

# Suppletion and Affix Reduction

Guido Vanden Wyngaerd

Caha et al. (2019) argue that the Czech comparative marker *-ější* consists of two parts, and that the first part *-ěj* is systematically absent from irregular (or suppletive) comparatives (the final vowel *í/ý* is an agreement marker, which we ignore).

(1)	regular	irregular
	mil-ej-š-í 'nicer'	dobr-ý lep- š-í 'good-better'
	kulat-ěj-š-í 'rounder'	špatn-ý hor- š-í 'bad-worse'
	hloup-ěj-š-í 'more stupid'	mal-ý men- š-í 'small(er)'

They formulate the following generalisation:

- (2) *The Comparative Suppletion Generalisation (CSG)*  
If there is root suppletion, the number of overt markers of the comparative is reduced.

The purpose of this small paper is to provide evidence for a slightly more general formulation of this generalisation, as in (3).

- (3) *The Suppletion Generalisation (SG)*  
If there is irregularity in the form of either the root or the suffixes, the number of suffixes gets reduced.

The SG differs in two ways from the CSG in (2). First, it is not restricted to comparatives, but it applies to all sorts of morphological paradigms. Second, the CSG only makes a statement about irregularity in the root (root suppletion), not in the affixes. The extension also allows for irregularity in the suffixes.

A case in point where suffixes show irregularity is provided by past participles in Italian, which systematically lack a theme vowel when they have the irregular suffix *s* instead of the regular combination of a theme

vowel followed by *t* (Calabrese 2015). A theme vowel is a piece of morphology that sits between the verbal root and the inflectional endings. Theme vowels are not part of the verbal root, since there are many more verbs than there are theme vowels. They are not part of the inflectional endings either, as they are invariant across different tense and agreement categories. Theme vowels are typically taken to indicate membership of a verb class, as the past participles in the first column of (4) show. The verbal root is followed by the theme vowel (in bold), the suffix of the past participle, and an agreement marker.

(4)	regular morphology	irregular morphology
	am- <b>a</b> -t-o 'loved'	per- <b>s</b> -o 'lost'
	batt- <b>u</b> -t-o 'beaten'	cor- <b>s</b> -o 'run'
	part- <b>i</b> -t-o 'left'	eccel- <b>s</b> -o 'excelled'

The correctness of (3) is illustrated by the forms on the right hand side of (4): these have an irregular *-s* ending, and lack the theme vowel.

Observe that (3) leaves open the possibility that reduction in the number of suffixes occurs with nonsuppletive roots. Caha et al. (2019) show that this is the case in Czech comparatives, where there is a class of adjectives (like *star-ý* 'old'), which have a reduction in the number of suffixes without a change in the form of the root (e.g. *star-š-í* 'older'). This is also the case in French, for example, where Schane (1966) has argued that (regular) verbs of the first conjugation (whose infinitives end in *-er*) and the third conjugation (with infinitives ending in *-re*) differ in the presence vs absence of a theme vowel, respectively (see also Foley 1979, Estivalet & Meunier 2016). He postulates the following underlying representations for the present tense indicative of these conjugations, exemplified by the verbs *arriver* 'arrive' and *vivre* 'live', respectively (theme vowel marked in bold):

(5)		1ST	3D	
	SG 1	arriv- <b>a</b> -z	viv-z	
		2	arriv- <b>a</b> -z	viv-z
		3	arriv- <b>a</b> -t	viv-t
	PL 1	arriv- <b>a</b> -õz	viv-õz	
		2	arriv- <b>a</b> -ez	viv-ez
		3	arriv- <b>a</b> -æt	viv-æt

Various phonological rules reduce these underlying forms to the surface forms. For example, the stem-final consonant gets deleted when a consonant follows, yielding *vi-z* in 1SG, which is the form that appears in liaison contexts (e.g. *Je vi[z] en France* ‘I live in France’). This rule is inapplicable with *arriver* because of the presence of the theme vowel, which protects the stem consonant from deletion, eventually leading to the surface form *j’arri[v]* ‘I arrive’.

The case of French shows that theme vowels are not always directly visible in the surface form, but often indirectly, through their effect on phonological processes. In what follows, I wish to consider two cases where it has been argued that theme vowels are underlyingly present, namely English and Dutch. Both of these languages moreover provide evidence for the SG in (3), in that the theme vowel disappears with irregular (suppletive, strong) verb roots. The discussion is slightly more complex here, as theme vowels in English and Dutch are like the French ones in being absent in the surface form, their presence being visible only indirectly.

For English, Kayne (2016) has argued that some English verbs have theme vowels, in particular, that the past tense suffix *-ed* is to be decomposed into a theme vowel *-e* and a past tense marker *-d*. This is indicated in the first column of (6) (theme vowels in bold). We see the second part of this decomposition, the past tense suffix *-d*, surface independently in the forms in the rightmost column of (6). These forms also show a stem alternation, which is conditioned by the presence of the past tense suffix. In the regular forms in the first column, Kayne argues, the theme vowel protects the stem from being affected by *-d*.

(6)	regular	irregular	
	PST	INF	PST
	kill- <b>e</b> -[d]	sell	sol-[d]
	spell- <b>e</b> -[d]	tell	tol-[d]
	walk- <b>e</b> -[t]	go	wen-[t]
	coat-[ <b>ɪ</b> -d]	sweep	swep-[t]
	load-[ <b>ɪ</b> -d]	hear	hear-[d]

This is an effect of the theme vowel that is reminiscent of French, where the theme vowel in the verbs of the first conjugation protects the final consonant of the stem from being deleted.

In both French and English, the theme vowel is mostly inaudible. An

exception are English verbs whose stem ends in an alveolar plosive, as shown by the final two (regular) rows of (6). This is plausibly the result of an OCP-effect caused by two adjacent identical consonants. An interesting contrast arises in this respect with strong verbs, where the OCP-conflict is resolved differently, namely through degemination. This can be seen when considering the subclass of the strong verbs that are characterised by [i:-ε-ε]-Ablaut pattern. Like the verbs in (6), these feature the regular ending in the past tense, as shown by the verbs in the final column of (7), whose stem ends in a vowel or a consonant different from [t/d]. When verbs with this Ablaut pattern have a stem ending in [t/d], they therefore have a plausible representation as in the first column of (7), with two adjacent alveolar plosives which are not separated by a theme vowel.

(7) Verbs with [i:-ε-ε] Ablaut

Stems in [t/d]		Other stems	
INF	PST	INF	PST
feed	fed-[d]	leave	lef-[t]
lead	lead-[d]	keep	kep-[t]
meet	met-[t]	feel	fel-[t]
breed	bred-[d]	flee	fle-[d]
bleed	bled-[d]	sleep	slep-[t]
speed	sped-[d]	weep	wep-[t]
read	red-[d]	kneel	knel-[t]

In this case, the OCP-conflict is resolved through degemination rather than theme vowel pronunciation, as in the regular past tenses in (6). A similar correlation between umlaut of the stem and absence of [ə]-epenthesis can be observed in the 2SG and 3SG of the German present tense, as in *raten-rät-t* ‘guess-guesses’ vs *spalten-spalt-e-t* ‘split-splits’ (Postma 2019, Neef 1997, Trommer 2010). In terms of the SG, these data show that if the stem is irregular, the number of suffixes gets reduced: the theme vowel disappears.

The second example of a language with ‘invisible’ theme vowels is Dutch. It also shows the same correlation between irregularity in the verbal root and the absence of the theme vowel. Zonneveld (1982) argues that Dutch weak verbs have a theme vowel, which strong verbs systematically lack. For reasons of space, I only discuss two pieces of evidence given by Zonneveld for the theme vowel here. The first concerns a quant-

ity contrast in singular-plural pairs of a restricted class of nouns, given in the first two columns of Table 1: the singulars have a short vowel, the plurals a long one.

Table 1: Vowel quantity contrasts in nouns

N.SG	N-PL		V-INF	V.PRS.1SG	
l[ɪ]d	l[e:]d-en	‘member(s)’	ontl[e:]d-en	ontl[e:]d	‘to dismember’
b[ɑ]d	b[a:]d-en	‘bath(s)’	b[a:]d-en	b[a:]d	‘to bathe’
sm[ɪ]d	sm[e:]d-en	‘blacksmith(s)’	sm[e:]d-en	sm[e:]d	‘to forge’
sp[ɛ]l	sp[e:]l-en	‘game(s)’	sp[e:]l-en	sp[e:]l	‘to play’

The corresponding verbs (on the right hand side of the table) consistently always have the long vowel. The nouns provide evidence for a rule that lengthens the vowel when the final consonant is followed by [ə] (open syllable lengthening). This rule can be simply extended to the verb forms in the present tense singular by assuming that these are followed by an (invisible) theme vowel [ə].

The second piece of evidence concerns word-final [n]-deletion in unstressed syllables, a very common rule which is found across categories and suffixes. In Table 2, deleted final *n* is marked as [ɲ]. The striking fact is the impossibility of final *n*-deletion in the first person singular of the present tense. This is straightforwardly explained under the assumption that the theme vowel follows the verbal stem, which makes *-n* nonfinal and protects it from deletion.

Table 2: Final *n* deletion

{A, N}		V-INF	V.PRS.1SG	
ope[ɲ]	‘open’	open-e[ɲ]	ope[ɲ]	‘to open’
kete[ɲ]	‘chain’	keten-e[ɲ]	kete[ɲ]	‘to chain’
teke[ɲ]	‘sign’	teken-e[ɲ]	teke[ɲ]	‘to draw’
wape[ɲ]	‘weapon’	wapen-e[ɲ]	wape[ɲ]	‘to arm’

The argument for showing that the theme vowel disappears with strong verbs is somewhat complex. The starting point is the phenomenon of voice assimilation in clusters with two adjacent alveolar plosives, the second of which is voiced. Such clusters sometimes undergo voicing (regressive assimilation), sometimes devoicing (progressive assimilation), as shown in Table 3.

Table 3: Voice assimilation in alveolar plosive clusters

[d] (regressive)		[t] (progressive)	
laat <b>D</b> any	‘let Dany’	laat <b>d</b> e kinderen	‘let the children’
weet <b>d</b> ingen	‘knows things’	weet <b>d</b> an	‘know then’
rond <b>D</b> rongen	‘around Drongen’	rond <b>d</b> e kerk	‘around the church’
red <b>D</b> ebby	‘save Debby’	red <b>d</b> ie tafel	‘save that table’

The relevant difference between these two sets of cases is the nature of the second alveolar plosive: if it is the onset of a function word like *de* ‘the’, *dan* ‘then’, *die* ‘that’, etc., cluster devoicing is triggered. Zonneveld observes that the onset of the function words behaves like a fricative (see also Leenen 1954). For concreteness, I shall represent this devoicing alveolar as /ð/. Fricatives in the second position of obstruent clusters are known independently to trigger devoicing of the cluster, even in cases where both obstruents are underlyingly voiced (e.g. *rood*[tf]*onk* ‘scarlet fever’, from *roo*/d/ ‘red’ and /v/*onk* ‘spark’).

Now this underlying alveolar fricative is likely to also be present in the inverted clitic subject pronoun of the third person singular masculine *ie* (e.g. *Heeft-ie dat gedaan* ‘Has he done that?’). This is shown by the fact that the verb stems ending in a voiced alveolar plosive undergo devoicing when followed by *ie*. Note in particular the minimal contrast between PST.PL in Table 4, where there is no devoicing of stem-final *d* and devoicing in PST.SG followed by clitic pronoun *ie*.

Table 4: Clitic pronoun *ie* triggering devoicing

V.INF	PST.SG	PST.PL	PST.SG-he	
staan	ston[t]	stond-en	ston[t]-ie	‘stand’
vinden	vond[t]	vond-en	von[t]-ie	‘find’
hebben	ha[t]	hadd-en	ha[t]-ie	‘have’
bieden	boo[t]	bod-en	boo[t]-ie	‘bid’

This falls under the general rule observed on the right-hand side of Table 3, under the assumption that *ie* ‘he’ is underlyingly /ði/. Now weak verbs behave differently from the strong verbs in Table 4, and this different behaviour can be explained by assuming that there is a theme vowel following the stem. This is illustrated in Table 5.

Table 5: Weak verbs with clitic pronoun *ie*

V.INF	PST.SG	PST.SG-he	
spieden	spiedde	spiedde-die	/spi:d-ə-ðə-ði/ ‘spied he’
praten	praatte	praatte-die	/pra:t-ə-ðə-ði/ ‘talked he’

The devoicing in the past tense with stems ending in voiceless fricatives (e.g. *wa[st]e* ‘washed’) is unlike that in compounds, where it is regressive (e.g. *wa[zd]om* ‘growth’). In other words, the regular past tense suffix *-de* behaves like a fricative in terms of voicing assimilation, like the function words in Table 3 and 4. I therefore represent it as /ðə/.

The theme vowel will now prevent the voice assimilation which we see in *ston[t]-ie* ‘stood he’: the latter results from an underlying /dð/-cluster in /stɔndði/. This cluster is broken up by the theme vowel in /spi:d-ə-ðə-ði/, preventing devoicing in the stem-final /d/: \**spie[t]e-die* ‘spied he’. In sum, Dutch provides evidence for (3), in that the theme vowel is structurally absent with irregular verbs, while structurally present but invisible with weak verbs.

## References

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