

Phonology-Morphology Interface
Jadertina Summer School
University of Zadar
September 2006
Handout 1

1 Phonologically-conditioned suppletive allomorphy (part 1)

1.1 Introduction

(1) Alternations between [b d g v z ʒ] and [p t k f s ʃ] in Modern German:

a.	Dieb	[di:p]	‘thief’	Dieb-e	[di:bə]	‘thieves’
	Rad	[Ra:t]	‘wheel’	Rad-es	[Ra:dəs]	‘wheel (gen. Sg.)’
	Tag	[ta:k]	‘day’	Tag-e	[ta:gə]	‘days’
	Nerv	[nɛʀf]	‘nerve’	nerv-ös	[nɛʀvø:s]	‘nervous’
	Haus	[haus]	‘house’	Haus-es	[hauzəs]	‘house (gen. Sg.)’
	beige	[be:ʃ]	‘beige’	beig-e	[be:ʒə]	‘beige (adj. ending)’
b.	bunt	[bʊnt]	‘colorful’	bunt-e	[bʊnt]	‘colorful (adj. ending)’
	Stück	[ʃtʏk]	‘piece’	Stück -e	[ʃtʏkə]	‘pieces’
	groß	[grɔ:s]	‘big’	groß-e	[grɔ:sə]	‘big (adj. ending)’

(2) Many German words have two allomorphs, e.g.:

a.	‘thief’:	[di:p]	b.	‘day’	[ta:k]
		[di:b-]			[ta:g-]

(3) A (rule-based) analysis of the data in (1):

a. The allomorphs in (2) have a single underlying representation. A phonological rule accounts for their distribution:

Tag	/ta:g/	[ta:k]	Stück	/ʃtʏk/	[ʃtʏk]
Tage	/ta:g-ə/	[ta:gə]	Stücke	/ʃtʏk-ə/	[ʃtʏkə]

b. Final Devoicing (FD): /b d g v z ʒ/ → [p t k f s ʃ] / _____]_σ

c. Derivations:

	/ta:g/	/ta:g-ə/
FD	ta:k	-----
	[ta:k]	[ta:gə]

- (4) Alternations between *a* [ə] and *an* [ən] in English:

a book
an apple

- (5) The alternation between [n] and zero in (4) only holds for this morpheme, cf.:

the book	in books
the apple	in apples

- (6) There is agreement in the literature that the two allomorphs in (4) cannot be derived from a single underlying representation, thus there are two underlying forms for this morpheme:

a /ə/
an /ən/

Allomorphs that are not derived from a single underlying representation are referred to as suppletive allomorphs.

→ Given the two underlying forms for the indefinite article, how does one account for their (predictable) distribution?

1.2 Suppletive allomorphy

1.2.1 Introduction

- (7) Since suppletive allomorphs by definition cannot be derived by rule from a single underlying representation the challenge is to capture formally their distribution in some other way.

a. phonologically conditioned allomorphy

→ choice of allomorphy depends on the phonological context, e.g. the context refers to segments, syllables or stress

b. morphologically conditioned allomorphy

→ choice of the allomorph depends on the morphological context, e.g. a different case, tense, mood.

c. lexically conditioned allomorphy

→ choice of the allomorph depends on the individual lexical item

- (8) Locative allomorphs in Martuthunira [Haspelmath 2002: 28]:

a.	[parla]	‘stone’	[parla-ngka]	‘at stone’
	[muyi]	‘dog’	[muyi-ngka]	‘at dog’
b.	[kanyara]	‘person’	[kanyara-la]	‘at person’
	[warrirti]	‘spear’	[warrirti-la]	‘at spear’

(9) Suppletive allomorphy in Latin [Haspelmath 2002: 29]:

	<i>present tense</i>	<i>imperfect tense</i>	<i>perfect tense</i>
1 SG	laud-o	lauda-ba-m	lauda-v-i
2 SG	lauda-s	lauda-ba-s	lauda-v-isti
3 SG	lauda-t	lauda-ba-t	lauda-v-it
	'I praise, etc.'	'I was praising, etc.'	'I (have) praised, etc.'

(10) Suppletive allomorphs in the past participle forms of English verbs:

	<i>infinitive:</i>	<i>past participle:</i>
a.	eat	eat-en
	give	giv-en
	take	tak-en
b.	stop	stopp-ed
	repeat	repeat-ed
	bake	bak-ed

(11) Plural allomorphs in Farsi: [Haspelmath 2002: 28]:

a.	[mærd]	'man'	[mærd-an]	'men'
	[geda]	'beggar'	[geday-an]	'beggars'
b.	[gorbe]	'cat'	[gorbe-ha]	'cats'
	[ettefaq]	'incident'	[ettefaq-ha]	'incidents'

(12) The examples to be discussed below involve:

a. suppletive allomorphs

b. phonologically (and not lexically or morphologically) conditioned allomorphs

1.2.2 Three case studies

1.2.2.1 Moroccan Arabic

(13) In Moroccan Arabic the 3 SG MASC pronominal enclitic ‘him’ has two allomorphs: [h] and [u] [see Mascaró 1996]:

- | | | |
|----|-----------------------|----------------|
| a. | [xt ^ʰ a-h] | ‘his error’ |
| | [mʔa-h] | ‘with him’ |
| | [ʃafu-h] | ‘they saw him’ |
| b. | [ktab-u] | ‘his book’ |
| | [menn-u] | ‘from him’ |
| | [ʃaf-u] | ‘he saw him’ |

(14) The 1 SG MASC pronominal enclitic ‘me/mine’ has two allomorphs: [ja] and [i]:

- | | | |
|----|------------------------|------------|
| a. | [xt ^ʰ a-ja] | ‘my error’ |
| | [mʔa-ja] | ‘with me’ |
| b. | [ktab-i] | ‘my book’ |
| | [menn-i] | ‘from me’ |

(15) An analysis with subcategorizations [see, for example, Booij & Lieber 1993] would require statements like the following:

a. [h] and [ja] occur after a stem ending in a vowel:

[h]: V] ___]_{3 SG MASC}

[ja]: V] ___]_{1 SG MASC}

b. [u] and [i] occur after a stem ending in a consonant:

[u]: C] ___]_{3 SG MASC}

[i]: C] ___]_{1 SG MASC}

→ According to the subcategorization approach the respective allomorphs are selected according to the input of the base.

- (16) An alternative approach is the one taken in the literature in Optimality Theory (henceforth OT). OT markedness constraints necessary for the Moroccan Arabic data are given in (a-c). See Mascaró (1996) for an OT analysis of this language which differs only slightly from the treatment presented here.

a. ONSET: Every syllable has an onset

b. NOCODA: Every syllable is open

c. NOCOMPONSET: Every onset has a single member

- (17) The correct allomorph is selected with markedness constraints alone:

(a)

/xt ^ʰ a-{h/u}/	ONSET	NOCODA	NOCOMPONSET
☞ [xt ^ʰ ah]		*	*
[xt ^ʰ a.u]	*!		*

(b)

/ktab-{h/u}/	ONSET	NOCODA	NOCOMPONSET
[ktabh]		*!	*
☞ [kta.bu]			*

(c)

/mfa-{ja/i}/	ONSET	NOCODA	NOCOMPONSET
☞ [mfa.ja]			*
[mfa.i]	*!		*

(d)

/menn-{ja/i}/	ONSET	NOCODA	NOCOMPONSET
[men.nja]		*	*!
☞ [men.ni]		*	

- (18) In contrast to the subcategorization approach in (15), the analysis in (17) accounts for the distribution of the allomorphs in terms of the output representations.

There has been much work done in the OT literature on phonologically-conditioned suppletive allomorphy [see this literature cited below and the literature cited in McCarthy 2002: 183]. This type of allomorphy is captured very well in the OT framework because the distribution of the respective allomorphs can be shown to fall out from universal markedness constraints, which by definition refer to the output.

- (19) How does one explain given the OT analysis above that Moroccan Arabic has many syllables that blatantly violate the markedness constraints, e.g.:

[ktebt] ‘I wrote’
[a.ʒi] ‘come!’

- (20) Two faithfulness constraints:

- a. MAX-IO: No deletion
b. DEP-IO: No epenthesis

- (21) In Moroccan Arabic faithfulness outranks markedness:

	/aʒi/	MAX-IO	DEP-IO	ONSET
a.	☞ [a.ʒi]			*
b.	[ʒi]	*!		
c.	[Ca.ʒi]		*!	

1.2.2.2 Genitive allomorphy in Djabugay

- (22) Genitive allomorphy in Djabugay [Kager 1996]:

- a. After bases ending in a vowel *-n* occurs:
[guludu-n] ‘dove’
b. After bases ending in a consonant *-ɲun* occurs:
[gaɲal-ɲun] ‘goanna’

- (23) Subcategorizations for the data in (22):

- a. *-n*: occurs after a base ending in a vowel.

[n]: V]N ___]GEN

- b. *-ɲun*: occurs after a base ending in a consonant.

[ɲun]: C]N ___]GEN

- (24) Two constraints relevant for the data in (22) [from Kager 1996]:

- a. *COMPLEXCODA: No complex codas
b. GENITIVE-N: The genitive is marked by [n]

(25)	/gənal-{n/ŋun}/	*COMPLEXCODA	GENITIVE-N
	☞ ga.nal.ŋun		*
	ga.naln	*!	

(26)	/guludu-{n/ŋun}/	*COMPLEXCODA	GENITIVE-N
	☞ gu.lu.dun		
	gu.lu.du.ŋun		*!

(27) Note that constraint (24b) contains language-specific information, contrary to what is usually assumed to be true for OT constraints.

Rubach & Booij (2001) propose that segmental markedness plays a role in allomorphy selection. They propose the following constraints and rankings:

a. *ŋ: No velar nasal

b. *n: No alveolar nasal

c. *ŋ » *n

(28)	/gənal-{n/ŋun}/	*COMPLEXCODA	*ŋ	*n
	☞ ga.nal.ŋun		*	*
	ga.naln	*!		*

(29)	/guludu{-n/ŋun}/	*COMPLEXCODA	*ŋ	*n
	☞ gu.lu.dun			*
	gu.lu.du.ŋun		*!	*

1.2.2.3 Dutch plural formation

(30) Dutch plural allomorphs [Booij 1998: 145-148]:

<i>singular</i>	<i>plural</i>		
kánon	kánon-s	*kánon-en	‘canon’
kanón	kanónn-en	*kanón-s	‘gun’
nátie	nátie-s	*nátie-en	‘nation’
geníe	geníe-ën	*geníe-s	‘genius’

(31) A descriptive statement regarding the allomorphy in (30):

-s after an unstressed syllable, -en (= [ən]) after a stressed syllable

(32) Monosyllabic nouns always take -en:

<i>singular</i>	<i>plural</i>		
non	nonnen	*nons	‘nun’
knie	knieën	*knies	‘knie’
bal	ballen	*bals	‘ball’

(33) What would an analysis of Dutch look like with subcategorizations?

- a. -s: occurs after a noun whose final syllable is unstressed.
- b. -en: occurs after a noun whose final syllable is stressed.

(34) An OT analysis of Dutch would require the following constraints [see Booij 1998]. Note: Booij does not formalize these constraints.

- a. FOOTMAX: The foot is maximally disyllabic (i.e. no trisyllabic feet)
- b. PARSESYLL: The syllable must be dominated by a foot.
- c. FOOTMIN: The foot is minimally disyllabic (i.e. no monosyllabic feet)

(35) A tableau representing the selection of the *-s* allomorph.

	/ kánon, +PL/	FOOTMAX	PARSESYLL	FOOTMIN
a.	☞ (kánon-s) _F			
b.	(kánon) _F (n-ən) _σ		*!	
c.	(kánonn-ən) _F	*!		

(36) A tableau representing the selection of the *-en* allomorph:

	/ kanón, +PL/	FOOTMAX	PARSESYLL	FOOTMIN
a.	(ka:) _σ (nón-s) _F		*!	*
b.	(ka:) _F (nón-s) _F			**!
c.	(ka:) _σ (nónn-ən) _F		*!	
d.	☞ (ka:) _F (nónn-ən) _F			*

(37) In morphologically simplex words ending in schwa there are two possible plural forms:

<i>singular</i>	<i>plural</i>	
kadə	kadəs, kadən	‘quay’
bodə	bodəs, bodən	‘messenger’
ladə	ladəs, ladən	‘drawer’
methodə	methodəs, methodən	‘method’

Note: Plural forms involving two adjacent schwas, e.g. *[kadəən] are not allowed because Dutch has a surface-true constraint banning adjacent schwas.

(38) How would the OT approach described above select both plural forms in the examples in (37)?

References

- Booij, G. 1998. Phonological output constraints in morphology. In: W. Kehrein & R. Wiese (Hrsg.) *Phonology and Morphology of the Germanic Languages*. 143-163. Tübingen: Niemeyer.
- Booij, G. & R. Lieber 1993. On the simultaneity of morphological and prosodic structure. In: Hargus & Kaisse 1993: 23-44.
- Hargus, S. & E. Kaisse, eds. 1993. *Studies in Lexical Phonology*. Orlando: Academic.
- Haspelmath, M. 2002. *Understanding Morphology*. London: Arnold.
- Kager, R. 1996. On suffix allomorphy and syllable counting. In: U. Kleinhenz (ed.) *Interfaces in Phonology*. 155-171. Berlin: Akademie Verlag.
- Mascaro, J. 1996. External allomorphy as emergence of the unmarked. In: J. Durand & B. Laks (eds.) *Current Trends in Phonology: Models and Methods*: 473-483. Salford: European Studies Research Institute.
- McCarthy, J. 2002. *A Thematic Guide to Optimality Theory*. Cambridge: Cambridge University Press.
- Rubach, J. & G. Booij 2001. Allomorphy in Optimality Theory. *Language* 77.1: 26-60.