$) and where **-t** expresses the plural of the Subject;
  and
- the form *gxat́avt*, which means <we draw you$_{PL}$> and where **-t** expresses the PLural of both the Subject and the DirO.

From this, two conclusions follow:

1. -The suffix **-t** is an 'unselective' pluralizer: it can express the plural of the Subject, or the DirO, or both (and also the IndirO, which I do not consider here); its signified is simply (plu-

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[7]However, Georgian seems to have a 1st person subject zero prefix $\emptyset_{1p}$- (an allomorph of the same morpheme as v-), which appears in one verb only: $mo+\emptyset+val$ <[I] will come>, $mo+\emptyset+vedi$ <[I] came> (vs. $mo+x+val$ <[you$_{SG}$] will come>, $mo+x+vedi$ <[you$_{SG}$] came)>. The absence of the prefix **v-** in these forms cannot be explained phonologically, since this **v-** appears before the stem-initial **v-** in other verbs without problem: $v+varcxni$ <[I] comb someone's hair>, $v+va\ddot{a}rob$ <[I] trade>, $v+vaxmob$ <[I] eat supper>. (These facts were pointed out to me by L. Margvelani.)

[8]I presuppose the order of prefixes **v-+g-** (rather than $*$**g-+v-**) because in the forms with the 3rd person IndirO prefix **s-**, for some speakers the sequence **vs-** is possible: $mi+v+s+cem$ (I will give [this] to him); thus, the subject marker precedes the object marker. (In the normative language, **s-** must be elided, so that the correct form is *mivcem*.) Cf. Footnote 9

ral), without specifying whether it 'pluralizes' the Subject or an Object. By analogy, we can decide that in the singular, the zero suffix is equally unselective in the same sense: $-\emptyset_{SG}$ is for the Subject, the DirO, or both. The wordform meaning <we draw you$_{PL}$> cannot have two plural suffixes **-t**-one for the Subject, and the other for the DirO; by analogy, the wordform meaning <I draw you$_{SG}$> cannot have two singular zero suffixes one after another, nor the wordform meaning <I draw you$_{PL}$>) the combination of **-t** with $-\emptyset_{SG}$:

$$[\text{ -t } + \text{ -t}] \Rightarrow \text{-t}; \ [-\emptyset_{SG} + -\emptyset_{SG}] \Rightarrow -\emptyset_{SG}; \ [\text{ -t } + -\emptyset_{SG}] \Rightarrow \text{-t}; \ [-\emptyset_{SG} + \text{ -t }] \Rightarrow \text{-t}$$

The final phonemic cluster of two dentals is possible in the Georgian verb: $v+ple\textbf{t}+\textbf{t}$ <[we] wear out, tear>, $v+le\acute{t}+\textbf{t}$ <[we] exterminate>; therefore, the substitution **-t**+**-t** ⇔ **-t** cannot be described as cluster simplification. -The morphic representation of the form $gxa\acute{t}av$ <I draw you$_{SG}$> contains another zero suffix, which marks the singular of the subject (<(I) rather than <we>). As a result, the complete morphic representation of this form is as follows: v + g + xaťav + $\emptyset_{SG}$ + $\emptyset_{SG}$.

2. The form $gxa\acute{t}av$ <I draw you$_{SG}$> is also opposed to the forms $gxa\acute{t}av\textbf{s}$ <**he** draws you$_{SG}$> and $gxa\acute{t}aven$ <they draw you$_{SG}$>. But here the opposition is expressed-at the level of the morphic representation-by the 1st person subject prefix **v-** (in the morphic representation $\textbf{v}+g+xa\acute{t}av$-), which contrasts with the 3rd person singular subject suffix **-s** and the 3rd person plural subject suffix **-en**. (Closer to the surface, as has been already stated, **v-** is evicted by the prefix **g-**.) So again there is no zero affix-more specifically, no zero prefix *$\emptyset_{1p}-$; Condition 2 of the IZLS Principle bars the introduction thereof.

Now let me turn to the second form mentioned above: $gxa\acute{t}aven$ <they draw you$_{PL}$>, where the problem arises in connection with the 'absent' pluralizer of the DirO **-t**. Table (11:1) shows that this suffix does not combine with any other suffix; but it behaves differently with respect to subject suffixes of the 3rd person **-s** [SG] and **-en** [PL]. Namely, **-t** evicts **-s**, but is itself evicted by **-en**:

<he draws you$_{PL}$> $\Rightarrow$ g + xaťav + s + t $\Leftarrow$ $gxa\acute{t}avt$ <*gxaťavst>
<they draw you$_{PL}$> $\Rightarrow$ g + xaťav + en + t $\Leftarrow$ gxaťaven <*gxaťavent>

To express this fact, I introduce two further morphological ellipsis rules:

$$[\textbf{-s } + \textbf{ -t}] \Leftrightarrow \text{-t}; \ [\textbf{-en } + \textbf{ -t}] \Leftrightarrow \textbf{-en}^9$$

Again, these are morphological, rather than phonological, rules: the final clusters -*st* and -*nt* are possible in Georgian: $v+sreP\textbf{s}+\textbf{t}$ <we rub him/them>, $a+lxe\textbf{n}+\textbf{t}$ <you$_{PL}$ amuse him>, $v+a+\textbf{r¡'en}+\textbf{t}$ <we support him/them>. Finally, I suppose that the non-zero suffixes **-s** and **-en** always evict adjacent zero suffixes; therefore, two more morphological ellipses are needed:
$[\textbf{-s } + -\emptyset_{SG}] \Leftrightarrow \textbf{-s}; \ [\textbf{-en } + -\emptyset_{SG}] \Leftrightarrow \textbf{-en}$ Given this complex combinatorics of Georgian verbal affixes, many verbal forms in the present indicative active manifest multiple ambiguities; for instance :

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[9]In these rules, the order of suffixes 'subject marker + object plural marker' in the morphic representation is accepted - because in the forms where such markers cooccur on the surface they are arranged exactly in this order:
$g+\acute{c}\acute{q}ur$ +i+a3$_{SG.Subj}$ +t$_{PL.Obj}$ <You$_{PL}$ are thirsty>, lit. <It is thirsty to you$_{PL}$>;
$g+xedav$ +d+a3$_{SG.Subj}$ +t$_{PL.Obj}$ <He saw you$_{PL}$>.
Moreover, in colloquial/dialectal Georgian, the suffix sequence **-s** **+-t** is actually heard $xa\acute{t}avst$, instead **pf** the normative $xa\acute{t}avt$).

verbal form	signified			morphic representation	
gxat́av t	<I draw you$_{PL}$ >	⇔	v+	g + xat́av + $\emptyset_{SG}$	+ t
	<we draw you$_{SG}$ >	⇔	v+	g + xat́av + t	+$\emptyset_{SG}$
	<we draw you$_{PL}$ >	⇔	v+	g + xat́av + t	+ t
	<he draws you$_{PL}$ >	⇔		g + xat́av + s	+ t
gxat́aven	<they draw you$_{SG}$ >	⇔		g + xat́av + en	+ $\emptyset_{SG}$
	<they draw you$_{PL}$ >	⇔		g + xat́av + en	+ t

To sum up: If we take into account only the form *gxat́av* and its oppositions with other forms of the (partial) paradigm of the Georgian verb, just one verbal zero suffix is found in Georgian: an unselective singularizer $-\emptyset_{SG}$. In particular, forms of the type *gxat́av* <I draw you$_{SG}$> or *gxat́avt* <we draw you$_{SG}$ > do not contain the 1st person subject zero prefix: these forms are obtained as a result of morphologicalellipsis-elimination of the 'regular' 1st person subject prefix **v-**. There is no 3rd person singular subject zero suffix in *gxat́avt* (he draws you$_{PL}$> either: this form is also produced by theellipsis of the subject suffix **-s**. However, the paradigm in (11:1) shows the presence of another 'unquestionable' zero prefix: the 2 person subject prefix $\emptyset_{2p}$, seen in the forms $\emptyset+xatáv+\emptyset$ <you$_{SG}$ draw him/them> and $\emptyset+xatáv+t$ <you$_{PL}$ draw him/them>, as opposed to $v+xatáv+\emptyset$ <I draw him/them> and $v+xatáv+t$ <we draw him/them>.

I will stop my analysis of the Georgian verb here, even if there remain some other interesting zero-related problems: for instance, the existence of the 3rd person direct object zero prefix.[10]

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[10]**The 3rd person DirO zero prefix in the Georgian transitive verb**

Aronoff 1976 argues against the 3rd person DirO zero prefix; in conformity with the tradition, he maintains that the verb does not agree with a 3rd person DirO (while obligatorily agreeing with 1st/2nd person DirOs). His main argument is that on some occasions, what is basically a transitive verb has no DirO in the sentence, so that there cannot be 3rd person agreement. Aronson refers to two types of verbs:

1. Verbs having two syntactic modifications, such as <[to] hit N> vs. <[to] hit on N> or <[to] point N> vs. <[to] point to N>; when used in the second, prepositional modification, they do not have a DirO.

2. Verbs having so-called 'absolute' use, such as <She smokes>, <I paint when I have time>, <You read better than you write>, etc. I, however, do not find this argument convincing. 'Inherently' transitive verbs appearing in a prepositional or 'absolute' modification are not transitive any more; they function as separate lexical unit - intransitive verbs, which cannot have DirOs. When Aronson says (p. 3) that "a Georgian verb form such as *ćers* (writes> gives no more and no less information about the presence or absence of a direct object than does the corresponding Russian verb form *piäet* <writes>", he is not correct: in Russian, *piäet* can have a DirO of the 1st or 2nd person (*piäet menja/tebja* <[he] writes me/thee> is grammatically perfect, leaving aside the semantic implausibility), while in Georgian, **ćers me/äen* <he writes me/you$_{SG}$ > is ungrammatical (the correct forms being *mćers* and *gćers*). Yet even if his central argument is not sufficient, Aronson is right in his main claim: the transitive verb in Georgian does not agree with the 3rd person DirO. This is shown by the impossibility of using the pluralizer **-t** for a 3rd person DirO. Thus, the form meaning (he draws them) theoretically could be *xatávt* ⇔ Ø *3p+xatáv+s+t*; but in fact this form does not have the indicated meaning. The meanings <he draws him/her> and (he draws them> cannot be dsitinguished: both are expressed as *xatávs* (without the pluralizer). At the same time, **-t** can 'pluralize' a zero marker: it does exactly that for the 2nd zero person prefix. Therefore, we have to say that a Georgian transitive verb does not agree with its DirO in number. Then, why insist that it agrees with the DirO in person? By all means, this 'agreement' would be shown by a zero. Taking everything into account, it is simpler to admit that a transitive verb does not agree with a 3rd person DirO at all. As a result, the Deep-Morphological representation of a transitive verb finite form does not include the grammeme (3rd person, DirO) (and in the case of the DirO of the 3rd person, no grammemes of the number of the DirO, either). Consequently, Georgian does not have a 3rd person verbal zero prefix: such a prefix would have nothing to signal and thus it would violate Condition 1 of the IZLS Principle. Still, I have to point out three facts that argue against the decision 'no agreement with a 3rd person DirO:'The Georgian verb agrees with its IndirO even in the 3rd person, the corresponding agreement prefixes being **h-/s-/Ø-**; this phenomenon contradicts the typologically important hierarchy DirO > IndirO. In other words, the 3rd person IndirO should not impose agreement on the verb if the 3rd person DirO does not. Note, however, that such type of agreement can be naturally explained by the IndirO (often) being higher in animacy than the DirO; and typologically, the preferred agreement with animate actants is well known. (I thank D. Beck, who pointed out this fact to me.)

What we have just seen is sufficient to illustrate the fact that absence of an affix, even it this absence is significative, is not necessarily a zero affix-it can well be a morphological ellipsis.

0.11 Morphological Ellipsis

Ellipsis in syntax, i.e., at the clause and sentence level, is relatively well studied; it is much less popular in morphology, that is, at the wordform level. I think, however, that in morphology, ellipsis functions as well and fully deserves the linguist's attention.[11]

0.11.1 The Notion of Morphological ellipsis and Related Notions

In order to put morphological ellipsis into perspective, I will start with a few definitions (X is any linguistic item; C is the set of contexts, or conditions, for the application of the rule).

Definition 2: Deletion
A *deletion* is an operation described by a rule of the form "X $\Leftrightarrow \Lambda \parallel$ C". Deletion rules fall into two major types as a function of what X is:

- if X is a non-significative item, i.e. a phonemic string or a prosodemic complex, we have a truncation alternation;
- if X is a significative item, i.e. a linguistic sign, a configuration of signs or a set of contextually distributed signs (= an -EME, that is, a lexeme or a morpheme), we have an ellipsis.

Definition 3: Truncation A *truncation* is a deletion in which X is a phonemic string or a prosodemic complex. The context C of a truncation can in Principle be anything: a phonemic string (= phonologically controlled truncations) or a particular sign or signs (= morphologically controlled truncations). From the viewpoint of its semantic role, truncation can be either meaningful (being the signifier of a sign- an apophony) or meaningless (being then an empty alternation, imposed by the context).

(12) Meaningful Truncation: Alabama (Anderson 1992[66])

As Aronoff 1976[6] indicates, there are quite numerous cases where the 3rd person IndirO prefix **s-** is 'erroneously' used for agreement with a DirO (the following sentences are taken from literary texts):

a.
Is   páiesa [= DirO] sami člis   činat da+s+ćera
this play.$_{SG.NOM}$ three years ago   *wrote*.3_{SG}
(This play [s/he] wrote three years ago>

b.
Momaḱvdavis   otaxi [= DirO]   da+s+ťova
.dying.person.$_{SG.GEN}$ room.$_{SG}$.*NOM* left.3_{SG}
([S/he] left dying person's room>

c.
Sicilma   ḱamara [= DirO] e+h+ḱra
laughter.$_{SG.ERG}$ vault.$_{SG.NOM}$ surrounded.3_{SG}
(The laughter surrounded the vault>.
In colloquial Georgian, some verbs admit the pluralizer of the DirO:

d. *Es mat* [= DirO] *aćuxeb+t* <This upsets them>, instead of the normative *aćuxeb+s*.
e. *Is mat* [= DirO] *abruneb+t* <S/he rotates them>, instead of the normative *abruneb+s*.
f. Is mat [= DirO] *agoreb+t* (S/he rotates them>, instead of the normative agoreb+s.

The frequency of non-standard forms such as in (i) - (vi) seems to indicate a strong tendency in Georgian to mark agreement with the 3rd person DirO as well.
[11]The concept of morphological ellipsis and the term itself were introduced in Mel'čuk 1973[53-55, 75-78], as applied to Alutor.

	semelfacitive ($<$once$>$)	iterative ($\langle<$repeatedly$>\rangle$)
$<$lie down$>$	*bal, +li*	*bal+li*
$<$hit$>$	*batat +li*	*bat+li*
$<$cut$>$	*kolof +li*	*kol+li*

The sign observed in the right-hand side members of these pairs is a truncation apophony A applied to a verbal stem /ΦV(C)/- (where /Φ/ is any string of phonemes) and expressing the iterative aspect: $\boldsymbol{A_{ITERAT}}$ = $<$(repeatedly) ; /ΦV(C)/- ⇔ /Φ/- ; Σ = applies to verbs, ... $>$

Such signs are 'anti-diagrammatical,' or 'anti-iconic' (Dressler, on many occasions; see, e.g., Dressler 1987): they violate the Principle of maximal parallelism between the signified and the signifier, since they express addition of meaning by subtraction of the form. Therefore, meaningful truncations are rather rare in languages of the world (cf. Mel'čuk 1991).

(13) Meaningless Truncation: Latin

	genitive	nominative
$<$bridge$>$	*pon**t** +is*	*pon+s*
$<$mountain$>$	*mon**t** +is*	*mon+s*
$<$swamp$>$	*palu**d** +is*	*palu+s*

Meaningless truncation alternations are too well known to need further discussion.

Definition 4: Ellipsis

An *ellipsis* is a deletion in which:

1. X is a linguistic sign, a configuration of linguistic signs or a set of contextually distributed signs (an -eme); and

2. *C* is a linguistic sign, a configuration of linguistic signs or a set of contextually distributed signs.

Thus, ellipsis is also, like truncation, a particular case of deletion, but a very special case: deletion of whole signs in the context of other whole signs. Note that:

In contrast to truncation, an ellipsis is necessarily meaningless, because context-imposed: elimination of signs cannot be meaningful. Ellipsis does not change the meaning of the linguistic unit it is applied to (clause/sentence or wordform). Thus, for instance, French and German eliminate the sequence of two identical prepositions, as in *les lettres* *** de de** *Saussure* $<$the letters of de Saussure$>$ ⇒ *les lettres de Saussure* or ... *ist* ***von von** *Wartburg geschrieben* $<$is written by von Wartburg$>$ ⇒ *ist von Wartburg geschrieben*; this is a good example of syntactic ellipsis which does not affect meaning at all. To put it differently, an ellipsis eliminates a sign or a configuration of signs X only in such a significative context in which X is redundant to a sufficient degree, so that its meaning can be recovered, perhaps not unambiguously, from the context.

- An ellipsis can be optional or obligatory.
- An ellipsis applies only to a segmental sign, i.e. a sign having as its signifier a string of phonemes.

Definition 5: Morphological Ellipsis A *morphological ellipsis* is an ellipsis which is applicable only within the limits of a wordform. Put in simple terms, a morphological ellipsis is triggered by the surface incompatibility of two signs within a wordform. Ellipsis should be carefully distinguished from, on the one hand, truncation, and on the other hand, zero signs.[12] What unites these three

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[12]Cf. A logical analsys of various types of significative absence in natural language at the sentence level in Apresjan 1978[304-308] (the triple opposition 'zero ∼ ellipsis ∼ non-saturation of an abligatory valence slot'). In this connection, see also Panevová 1998

phenomena is that all of them imply some relevant absence in the text; however, they are quite different in their nature:

1. Ellipsis and truncation are operations, while a zero sign is an entity.
2. Ellipsis is always meaningless, zero signs always meaningful,[13] and truncation can be both.
3. In the process of text synthesis, morphological ellipsis is normally triggered, as I have said, by the context (morph incompatibility); a zero sign is selected, as all signs are, for its signified; and truncation is sometimes used to express a meaning and sometimes in order to satisfy contextual requirements.

0.11.2 Illustration of Morphological Ellipses

Let me give more examples of morphological ellipses (curly brackets ({}) denote morphemes; square brackets include the set of incompatible signs).

(14) In Alutor, the following incompatibilities are observed within a verbal wordform at the morphic level:

$$\text{a.} \quad [\textbf{suf'} \in \ldots \text{SUB}, \textbf{suf"} \in \ldots \text{OBJ}] \Rightarrow \textbf{suf"}$$

Suffixal person-number markers of the Subject and those of the DirO cannot co-exist in the same verbal wordform; the object suffix 'evicts' the suffixal part of the subject circumfix, so that only the prefixal part of this circumfix remains.
For instance:

*met   +uvvat +Ø +**m'ek**   +**tek**   ⇔ met+uvvat+tek ⟨*metuvvanmektek⟩
1DU.SUBJ.IND kiss   AOR 1DU.SUBJ.IND 2DU.OBJ
$<\text{We}_{DU}$ kissed you$_{DU}>$.

The rule (14a) can be formulated neither in terms of 'pure' grammemes (since subject and object markers not only can, but actually must cooccur in the verbal wordform), nor in terms of phonemes (the sequence -*mktk* and all the other ones of this type do not violate any phonological constraints of the language): it is is a typical morphological ellipsis. The reduction it describes is parallel to what is seen in syntax when the speaker omits one of the two consecutive identical prepositions (see above), the verb in the construction of the type [*Alain gave an apple to Helen,*] and Leo a pear to Marga or the noun in the construction of the type Fr. *Je prends la bleue*, lit. <I take the blue> (as an answer to the question *C'est quelle robe que tu prends ?*, lit. <Which dress do you take?>), etc.

$$\text{b.} \quad [\textbf{suf'} \in \{\text{PL.SUB}\}, \textbf{suf"} \in \{\text{PL.OBJ}\}/\{\text{DU.OBJ}\}] \Rightarrow \textbf{suf"}$$

A (suffixal) subject pluralizer cannot co-exist in the same verbal wordform with an object pluralizer or a dualizer (equally suffixal); the object pluralizer evicts the subject pluralizer, so that only the object pluralizer/dualizer remains. As we see, the object is again 'stronger' than the subject. [14]

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[13] With the exception of empty zero lexeme-dummy subjects with the impersonal verbs in languages with obligatory Main Verb ∼ Subject agreement.

[14] (11.2, (14b), p. 00) Subject vs. Object Markers in the Verb

Neither in Georgian nor in Alutor Subject and Object markers are compatible on the surface in one wordform; the Object marker always evicts the Subject one. However, the situation in Principle can be different. Thus, in Wichita (Rood 1996, 1996), Subject and Object markers cooccur obligatorily:

1.
ta   +**s**   +**ki**   +? ,j +s
IND 2p.SUB 1p.OBJ see IMPF
$<\text{You}_{SG}$ saw me>.

ta   +**t**   +,   +? ,j +s
IND 1p.SUB 2p.OBJ see IMPF
$<$I saw you$_{SG}>$.

Here is an example:

subject pluralizer object pluralizer

```
*met            +uvvat  +la     +tke  +na   +wwi
1DU.SUB.IND kiss       PL.SUB PRES 3.OBJ PL.OBJ
```

⇒ met+uvvate+tke+na+wwi ⟨*me tuvval**la**tke nawwi⟩*X*

<We_*PL* kiss them_*P*L >.

(In the wordform to be constructed, I have already omitted-according to rule (14a)-the suffixal part of the subjectal circumfix **met-** ... **-mek** *met+uvvat+la+tekni**+mek**+na+wwi.)

Here, as before, the rule cannot be stated in terms of grammemes (both plural grammemes can be expressed by the resulting wordform mtuvvattknawwi) or in terms of phonemes; this is another typical morphic rule, namely a morphological ellipsis.

c.   [-n∈POSTER(iority), **-t**∈PL.SUB(ject)] ⇒ **-n**

The suffixal part of the circumfix of the posteriority (roughly speaking, of the future) **ta** ... **-n** cannot co-exist in a verbal wordform with the suffixal part of the subject plural circumfix **la** ... **-t**; **-n** evicts **-t**. For instance:

```
*Ø          +ta       +arat +Ø   +la     +n      +t       ⇔ t+aral+la+n <*tarallanet>
3.SUB.IND POSTER fall    AOR PL.SUB POSTER PL.SUB
```

<They_*PL* will fall>.

Compare, however, the corresponding form in the dual of the Subject:

```
Ø          +ta       +arat +Ø   +n        +t       ⇔ t+aran+ne+t
3.SUB.IND POSTER fall    AOR POSTER DU.SUB
```

<They_*DU* will fall>

---

b.
```
ta              +t      +Ø +? ,j +s
IND 1p.SUB 3p.OBJ see IMPF
```
<I saw him>.

c.
```
ta              +i      +Ø +? ,j +s
IND 3p.SUB 3p.OBJ see IMPF
```
<He_*i* saw him_*j*> [⇒ ti+? ,s].

d.
```
ta              +Ø +ki +? ,j +s
IND 3p.SUB 1p.OBJ  see IMPF
```
<He_*i* saw me>.

Similarly to Georgian and Alutor, Wichita has separate pluralizers for Subject and Object markers, and, unlike Georgian and Alutor, they can cooccur as well, but restricte only when the Subject is 1st/2nd person and the Object, 3rd person:

2. 3
```
ta              +s          +Ø +r,k+?ak +? ,j +s
IND 2p.SUB 3p.OBJ PL NON-SG.OBJ see IMPF
```
<You_*PL* saw them_*DU/PL* >.

b.
```
ta +t +Ø +r,k+?ak +? ,j +s
IND 1p.SUB                      3p.OBJ PL NON-SG.OBJ see IMPF
```
<We_*PL* saw them_*DU/PL* >.

If the Subject is 3rd person or the Object 1st/2nd person, only Object can be pluralized (Rood 1996[603]); the number of the Subject cannot be expressed at all, so tdhat all forms of the type <he/they - ... > and < ... - me/you/us> are ambiguous:

c.
```
ta +Ø          +ki        +r,k+ ? ,j +s
IND 3p.SUB 1p.OBJ PL see IMPF
```
<He/They saw us_*DU/PL* >.

It is also worth noting that **-r,k** pluralizes both Subject and Object (depednding on the context), while **-?ak** is reserved for the Object. Thus, as we see, after all, the Object is somehow priviledged in Wichita as well.

where **-n** of the posteriority co-exists without problem with the subject dualizer **-t**. It is clear that rule (14c), in the same vein as (14a) and (14b), cannot be formulated in terms of grammemes (since posteriority and the subject plural are paradigmatically compatible), nor in terms of phonemes (since **-n** can be followed by the phoneme /t/-provided this /t/ is not part of a plural marker).

Expressions (14a-c) are morphological filter rules of Alutor; they express obligatory morphological ellipses of this language.[15].

The next two examples are slightly more contentious.

In some Australian languages (Dench and Evans 1988 examples (74) and (87)-(88)), we find incompatibilities between case morphs within a nominal wordform. (In these languages, a noun N can include two case markers: one represents the governed case, imposed on N by its syntactic governor; the other represents the agreeing case, coming from the syntactic head of the noun phrase to which N belongs.)

(15) In Dyiwarli, the following filter rule is operational at the morphic level:

$$[\mathbf{suf} \in \{\text{DAT}\} + \mathbf{suf} \in \{\text{DAT}\}] \Rightarrow \mathbf{suf}$$

Two identical dative suffixes cannot follow each other in a nominal wordform; one of them is obligatorily deleted. For instance, consider the wordform purat>iyi in sentence (15a):

a. D†uma   +t>i   +Ø   d†iril +ari aṭuṭu +**wu**   urat>iyi
    child PL NOM be.afraid INCHOAT PRES dog   DAT1 woman.DAT1.DAT2
    <Children are afraid [lit. (became afraid)] of the woman's dog>.
    This wordform is obtained in the following way:

$$*\text{purat>i} + \mathbf{yi} + \mathbf{yi} \Rightarrow \text{purat>iyi}$$
$$\text{woman DAT1 DAT2}$$

Here, the governed DAT1 of the noun ṬUṬU <dog> is imposed by the verb D†RIL (be afraid>, which governs the dative of its object. With the noun PURAT>I <woman>, the DAT1 marks the possession, just as the genitive in other languages (the Dyiwarli dative has this usage); but the agreeing DAT2 'reflects' the dative of its syntactic governor, i.e. of ṬUṬU.
However, two different dative allomorphs can follow each other:

b.
D†uma	+t>i	+Ø	d†iril	+ari	+a
child	PL	NOM	be.afraid	INCHOAT	PRES
tuṭu	+**wu**	*[nana +du+wu+wu ⇔]	nana+du+wu yakan	+**ku+wu**	
dog	DAT1	I **DAT$_1$ DAT$_2$ DAT$_3$**	wife	**DAT$_1$DAT$_2$**	

<The children are afraid [lit. <became afraid>] of my wife's dog [lit. (of wife of me)]>.

For YAKAN <wife>, the DAT1 marks the possession [= (of wife)], and the DAT2 reflects the governed DAT1 of its governor [= $\overset{\text{T}}{\sqcap}U\overset{\text{T}}{\sqcap}$U <dog>] (<dog→of wife>). For nANA <I>, the DAT1 also marks the possession [= <of me>], while the DAT2$_a$ and DAT2$_b$ reflect the two DATs of its governor, YAKAN. As we see, from two identical suffixes of the DAT **-wu wu**, one is deleted, but two different suffixes of the DAT following each other, that is, the sequences **-d †u-wu** and **-ku-wu**, remain intact.

Since (15a) involves only identical, or 'repeated,' suffixes, the question arises as to whether it is not a case of haplology-a meaningless morphonological operation, special case of truncation alternation,

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[15]For a different description of the Alutor data, see Kibrik 1997[43-54]. Among other things, Kibrik proposes to avoid rule (14b) by means of more complex syntactic rules of verb agreement -namely, having the finite verb to agree in the plural with one actant only (either with the subject or with the object). I am not in a position to make a Principled choice.

dealing with (quasi-)identical phonemic sequences under particular phonological and/or morphological conditions (like in murder+**er** ∼ *murd**er**+**er**+ess ⇒ murderess, adult**er**+**er** ∼ *adult**er**+**er**+ess ⇒ adulteress, while wait+er ∼ waitr+ess, heir ∼ heir+ess, etc.; or else mor**pho**+**pho**nology ⇒ morphonology).[16] The answer is negative: if we judge from the information supplied in the Dench & Evans paper, the deletion in question involves only whole signs and is conditioned only by whole signs. If, for instance, the dative suffix **-ku** could be deleted after the stem-end sequence -ku or after a different suffix having the same signifier /ku/, this phenomenon could be considered as haplology.[17] Yet, as far as I know, this is not the case.

(16) In Turkic languages, the plural suffix of the noun (**-lar** and all its phonological variants) is not compatible with the possessive 3pl suffix (**-lar**I (their) and its phonological variants):

$$[\textbf{suf'}\in\textbf{PL} + \textbf{suf''}\in\textbf{POSS.3PL}] \Rightarrow \textbf{suf''}$$

Let me illustrate this morphological ellipsis from (Osmanli) Turkish:

a.
at	+lar+larI	+Ø	⇒	*atlar*I <their horses>
horse	PL	POSS.3PL	NOM	
ev	+ler+leri	+de	⇒	*evleride* <in their houses>
horse	PL	POSS.3PL	INESS	

A nominal form of the type atlarI is three-way ambiguous, because along with the above Deep-Morphological Representation, it can have two more:

b.
at	+lar+I	+Ø	⇒	*atlar*I <his/her horses>
horse	PL	POSS.3SG	NOM	
at	+Ø	+larI	+Ø	⇒ *atlar*I <their horse>
horse	SG	POSS.3PL	NOM	

Here, similarly to the preceding case, we cannot see haplology (as is often done): what is involved in (12) are genuine signs; note that the stem-final sequence -*lar* or -*ler* does not trigger the deletion: *dolar+lar* <dollars> ⇒ *dolarlar*, *kiler+ler* <larders> ⇒ *kilerler*, etc.

0.11.3 An Alternative Description of the Same Facts?

Description via ellipsis-by deleting morphs (or morphemes) selected on a deeper level of representation-is of course not the only possible way to account for observed facts. Logically speaking, there is an alternative: we can prevent the respective signs from being selected (in case when the corresponding grammemes are present in Deep-Morphological Representation of the wordform being synthesized). This is BLOCKING approach, and it can be implemented in two ways:

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[16]On haplology, see, for instance, Dressler 1987, Stemberger 1981 and Menn and MacWhinney 1984 . A very typical example of haplology is the truncation of the initial segment -/ov/ of the signifier of the Russian productive adjectival suffix **-ovat** <-ish> = (of weak degree) following the stem-final segment -/ov/, which can, but need not, be a (fossilized) suffix (a submorph):

<purple>	/l'ilóv/-	(yj)	⇒	<purplish>	/l'ilov/	+ /ovt/	⇒ /l'ilovát/- (yj)
<rose>	/rózov/-	(yj)	⇒	<rose-ish>	/rozov/	+ /ovt/	⇒ /rozovát/- (yj)
<bad> [slang]	/f'igóv/-	(yj)	⇒	<bad-ish>	/f'igov/	+ /ovt/	⇒ /f'igovt/- (yj)
<stupid> [slang]	/dubóv/-	(yj)	⇒	<stupid-ish>	/dubov/	+ /ovt/	⇒ /dubovt/- (yj)

Cf. cases where the stem does not end in -ov, so that haplology cannot take place:

<grey>	/s'er/-	(yj)	⇒	<greyish>	/s'er/ +	/ovt/	⇒	/s'erovt/-	(yj)
<bad>	/PLox/-	(oj)	⇒	<bad-ish>	/plox/ +	/ovt/	⇒	/PLoxovt/-	(yj)
<stupid>	/glup/-	(yj)	⇒	<stupid-ish>	/glup/ +	/ovt/	⇒	/glupovt/-	(yj)

[17]Cf. in Sanskrit: the singular instrumental suffix **-y,** is optionally deleted after a derivational suffix of abstract nouns having the signifier /j,/: (eloquence, SG.INSTR) *vacas+y,+y,* ⇒ *vacasy,y, /vacasy,*; this is a genuine haplology (Stemberger 1981[799]).

- If no ordering of morphological rules is admitted, we have to write into our rules more complex conditions that will not allow one of the competing signs to be selected if the other one is around. Thus, describing the Georgian subject/object verbal prefixes, we should add the following condition for the selection of the prefix **v-**: "Only if there is no 2nd person object."
- If (at least) partial ordering of morphological rules is admitted, we have to order our rules in such a way that in the appropriate block, the en-rule is ordered before the **t**-rule, and the latter, before the **s**-rule; each previous rule prevents the following rule from applying. The same method can of course be used for the **v-** and **g-** prefixes: the **g-** rule is ordered before the **v-** rule and thus-if **g-** apears in the wordform under synthesis-prevents **v-** from appearing at any level of morphological representation. (This is the 'disjunctive ordering,' proposed by Anderson 1976: 12 and Anderson 1992: 46, 87 and *passim*, and then developed in Carmack 1997.)

The two techniques are perfectly equivalent. The choice must be made based on systemic considerations: one has to prefer the description which guarantees simpler and more elegant model. However, I will not try to solve this situation of non-unicity of linguistic description, because I do not accept the blocking approach to morphic incompatibility altogether, and this for the two following reasons:

1. Under the blocking approach, some (inflectional) meanings are not expressed at all. Indeed, it is the gist of this approach-to prevent particular meanings from being expressed in the presence of some other meanings, whose 'stronger' markers compete for the same structural position in the wordform. But I do not like the 'philosophy' of morphology that lurks behind the technique of preventing some meanings from being expressed. I believe that all starting meanings have to be expressed in the wordform to which they give rise; if a meaning does not receive an overt marker, this would automatically mean in my parlance that it is expressed by a significant absence, i.e. by a zero. But the zero sign which would have to be postulated in the above examples of morphological ellipses is, however, not allowed in our system-because it is not contrastive. The ellipsis approach avoids this paradox. Meanings that first are expressed by overt signs and later loose their markers are well attested in syntax-these are ellipses of wordforms in particular constructions. So in morphology I prefer to have an obvious analogy to syntax and postulate morphological ellipses.

2. In contrast to blocking, the ellipsis approach ensures an explicit statement of morphic incompatibilities anx1d the relative strength of incompatible morphs. Such a rule as (11c) in Georgian:

$$[\textbf{pref'} \in \{\text{SUB}\}, \textbf{pref'} \in \{\text{OBJ}\}] \Rightarrow \textbf{pref''},$$

says directly which morphs cannot be combined within a wordform and which one must be evicted. Under blocking, this information remains implicit. These considerations are sufficiently weighty for me to strongly prefer the ellipsis approach over the blocking one.[18]

0.11.4 Truncation Alternation: A Phenomenon Similar to Morphological ellipsis

Now, in order to add some depth to the notion of morphological ellipsis, I will cite five examples of morphological phenomena that could be easily mistaken for morphological ellipses, while in fact they are not: I am referring to truncation alternations.
Alutor Abridged Verbal Forms

(17) Alutor

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[18]The ellipsis approach has its own logical drawback: namely, it admits the creation of intermediate ill-formed representations (Stemberger 1981802-804). However, my linguistic Principles make me prefer the generality, homogeneity and simplicity of the rules over the avoidance of ill-formed intermediate representations.

Some Alutor suffixes, parts thereof or suffixal parts of circumfixes can be optionally dropped at the end of a wordform:

	full form	abridged form
<sit$_{SG}$ down!>	qe+tvagal+γ **i**! $\sim$	qe+tvagal!

[q- ... -γ **i** is a circumfix of the 2SG subject in the imperative]

<I kissed them$_{PL}$> t+uvvan+na+**wwi** $\sim$ t+uvvan+na+w $\sim$ t+uvvan+na

-na is a suffix of the 3 person object; **-wwi** is a pluralizer of the object

<Let us$_{PL}$ begin!> **me**n+n vu+la+**mek**! $\sim$ men+nvu+la!

men- ... **-mek** is a circumfix of the 1du subject in the imperative; **-la-** is a pluralizer of the subject

What is omitted in the abridged forms are significative elements, and yet this omission is not a morphological ellipsis:

- The main condition for the omission in question is purely phonological 'at the end of the wordform;' the presence of other signs is irrelevant.

- The omission is impossible if some purely phonological conditions are violated:
  -No omission if the resulting form is not trisyllabic (= does not correspond to the preferred syllabic pattern of Alutor verbal wordforms),
  cf. *qe+n+iv+g i!*
  <Tell me!> $\sim$ *qeniv!
  -No omission if the string to be omitted has triggered obligatory regressive assimilation before itself: *met+uvvat+mek* <we$_{DU}$ kiss> $\Rightarrow$ *met+uvvan+mek* $\sim$ **met+uvvan*; but the abridged form *met+uvvat*-without assimilation-is correct [met- ... -mek] is a circumfix of the 1du subject in the indicative].

- The omission of the pluralizer **-wwi** preserves the fleeting **-a** before it: cf. the abridged plural object form t+uvvan+na <I kissed them$_{PL}$> vs. the singular object form t+uvvat+en <I kissed him/ her>, where the final **-a** is impossible. (The same situation is observed in the noun. Thus, nouns of the type MILUT <hare> have a final fleeting **-a** in the stem, which has to fall before the zero suffix of the nominative, but is retained before the pluralizer **-wwi**, even if the latter is omitted: SG.NOM *milut* <*miluta> and pl.NOM *milutawwi*; if this **-wwi** is dropped, the fleeting **-a** still remains: the abridged PL.NOM is *miluta*.
  To sum up: The Alutor abridgment in verbal wordforms is a morphologically controlled phonemic truncation alternation.

Russian Verbal Past-Tense Marker

(18) In Russian, the past tense marker **-l** is not present in the verb forms after a consonant stem before a zero suffix of the masculine gender:

	SG, MASC	SG, FEM	PL
<can, PAST>	mog +Ø	mog +**l**+a	mog +**l**+i
<freeze, PAST>	mërz+Ø	mërz+**l**+a	mërz+**l**+i
<row, PAST>	grëb +Ø	greb +**l**+a	greb +**l**+i

In all the verbs whose stem does not end in a consonant or has a thematic vowel this **-l** appears without exception:

<dance, PAST>	pljasa+**l**+Ø	pljasa+**l**+a	pljasa+**l**+i
<grind, PAST>	molo +**l**+Ø	molo +**l**+a	molo +**l**+i
<love, PAST>	ljubi +**l**+Ø	ljubi +**l**+a	lubi +**l**+i

How can we describe the absence of -l in the verb forms of the type *mog*?

- The context in which this omission happens is strictly phonological-after a consonant at the word end; therefore, the omission of **-l** is not a morphological ellipsis.

•Logically, one can introduce here a zero suffix -$\emptyset_{PAST}$, allomorph of the same morpheme as **-l**; it satisfies all the requirements imposed on zero signs: it is informative, exclusive, and contrastive. But the conditions of its appearance are 'too' phonological, so that I prefer the third solution left: The omission of the past tense suffix **-l** in the cases of the above-mentioned type is a phonemic truncation alternation that is morphologically controlled (it applies only to /l/ of the suffix of the past; within radicals, the endings of the type *krugl* <[it is] round>, *smysl* <meaning> or *ěezl* <rod, staff> are possible):

$$/l/ \Leftrightarrow \Lambda \parallel /C/+ \#; /l/ \in \{\text{PAST}\}$$

English Derivation

(19) In English derivation, numerous omissions of phonemic material before the derivational suffix are found:

Stalinism	∼ *Stalin**ism**ist	⇔	Stalinist	nominate	∼ *nomin**at**+ee	⇔	nominee
atavism	∼ *atav**ism**istic	⇔	atavistic	tolerate	∼ *toler**at**+able	⇔	tolerable
ambiguous	∼ *ambigu**ous**ity	⇔	ambiguity	translate	∼ *transl**at**ation	⇔	translation

Following Aronoff 1976, all such cases are considered as truncation alternation; is this correct? I think so. True, in many derivational patterns of the types shown in (19) we deal with the deletion of signs under the impact of other signs: thus, in highly productive series Stalinism ∼ Stalinist, Marxism ∼ Marxist, Darwinism ∼ Darwinist, etc. we see the incompatibility of two genuine signs, the suffixes **-ism** and **-ist**; here we could speak of morphological ellipsis. However:

- In extremely numerous cases the element affected by truncation is not the signifier of a sign: **-ate** in nominate, translate, etc.
- Moreover, such strings as -ism or -ous, which are signifiers of the corresponding suffixes, can very often be non-significative elements: cf. **-ism** in *atavism* and **-ous** in *ambiguous* (these are morphoids et submorphs: see Mel'čuk 1997[245-251]).
- Even in cases where the truncated element is the signifier of a sign, this is not relevant for the operation: Aronoff's truncation does not pay attention to the sign/non-sign character of the material to be deleted. Therefore, to ensure a homogeneous description of all cases, I prefer to treat the phenomenon indicated in (19), pace Aronoff and his followers, as a phonemic truncation alternation.

English Possessive Marker

(20) In English, the marker of possessivity (= 'Saxon Genitive') is incompatible with an s marker of the regular plural and is evicted by the latter (in writing, the possessive is indicated by an apostrophe). For instance: *crook+s/s/+'s ⇒ crook+s'; *king+s/z/+'s ⇒ king+s'; *fox+es/Iz/+'s ⇒ fox+es' The traditional description is via a zero allomorph of the morpheme POSSESSIVE, see, e.g., Quirk et al. 1991: 320 (the 'zero genitive'). But I cannot accept this: such a form as **crooks** or **kings** cannot be taken to have a zero suffix *-ØPOSS, because this zero would not be contrastive-it cannot be opposed to an overt possessive suffix.

Is this a morphological ellipsis? We could say so for the examples of the above type; but then the possessivity marker is also deleted

- in proper names in -/z/ (optionally): *Jones'/Jones's, Grimes'/Grimes's, Dickens'/Dickens's*, etc.;

- in Greek proper names that end in /s/ or /z/: *Euripides', Socrates',* ... ;

- in some Latinate nouns that end in /s/ or /z/: *series', rabies', ...* ;

- in phraseological expressions of the type for goodness'/conscience'/politics' sake.

In all these cases, the possessive suffix is not evicted by another sign, but deleted as a function of the phonemic context. Therefore, in order to have a homogeneous description of the deletion of the possessive suffix in all cases, I prefer to say that the deletion of the possessive -s is-everywhere-a phonemic truncation alternation, which is controlled morphologically (in native English words a stem-final /s/ or /z/ which is not the signifier of a plural suffix does not trigger the truncation: *niece's* /n?'sIz/, *cheese's* /<?'zIz/ or *rose's* /ro^{u}zIz/; on the other hand, non-sibilant plural suffixes do not trigger this truncation, either: *virtuosi's, alumni's, phenomena's, children's, oxen's).* Stemberger 1981[792-795], who an alyzes the deletion of the possessive **-s** in detail explicitly qualifies it as 'morphological haplology.'

Russian Shortened Vocative Forms

(21) The familiar (= shortened) form of a Russian first name (of the 1st declension) in the vocative singular can either be identical to the nominative singular, marked by the suffix **-a**, or it can lack this **-a:**

feminine			masculine		
Svet +a!	∼	*Svet!*	Vas+ja!	∼	*Vas!*
Maä +a!	∼	*Maä!*	Pet +ja!	∼	*Pet!*
Ver +a!	∼	*Ver!*	Bor+ja!	∼	*Bor!*

The deletion of the final-a in Russian familiar first names is meaningful: it expresses a higher degree of intimacy, so that *Lid!* or *S!* shows more 'closeness' between interlocutors than *Lida!* or *Saäa!* Therefore, this deletion is impossible with basic (= unshortened) forms of first names (**Olg!, *Svetlan!, *Ljudmil!*), which are not intimate enough, while it is readily applicable to ultrafamiliar forms of the type *Vitk!, Saäk!, Valk!, Genk!,* etc. These shortened forms are interesting in the following respect: in Russian, the final consonant in a wordform cannot be voiced (it undergoes automatic devoicing); yet these forms retain their final voiced consonant: *Serëĕ*/s'ir'ĕ/, *Nad'* /na**d'**/,*Roz* /ro**z**/, *Vov* /vo**v**/, etc. are normal pronunciations. This is especially well seen in the vocative construction Nad', a Nad'!, where the impossibility of devoicing is absolutely obvious; cf. Reformatskij 1979[50-51]. Note that the same forms taken to be the genitive plural-with a zero suffix -$\emptyset_{PL.GEN}$-cannot end in a voiced consonant: *iz-za vsex ètix Serëĕ* /s'ir'óbf ä/, *Nad* /na**t'**/, *Roz* /ro**s**/, *Vov* /vo**f**/ <because of all these ... >. How can we describe these facts?

- We cannot say that in the vocative of the nouns in question we have ellipsis of the nominative suffix: this omission is meaningful, and ellipses are meanigless by definition.
- We cannot say, either, that the vocative is expressed by a zero suffix: before a zero suffix the devoicing of the stem-final consonant is obligatory.
- What happens in these forms is a meaningful phonemic truncation alternation (= apophony). It has to apply in the vocative forms after all phonemic alternations, including /$C_{[+voiced]}$/ ⇔ /$C_{[-voiced]}$/, have applied: /s'ir'óĕa/ ⇔ /s'ir'óĕ/; or it has to leave a 'trace'-in order to prevent the devoicing alternation from applying.

0.12   Derivational Zero Signs? No way!

For morphological grammatical zero signs, the IZLS Principle needs an additional condition:

Additional condition for the introduction of morphological grammatical zero signs

4. Obligatoriness: If a zero sign X is a morphological grammatical sign, then the meaning $< X >$ (the signified of X) is inflectional, i.e. it is a grammeme or a combination of grammemes.
In other words, $< X >$ (or each of its components) has to belong to an obligatory morphological category: a meaning of this category MUST be expressed in the given position. $< X >$ cannot be a derivateme: derivational zero signs should not be allowed. Being non-obligatory, derivatemes are unable to exert enough pressure on the morphological system of the language in order to give rise to zero affixes. Consider, for example, the pairs of the following type in English:

(22) *[to] cook* $\sim$ *[a] cook or [to] gossip* $\sim$ *[a] gossip* [19]

In the nouns of these pairs, no agent zero suffix that would be parallel to -er can be postulated, because the meaning <[person] that X-es>, which such a suffix would express, is not inflectional in English. If we admit here an agent zero suffix -$\emptyset^{AGENT}$, it would violate Condition 3 of the IZLS Principle: this presumed zero suffix would not be contrastive, since no other derivational suffix appears in this position to mark the underlying radical as 'non-derived.' Such is the case of all derivational affixes: a derivational affix is never obligatory (by definition), and an absence in a non-obligatory position cannot be significative. The 'Overt Analogue Criterion' (Sanders 1988[156]) that is, the existence of a non-zero derivational affix that expresses the same meaning which we are about to ascribe to the presumed zero affx-is not sufficient.

Moreover, this derivational zero suffix would violate as well Condition 2 of the IZLS Principle: there is an overt linguistic means to which the meaning in question can be ascribed. Namely, the linguistic means used to derive *[a] cook and [a] gossip* from, respectively, *[to] cook* and *[to] gossip* is conversion: a regular technique consisting in modification of the syntactics of the initial radical, in this case the substitution Verb $\Rightarrow$ Noun (on morphological conversion, see Mel'<uk 1982: 102-104 and 1993-2000, vol. 4: 309ff [20]).

The impossibility of derivational zeroes follows from the fact that derivational oppositions are PRIVATIVE (Plungjan): a derived unit $X+a$ <X+a> is semantically always more complex than the underlying unit X <X>, which does not include any meaning opposed to <a> (thus, Russian diminutives of the type *äar+ik* <[a] small ball> express the meaning <small>; but the underlying radicals do not express the meaning <big> or <not small>; *äar* can denote a very big and a very small ball-cf. *kroxotnyj äar* <[a] tiny ball>. On the contrary, inflectional oppositions are necessarily equipollent: as a rule, one inflectional form $X+b$ <X+b> contrasts with another inflectional form $X+c$ <X+c>, so that both forms are of equal semantic complexity.

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[19]There is another lexeme with the same meaning: GOSSIPER; it is derived from *[to] gossip* by the regular agent suffix **-er**. Its existence does not in any way affect my reasoning or this example.
[20]On the opposition 'conversion $\sim$ zero-affixation,' see Lieber 1981[119*ff*], "Against Zero-Affixation." Lieber's main argument against derivational zero suffixes in the cases like Germ. ruf(-en) <[to] call> $\sim$ der Ruf <[a] call> (PL. Rufe) or bind(-en) <[to] bind, tie> $\sim$ das Band <[a] tie> (PL. Bänder) is that one zero suffix would not be sufficient, since the derived nouns are of different genders and different declension types. In point of fact, on the same grounds, Lieber objects against conversion as a directed derivational means: she proposes to consider conversion as a static symmetrical relation between two stems in the lexicon. As for the cases of the type of Latin supines, formed from a past participle: *perd+it-[us]* $\sim$ *perd+it+um* (in order to lose), *ses+s-[us]* $\sim$ *ses+s+um* (in order to sit (down>>, or English deverbal adjectives, also formed from a past participle: annoyed, inhabited, etc., Lieber 1981[144-148]) admits a derivational zero suffix here, given the absolute uniformity of the derived elements. However, for me, a derivational zero suffix in these forms is inadmissible because it is not contrastive: in the supine stem *perd+it*+ØSUPINE , it would be opposed only to the absence of any derivational suffix in the participle stem *perd+it-*, and this is not allowed by the IZLS Principle. The same argument applies to Lieber's proposal (1992: 66-67) to see a derivational zero suffix in French compounds of the type *essuie-glace* <windshield wiper> or *tire-bouchon* <corkscrew>: all of them have similar meanings ((instrument for ...)> and are of the masculine gender. Yet I believe that this is a pure linguist's zero, postulated in order to make our description more elegant; it is not contrastive and thus cannot be deemed a language zero, the only variety I work with.

0.13 Most Current Zero Signs

It seems useful to give here a list of the zero signs known to me that are most currently mentioned in the literature.

0.14 Morphological Zeroes: Zero Morphs and Morphemes

0.14.1 Nouns

SG	Eng.	$table + \emptyset_{SG}$
		vs. $table + s$
	Sp.	$mesa + \emptyset_{SG}$ \<table\>
		vs. $mesa + s$
	Hung.	$asztal + \emptyset_{SG}$-
		vs. $asztal + ak$- \<tables\>
NOM	Hung.	$asztal + \emptyset_{SG} + \emptyset_{NOM}$ \<table, NOM\>
		vs. $asztal + \emptyset_{SG} + at$ \<table, ACC\>,
		$asztal + \emptyset_{SG} + ban$ \<table, INESS\>, ...
SG.NOM	Rus.	$stol + \emptyset_{SG.NOM}$ \<table, SG.NOM\>
PL.GEN	Rus.	$ruk + \emptyset_{PL.GEN}$ \<hand/arm, PL.GEN\>
DEF(inite)		
	Basque	mendid $+ \emptyset_{DEF} + tik$ \<the mountain, ABL\>
	vs.	$mendi + ta + tik$ \<mountain, ABL\>
INDEF(inite)		
	Basque	$mendi + \emptyset_{INDEF} + \emptyset_{NOM}$ \<mountain, NOM\>
	vs.	$mendi + a + \emptyset_{NOM}$ \<the mountain, NOM\>
		(The distribution of the markers of definiteness
		on a Basque noun depends on its case.\>

0.14.2 Adjectives

MASC	Sp.	$inglés + \emptyset_{MASC}$-	\<English, MASC\>
		vs. $ingles + $**a**- \<English, FEM\>	
SG	Sp.	$inglés + \emptyset_{MASC} + \emptyset_{SG}$	\<English, MASC, SG\>
		vs. $ingles + \emptyset_{MASC} + es$ \<English, MASC, PL\>	
MASC	Rus.	$xoroä + \emptyset_{MASC}$	\<[is] good, MASC\>
		vs. $xoroäa$ \<[is] good, FEM\>	
		$xoroä + i$ \<[are] good, PL\>	

0.14.3 Zero Radicals

\<this\> Kirundi -$\emptyset^{THIS}$: $uwu + \emptyset^{THIS}$, $aba + \emptyset^{THIS}$, ... vs. $uw + o$, $ab + o$, ...
\<he\> Serbo-Cr. $\emptyset^{HE-}$: $\emptyset^{HE} + ga$, $\emptyset^{HE} + mu$ vs. $nj + ega$, $nj + emucheap$'

0.14.4 Verbs

PRES.IND	Sp.	$habla+\varnothing_{PRES.IND}$- <[to] speak, PRES.IND> vs. $habla$+ba- [IMPF], $habla$+r- [FUT],$habla+se$- [IMPF.SUBJ]
IMPER	Sp.	$habla+\varnothing_{IMPER}$ <[to] speak, IMPER>
AORIST	Alutor	$t+uvvat+\varnothing_{AOR}$+nin <[to] kiss, AOR, $1_{SG}.sub-3_{SG}.obj>$ [⇔ tuvvannin] vs.$t+uvvat+tk$[PRES]+nin
1_{SG}	Sp.	$habla+ba+\varnothing 1_{SG}$ <I spoke> ∼ $habla+se+\varnothing 1_{SG}$ <[that I spoke] ∼ hable+$\varnothing_{PRES}+\varnothing 1_{SG}$ <[that] I speak> vs. $habla+ba+s$ <you$_{SG}$ spoke>, $habla+se+s$ <[that] you$_{SG}$ speak>, etc.
2_{SG} [*Indic.*]	Georg.	$\varnothing 2_{SG}+ici$ <[you$_{SG}$] know> vs. $v+ici$ <[I] know>, $ici+s$ <[he] knows>
2_{SG} [*Imper.*]	Sp.	$habla+\varnothing_{IMPER}+\varnothing 2_{SG}$ <speak$_{SG}$!> vs. habla+$\varnothing_{IMPER}$+d <speakPL!>
	Czech	$\check{e}en+\varnothing_{IMPER}+\varnothing 2_{SG}<drive_{SG}!>$ vs. $\check{e}en+\varnothing_{IMPER}$+me <let's drive>,$\check{e}en+\varnothing_{IMPER}$+te <drive$_{PL}$!>
3SG	Sp.	habla+$\varnothing_{PRES.IND}+\varnothing_{3SG}$ <s/he speaks> ∼ $habla+ba+\varnothing_{3SG}$ <he spoke> ∼ $habla+se+\varnothing 3_{SG}$ <[if] he spoke> ∼ hable+$\varnothing_{PRES}+\varnothing_{3SG}$ <[that] he speak>
SG	Georg.	$v+ici+\varnothing_{SG}$ <[I] know> vs. $v+ici+t$ <[we] know>
MASC	Rus.	$spal+\varnothing_{MASC}$ <[I$_{MASC}$ <you$_{MAS}$C, he>] slept> vs. $spal+a$ <[IFEM <you$_{FEM}$, she>] slept>, $spal+i$ <we <you$_{PL}$, they>] slept>
ACTIVE	Lat.	$orn+o+\varnothing_{ACT}$ <[I] adorn> vs. $orn+o+r$ <[I] am being adorned>, $orna+t+\varnothing_{ACT}$ <[S/he] adorns> vs. $orna+t+ur$ <[He] is being adorned>

0.15 Syntactic Zeroes: Zero Wordforms (= Lexes) and Lexemes

Copula		
Rus. Ø:		*Leo bogatyj* <Leo is rich> <a zero lex of a non-zero lexeme>
Impersonal pronoun		
Sp. Ø:		*Nieve* <It snows>; *Es difícil de dormir* <It is difficult to sleep>.
Pashto Ø:		*Sari> xand+l* <[The] man [OBL] laughs [PL]>, lit. <Things [PL] laugh man [= DirO]>.
People Rus.Ø:		*Ivana ubili* <Ivan was killed [by people]>, lit. <They killed Ivan [= DirO]>.
Massai Ø:		*ríkíenkI;te;n* <The cow was led>, lit. <They were led the cow [= DirO]> <Mel'čuk 1997>.
Elements Rus. Ø:		Ivana ubilo <Ivan was killed [by something/by mysterious forces]>, lit. <It killed Ivan>.

0.16 Zero Signs vs. Non-Significative Zeroes

One of the greatest merits of Haas 1968bis, I think, having established the two-way distinction between typical uses of 'zero' terminology in modern linguistics: zeroes belonging to language-something that we can call 'linguistic elements/units,' whatever the meaning of the latter expression-and zeroes belonging to linguistics, that is, different devices or *facons de parler* that help linguists to formulate their descriptions. Such zeroes are non-significative: they are not used to convey information; they are, so to speak, the linguist's zeroes. The linguist's zeroes can be further subdivided into two types:

- Vague or metaphorical uses of the term zero-such that it does not intend any reference to linguistic elements, but can designate "any linguistic notion, whenever for one reason or another such notion is found to be inapplicable ... 'Zero,' as thus used, is merely the negative particle transposed into the category of nouns" (Haas 1968b[34], fnt. 1): *zero-expression, zero word order, zero function, zero contrastg, zero style, zero case* (= the nominative or the absolutive), *zero tense* (= the present), *zero degree verb* (= the infinitive), *zero derivation*, ...

- Uses that are justified only by the requirements of general statements (Haas 1968b[50]): for instance, in cases like sheep one could say-by analogy with tens of thousands of English nouns-that plurality is expressed by a zero suffix (these uses go back to Bloomfield and further to P,n>nini). To the extent that we are interested in the 'real' zeroes of language, all such uses should be carefully avoided in order not to create confusion. (But cf., however, Kibrik's considerations on 'system-justified' zeroes: Kibrik 1997[55-56]) language zeroes are necessarily either linguistic signs or -emic sets of signs. More precisely, there are

  - either morphological zeroes: morphs/morphemes, reduplications/reduplicationemes, apophonies/ apophonemes and conversions/conversionemes;
  - syntactic zeroes: wordforms (= lexes) and lexemes. These zeroes, as I have already said, can also be called lexical: they are lexical units used in syntactic structures.

There are no other zeroes in language. Among other things, no phonemic zeroes (such as, e.g., zero juncture) are possible. A phoneme is not a sign; and a phonemic zero element would not be admitted by our Principle for the introduction of zero signs. Interestingly, even researchers who like to speak of 'phonemic' or 'phonetic' zeroes do not propose to actually write them in the transcription, while morphological and syntactic zeroes (= zero signs and zero -emic sets of signs) are always written in the corresponding representation.[21]

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[21](14, p.00) On the role of zero in human knowledge and human science, see Kaplan 1998.

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