Paradigmatic conservatism: a case of defectiveness

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What is (not) morphological defectiveness

- expected form missing: a cell in the **inflectional** (or extended) paradigm is empty
- the reason is **not** the **semantic** incompatibility of the relevant morphs

  (e.g., *plurale tantum* or *possessivum tantum*)
- may be wholly or partly **phonologically motivated** (form in cell would violate phonotactics and/or morphophonological constraints)
- **no** general phonological or morphological **repair** is applicable
- in Hu approximately 70 (sometimes monomorphemic) verb stems are involved

Plan

1. Morphophonological phenomena affecting CV-structure in Hungarian
    - vowel–zero alternation within the stem
    - vowel–zero alternation between stem and suffix
2. The paradigmatic structure of verbs
    - lexical suffix types and lexical stem classes
    - predictability of CV-patterns
3. Explanation of defectiveness in Hungarian
    - paradigmatic view of gaps
    - lexical conservatism
    - (inter)paradigmatic conservatism, minimality of repair

Two problems in Hungarian morphophonology

Notorious problems about alternations that affect CV structure in Hungarian

1. Conditions on systematic ***stem alternations***
   vowel–zero alternation within the stem:
   - two types of “epenthetic” verb stems
2. Conditions on the occurrence of ***linking vowels***
   vowel–zero alternation between the stem and the suffix:
   - type 1: linking vowel after stem-final C
   - type 2: linking vowel after stem-final CC

“Epenthetic” stems: vowel~zero alternation (nouns)

- Phonologically conditioned

_#	_+C	_+V
*sar**o**k* ‘corner’	*sar**o**k-nak* ‘-DAT’	*sa**r**k-a* ‘-POSS.3SG’
	*sar**o**k-ba* ‘-ILL’	*sa**r**k-unk* ‘-POSS.2PL’
	*sar**o**k-tól* ‘-ABL’	*sa**r**k-on* ‘-SUE’
	*sar**o**k-nyi* ‘-QUANT’	*sa**r**k-i* ‘-ADJZ’
	…	…

- Lexically conditioned by the suffix: *sar**o**k-é* ‘-POSD’, *sar**o**k-ig* ‘-TERM’, *sar**o**k-ért* ‘-CAUS’
- Lexically conditioned by the stem:

	_#	_+C	_+V
stable CC-final:	*sa**r**k* ‘pole’	*sa**r**k-nak*	*sa**r**k-on*
stable VC-final:	*cir**o**k* ‘sorghum’	*cir**o**k-nak*	*cir**o**k-on*
‘epenthetic’ (VC~CC):	*sar**o**k* ‘corner’	*sar**o**k-nak*	*sa**r**k-on*

“Epenthetic” stems (verbs)

- Phonologically conditioned

pörög ‘twirl’	*pör**ö**g-ve* ‘-ADV.PCTP’	*pö**rg**-ök* ‘-NDF.1SG’
	*pör**ö**g-het* ‘-POT’	*pö**rg**-ünk* ‘-NDF.1PL’
	*pör**ö**g-j* ‘-SBJV.NDF.2SG’	*pö**rg**-et* ‘-CAUS’
forog ‘turn’	*for**o**g-ja* ‘-DEF.3SG’	*pö**rg**-i* ‘-DEF.3SG’
	...	...

- Lexically conditioned by the stem **and** the suffix

fürdik ‘bathe’	*für**ö**d-het* ‘-POT’	≠	*für**ö**d-nek ~ fü**rd**-enek*	‘-NDF.3SG’
	*für**ö**d-j* ‘-SBJV.NDF.2SG’	≠	*für**ö**d-sz ~ fü**rd**-esz*	‘-NDF.2SG’
	...		...	
pörög ‘twirl’	*pör**ö**g-het* ‘-POT’	≈	*pör**ö**g-nek* ‘-NDF.3SG’	
	*pör**ö**g-j* ‘-SBJV.NDF.2SG’	≈	*pör**ö**g-sz* ‘-NDF.2SG’	
	...		...	

Main lexical suffix types

1. **ANALYTIC (A):** *fürö**d**-het-* | *-ve* | *-jük* | *-j-* | *-d* | …
   - typically do not trigger stem alternations (select VC-final stem allomorph)
   - always consonant-initial (for verbs)
2. **SYNTHETIC (S):** *fü**rd**-ő* | *-és* | *-et* | *-öm* | *-ünk* | *-ik* | *-i* | …
   - typically trigger stem alternations (select CC-final stem allomorph)
   - always vowel-initial (stable vowel or **linking vowel** that occurs **after stem-final C**)
3. **QUASI-ANALYTIC (Q):** *fürö**d**-nek* | *-sz* | *-ni* | *-tök* | … ~ *fü**rd**-enek* | *-esz* | *-eni* | *-ötök* | …
   - do not trigger OR **optionally trigger** stem alternations, depending on the stem
   - **linking vowel** typically occurs **after stem-final CC**

Main lexical stem classes

1. **STABLE VC-FINAL**
   - no vowel-zero alternation (*áp**o**l-ó* | *-ás* | *-ok* | *-unk* | ...)
2. **STABLE CC-FINAL**
   - no vowel-zero alternation (*ho**rd**-hat* | *-va* | *-juk* | *-j-* | *-d* | ...)
3. "**EPENTHETIC**": alternation: VC-final in A-forms, CC-final in S-forms
   a. **NON-*IK*** VERBS: NDF.3SG exponent is zero (e.g. *pörög, mozog, sodor, kotor, érez*)
      - **only VC** stem-alternant in Q-forms (*pör**ö**g-ni, *pö**rg**-eni* | ...)
   b. ***-IK*** VERBS: NDF.3SG exponent is *-ik* (e.g. *fürd-ik, ugr-ik, roml-ik, oszl-ik, dögl-ik*)
      - **both VC and CC** stem-alternants in Q-forms (*fü**rd**-eni ~ für**ö**d-ni* | ...)

Intra-speaker vacillation documented at the entrance of an abandoned quarry pond:
fürdeni ~ fürödni tilos ‘no swimming, lit. bathe-INF forbidden’

The paradigmatic system of verbs (simplified)

	Base form PRS.INDV. NDF.3SG	**Synthetic** (e.g. PRS.INDV. DEF.2SG)	**Quasi-analytic** (e.g. PRS.INDV. NDF.2SG)	**Analytic** (e.g. SBJV. DEF.2SG)
Stable VC (*-ik* or non-*ik*)	*ápol*	áp**o**l-**o**d	áp**o**l-sz	áp**o**l-d
Epenthetic non-*ik*	*kotor*	ko**t**r-**o**d	kot**o**r-sz	kot**o**r-d
Epenthetic *-ik*	*ugr-ik*	u**g**r-**o**d	u**g**r-**a**sz ~ ug**o**r-sz	ug**o**r-d
Stable CC (*-ik* or non-*ik*)	*ring*	ri**ng**-**o**d	ri**ng**-**a**sz	ri**ng**-d

Questions

1. What explains the different behaviour of non-*ik* and *-ik* verbs?
    - why only for epenthetic stems?
    - why only for quasi-analytic forms?
2. What explains the systematic vacillation?
    - why only in the cells containing epenthetic *-ik* verbs + Q suffixes?

Phonological explanation is not sufficient:

- vacillation with *-ik* verbs + Q-suffixes: /ug(o)r/ + /(a)sz/ → *ugor-sz, ugr-asz*
- **no vacillation with non-*ik* verbs!** /kot(o)r/ + /(a)sz/ → *kotor-sz, ***kotr-asz***

Determining factors of Q-forms

	Base		Quasi-analytic		Analytic
Stable VC	**1**	⇒	1	⇐	**1**
Epenthetic non-*ik*	**1**	⇒	1	⇐	**1**
Epenthetic -*ik*	**0**	⇒	0 / 1	⇐	**1**
Stable CC	**0**	⇒	0	⇐	**0**

Legend: **1**=VC stem-alternant, **0**=CC stem-alternant

Generalization: a Q-form must have analogical support

- **the stem alternant of a Q-form is supported iff it occurs in Base-form OR in A-form**
- if the Base- and A-forms differ (epenthetic *-ik* stems), the result is **systematic vacillation**

Supporting evidence: C**s**~V**d** stems with person/number suffixes

	stem-final C	Base form	**Synthetic**	**Quasi-analytic**	**Analytic**
Stable VC	only **s**	*isz-ik*	isz-**o**m	isz-nak	isz-sza
	only **d**	*bizako**d**-ik*	bizak**o**d-**o**m	bizak**o**d-nak	bizak**o**d-ja
	d~s	*alku**d**-ik* *alku**sz**-ik*	alk**u**d-**o**m alk**u**sz-**o**m	alk**u**d-nak alk**u**sz-nak	alk**u**d-ja alk**u**sz-sza
Epenthetic -*ik*	**d~s**	*mosako**d**-ik* *mosak**sz**-ik* [ks]	mosak**o**d-**o**m mosak**sz**-**o**m	mosak**o**d-nak mosak**sz**-**a**nak	mosak**o**d-ja
	d~s	*nyug**sz**-ik* [ks]	nyug**sz**-**o**m	nyug**o**d-nak nyug**sz**-**a**nak	nyug**o**d-ja
	(d~)**s**	*al**sz**-ik*	al**sz**-**o**m	al**u**sz-nak al**sz**-**a**nak	al**u**sz-sza
Stable CC	only **d**	*mos**d**-ik*	mo**sd**-**o**m	mo**sd**-**a**nak	mo**sd**-ja
Defective CC	only **s**	*ismer**sz**-ik*	ismer**sz**-**e**m	ismer**sz**-**e**nek	–

Analogical inference including s~d stems + person/number suffixes

	Base		Quasi-analytic		Analytic
Stable VC (*-ik* or non-*ik*)	**1**	⇒	1	⇐	**1**
Epenthetic non-*ik*	**1**	⇒	1	⇐	**1**
Epenthetic *-ik;* Cs~Vd	**0** / **1**	⇒	0 / 1	⇐	**1**
Epenthetic *-ik*	**0**	⇒	0 / 1	⇐	**1**
Stable CC (*-ik* or non-*ik*)	**0**	⇒	0	⇐	**0**

Legend: **1**=VC stem-alternant, **0**=CC stem-alternant

Defectiveness

- Defective verbs:
  - ≈70 verb stems, all end in C+l or C+z clusters
  - their analytic and unsuffixed forms are missing, e.g., **sikl-hat, *habz-va, *rejl-j-en, *kétl*
  - speakers' grammaticality judgements vary (Lukács et al. 2010, Csényi 2022)
  - no general phonological repair, e.g. **reje**l**-het, *rejl-**e**het, *sikl-hat*
- Stem classes are lexical: identical consonants, but different stem class membership

stable VC	*ó**n**o**z***	*bá**j**o**l***	*szá**m**o**l***	*ra**g**o**z***	*ha**t**o**l***
epenthetic	*kí**n**o**z***	*ha**j**o**l**, ha**j**l-ik*	*ro**ml**-ik*	*vé**g**e**z**, virá**gz**-ik*	*bo**tl**-ik, pó**t**o**l***
defective CC	*burjá**nz**-ik*	*re**jl**-ik*	*há**ml**-ik*	*ba**gz**-ik*	*hanya**tl**-ik*
stable CC	*vo**nz***	(only nouns: *fá**jl***)	*ml(-ik)	*gz(-ik)	*tl(-ik)

Present Indicative conjugation of defective verbs

		back harmonic stem				front harmonic stem			
		NON-DEFINITE		**DEFINITE**		**NON-DEFINITE**		**DEFINITE**	
		SG	**PL**	**SG**	**PL**	**SG**	**PL**	**SG**	**PL**
***-ik* stem**	**1**	csukl-om/ok	csukl-unk	csukl-om	*csukl-**juk**	vedl-em/ek	vedl-ünk	vedl-em	*vedl-**jük**
	2	csukl-asz	csukl-otok	csukl-od	*csukl-**játok**	vedl-esz	vedl-etek	vedl-ed	vedl-itek
	3	csukl-ik	csukl-anak	*csukl-**ja**	*csukl-**ják**	vedl-ik	vedl-enek	vedl-i	vedl-ik
non *-ik* stem	**1**					kétl-ek	kétl-ünk	kétl-em	*kétl-**jük**
	2					kétl-esz	kétl-etek	kétl-ed	kétl-itek
	3	!		!		***kétl**	kétl-enek	kétl-i	kétl-ik

Gaps in the conjugation of defective verbs

		present indicative (-∅-)		past indicative (*-ott~ett~ött-*)		present conditional (*-ana~ene-*)		subjunctive (*-j-*)		infinitive (*-an~en-*)
		NDF	**DEF**	**NDF**	**DEF**	**NDF**	**DEF**	**NDF**	**DEF**	**–**
SG	**1**	(no gap)	(no gap)	(no gap)		(no gap)		*all		(no gap)
	2									
	3	*non-*ik*	*back							
PL	**1**	(no gap)	*all							
	2		*back							
	3		*back							

Motivation of defectiveness

- Defectiveness is mainly (but not exclusively) **phonotactically motivated**:
  - general ban on ClC and CzC clusters (**sikl-hat, *habz-va, *fehérl-get, *patakz-tat*)
  - some clusters also occur in stable verb stems (*vo**nz***) or in nominal stems (*fá**jl**, fa**x**, gö**rl***)
  - *j*-initial suffixes: obligatory assimilation (& degemination) could have taken place as repair:

    /burjánz/+/ja/ → burjánzza → *burjá**nz**a, cf. /vonz/+/ja/ → vonzza → vo**nz**a

- Defectiveness is **paradigmatically motivated:** repair allomorph is unavailable
  - defective stem class is lexical
    - — no repair by epenthesis
    - — CCC avoided though elsewhere grammatical
  - analytic suffix type is lexical

The defective stem-class in the paradigmatic system

Stem classes	Base form	**Synthetic**	**Quasi-analytic**	**Analytic**
Stable VC	*sorol*	sorol-ok	sorol-tok	sorol-va
Epenthetic non-*ik*	*töröl*	törl-ök	töröl-tök	töröl-ve
Epenthetic *-ik*	*oml-ik*	oml-ok	oml-otok ~ omol-tok	omol-va
Defective CC	*háml-ik*	há**ml**-**o**k	há**ml**-**o**tok	*há**m**(o)**l**-va
Stable CC	*ajánl*	ajánl-ok	ajánl-otok	ajánl-va

Two patterns (-CC vs. -VC) that violate

- disjointness: patterns overlap in cell: ***vacillation*** (overabundance)
- exhaustivity: patterns do not cover cell: ***gap*** (ineffability)

Analogical support for defective stems

	Base	⇒	Q-analytic	⇐ Analytic
Stable VC	1		1	1
Epenthetic non-*ik*	1		1	1
Epenthetic -*ik*	0		0/1	1
Defective CC	**0**	⇒	**0**	⇍ –
Stable CC	0		0	0

Q-forms of defective stems can only get analogical support from Base-forms

Potential repairs of missing forms

Morphological repair (sporadic/unsystematic): ?*zajl-hat – zajl-**ód**-hat; *síny(e)l – ?%sínyl-**ik**, sínyl-**őd**-ik*

Phonological repair:

1. V-epenthesis after the stem (**háml-**o**va*): not available before A-suffixes
2. C-deletion in the stem (**hám<l>-va*): not available in the system
3. concatenation (sporadic, only for falling sonority clusters): ?%*rejl-het, ?%zajl-va, %burjánz-va*
4. V-epenthesis within the stem (sporadic) (?%*hám**o**l-va*)
    - peripherally occurs (?%*csuk**o**l-j-on*, ?%*sik**o**l-hat*)
    - **why does complete reclassification not take place?**

Lexical conservatism (Steriade 1999): inheritance without containment

LISTED		NONCE/UNKNOWN target		
rémedy	remédial	remédiable		motivation: NO LAPSE
óbfuscate	obfúscatory	obfúscable		
íllustrate	illústrative	illústrable		
párody	*paród-	*paródiable	párodiable	NO LAPSE violated
admínister	*adminístr-	*adminístrable	admínistrable	

listedness: “change in [±stress] status of syllables relative to the verbal base is acceptable only when there is lexical precedent for the shifted stress pattern in the same lexical paradigm: a listed allomorph with same [±stress] distribution”

interspeaker **variation in listedness**
“Some speakers who have encountered of *paródic* […] accept *paródiable*”

Lexical conservatism and paradigm gaps in Russian (Pertsova 2005, 2016)

- lexical conservatism motivates non-phonotactic paradigm gaps

NOM.SG	NOM.PL	DAT.PL	GEN.PL	
ruk-á	rúk-i	ruk-ám	ruk-∅	‘hand’
dél-o	del-á	del-ám	del-∅	‘task’
fat-á	fat-í	fat-ám	*?	‘veil’
mecht-á	mecht-í	mecht-ám	*?	‘dream’

- Idea: missing GEN.PL forms are in paradigms where (i) GEN.PL has zero exponent and (ii) no other form has stress on stem vowel (stressed stem allomorph is unavailable)
- Analysis: OT with CONTROL component (Orgun & Sprouse 1999) where Lexical conservatism constraint is in CONTROL, which is ad hoc component incompatible with the spirit of OT
- Question: **why is repair unavailable?**

Lexical conservatism and inter-paradigm conservatism in Hungarian

- a similar lexical conservatism explanation works in Hungarian, too:

  Missing A-forms are in paradigms where (i) simple concatenation would result in illicit CCC clusters (phonotactic ill-formedness) and (ii) all forms have CC-final stem (VC-final stem allomorph is unavailable), cf. Rebrus & Törkenczy 1999

- a related further question: if gapped paradigms are “defective” why are they stable (and not repaired by filling the gaps with a CV type of form that exists in other paradigms)?

  an extension of lexical (= intra-paradigm) conservatism: no phonotactically viable minimal/local repair is possible that obeys **inter-paradigm conservatism,** i.e. does not produce an unattested CV paradigm type

If it ain't broke, don't fix it: minimality of repair

Repairs are minimal:

- Optimality Theory: *"Do Something Only When"*

  "Banned options are available only to avoid violations of higher-ranked constraints and can only be used *minimally*" (Prince & Smolensky 2004)

- Loan Phonology: Minimality Principle

  "Repair must involve as few strategies (steps) as possible" (Paradis & LaCharité 1997)

- Paradigm repair: only supply missing/unknown forms, i.e. locally: only in gapped cells.

Lexical information defining the stem-classes

Stem classes as (generalized) vectors

by the stem-alternants before the different suffix types (**S**ynthetic, **Q**uasi-analytic, **A**nalytic)

	⟨S	**Q**	**A⟩**
Stable VC:	⟨1	1	1⟩
Stable CC:	⟨0	0	0⟩
Epenthetic non-*ik*:	⟨0	1	1⟩
Epenthetic *-ik*:	⟨0	01	1⟩
Epenthetic *-ik,* s~d:	⟨01	01	1⟩
Defective CC:	**⟨0**	**0**	**–⟩**

What would happen if the gap were repaired?

Why gaps cannot be repaired

	⟨S Q A⟩		
gapped stem-class:	⟨0 0 –⟩	*há**ml**-ok há**ml**-anak *há**ml**-va*	*(Base=S)*
potential repairs:	↓	**potential repair forms:**	**remarks**
a. conservative & local phonol. **ill-formed**	⟨0 0 **0**⟩	*há**ml**-va* (A)	phonotactically illicit **mlv* = CC stem-class
b. **non-conservative** (but local)	⟨0 0 **1**⟩	*hám**o**l-va* (A)	no such stem-class (analogy: Q should be 01)
c. **non-local** (but conservative)	⟨0 **01** **1**⟩	*hám**o**l-nak* (Q) *hám**o**l-va* (A)	“repairs” Q-forms, too = epenthetic *-ik* stem-class
d. doubly **non-local** (but conservative)	⟨**01** **01** **1**⟩	*hám**o**l-ok* (S) *hám**o**l-nak* (Q) *hám**o**l-va* (A)	“repairs” S and Q-forms, too = epenthetic *-ik* s~d class
e. **non-local**, **destructive** (but conservative)	⟨0 **1** **1**⟩	~~*háml anak*~~ *hám**o**l-nak* (Q) *hám**o**l-va* (A)	“repairs”/changes Q-forms, = epenthetic non *-ik* stem-class (analogy: Q should be 01)

Conclusion

- Hungarian stem classes are lexically defined by their stem allomorphs before different types of suffixes
- Defective verbs typically lack their analytic (C-initial) suffixed or unsuffixed forms
- The paradigm gap is unrepairable systematically because the three requirements cannot be satisfied together:
  - **phonotactics**: CCC clusters in verbs are severely restricted (even if they are polymorphemic)
  - **interparadigm conservatism**: reclassify only into existing stem class!
  - **locality/minimality**: only repair gaps!

⇒ ***Overabundance*** and ***ineffability*** are related:
the overabundant stem class “prevents” the repair that is both conservative **and** local.

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Appendix 1: C**s**~V**d** stems with **non**-person/number (*s*-stem is banned)

	stem-final C	Base form	**Synthetic**	**Quasi-analytic**	**Analytic**
Stable VC	**s**~v~C	*i**sz**-ik*	i**v**-ó	in-ni	igy-on
	only **d**	*bizako**d**-ik*	bizako**o**d-ó	bizako**o**d-ni	bizako**o**d-jon
	d~v(~s)	*alku**d**-ik* *alku**sz**-ik*	alku**u**d-ó alku**u**v-ó	alku**u**d-ni	alku**u**d-jon
Epenthetic *-ik*	**d**~v(~s)	*mosako**d**-ik* *mosak**sz**-ik*	mosako**o**d-ó %mosak**kv**-ó	mosako**o**d-ni	mosako**o**d-jon
	d~v(~s)	*nyug**sz**-ik*	nyugo**o**d-ó nyug**gv**-ó	nyugo**o**d-ni	nyugo**o**d-jon
	d~v(~s)	*al**sz**-ik*	al**lv**-ó	alu**u**d-ni	alu**u**d-jon
Stable CC	only **d**	*mos**d**-ik*	mo**sd**-ó	mo**sd**-**a**ni	mo**sd**-jon
Defective CC	only **s**	*ismer**sz**-ik*	*ismersz-ő	*ismersz-eni	*ismersz-szen

Appendix 2: suffix types in the conjugation system

		present indicative		past indicative		present conditional		subjunctive		infinitive
		NDF	DEF	NDF	DEF	NDF	DEF	NDF	DEF	–
SG	1	S	S	Q	Q	Q	Q	**A**	**A**	Q
	2	Q/S	S	Q	Q	Q	Q	**A**	**A**	Q
	3	**–**/S	**A**/S	unique	Q	Q	Q	**A**	**A**	Q
PL	1	S	**A**	Q	Q	Q	Q	**A**	**A**	Q
	2	Q	**A**/S	Q	Q	Q	Q	**A**	**A**	Q
	3	Q	**A**/S	Q	Q	Q	Q	**A**	**A**	Q

Appendix 3: the paradigmatic system (a more detailed version)

	Base PRS.INDV. NDF.3SG	**Synthetic**	**Past** PST.INDV. NDF.3SG	**Quasi-analytic**		**Analytic**
				indicative	**other**	
Stable VC	*ápo**l*** *robo**g***	ápo**l**-**o**d robo**g**-**o**d	ápo**l**-t robo**g**-**o**tt	ápo**l**-nak robo**g**-nak	ápo**l**-na robo**g**-na	ápo**l**-d robo**g**-d
Epenthetic non-*ik*	*koto**r*** *mozo**g***	ko**t**r-**o**d mo**z**g-**o**d	koto**r**-t mo**z**g-**o**tt	koto**r**-nak mozo**g**-nak	koto**r**-na mozo**g**-na	koto**r**-d mozo**g**-d
Epenthetic -*ik*	*hiányz-ik* [ɲz]	hiá**ny**z-**o**d	hiá**ny**z-**o**tt	hiányo**z**-nak ~ hiá**ny**z-**a**nak	hiányo**z**-na	hiányo**z**-d
	*ug**r**-ik* *fü**r**d-ik*	u**g**r-**o**d fü**r**d-**ö**d	u**g**r-**o**tt fü**r**d-**ö**tt	u**g**r-**a**na(k) ~ ugo**r**-na(k) fü**r**d-**e**ne(k) ~ fürö**d**-ne(k)		ugo**r**-d fürö**d**-d
Stable CC	*ajá**nl*** *ri**ng***	ajá**nl**-**o**d ri**ng**-**o**d	ajá**nl**-**o**tt ri**ng**-**o**tt	ajá**nl**-**a**nak ri**ng**-**a**nak	ajá**nl**-**a**na ri**ng**-**a**na	ajá**nl**-d ri**ng**-d