Ineffability and UR Constraints in Optimality Theory

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ABSTRACT

Phonologically-Conditioned Ineffability (PCI) occurs when marked phonological structure renders a word completely ungrammatical. In this paper, I propose extending an existing mechanism, UR constraints, to account for PCI in OT. UR constraints are violable constraints which determine the Underlying Representation (UR) for an input. These constraints can be ranked with respect to markedness constraints to capture the phonological conditioning of PCI, along with lexical exceptions.

1. INTRODUCTION[1]

At first glance, Phonologically-Conditioned Ineffability (PCI) poses a challenge to the architecture of Optimality Theory (OT: Prince & Smolensky 1993/2004). OT is a theory of output selection, but in cases of PCI, it seems there's no optimal output at all. A root–affix pair is *ineffable* when speakers report that affixation is completely impossible, and they must use a periphrastic phrase to approximate the missing word. The phonological conditioning of PCI comes from the fact that the ineffable structures are often marked, either outright violating the phonotactics of the language or exhibiting properties that are generally disfavored.

A number of OT accounts of PCI have been proposed, but many of these accounts fall short with respect to lexical exceptionality (see Rice & Blaho 2010 for an overview of OT accounts). Ineffability is often morpheme-specific. While a marked structure will result in ineffability for one root–affix pair, it will be tolerated for another. Given that lexical exceptionality in PCI is relatively common and potentially problematic, our grammatical model should account for it.

In this paper, I propose a new account of PCI in OT, which can account for both ineffability's lexical exceptionality and its phonological conditioning. The main feature of this account is the use of *UR constraints*, which encode the selection of phonological forms – Underlying Representations (URs) – as violable constraints. UR constraints have been used in other work to account for allomorphy, lexical variation, and learning of URs (e.g., Boersma 2001, overview in Pater et al 2012). Before laying out the theory, I'll outline the basic data that are relevant throughout.

This paper focuses on a well-known case of PCI in Tagalog; a word cannot be created through *-um-* infixation if the result would contain an initial *mum* or *wum* sequence (Schachter & Otanes 1972, Orgun & Sprouse 1999, Klein 2005, Zuraw & Lu 2009).[2] Following Orgun & Sprouse (1999) and Klein (2005), I treat this as the result of a constraint against sequences of labial sonorants, Labial-Sonorant OCP (OCP), which militates against *mum* and *wum*.

1. OCP blocks *–um–* infixation (loan words from Orgun & Sprouse 1999:206)

a.	pejnt	p-um-ejnt	*paint*
b.	keri	k-um-eri	*carry*
c.	wejl	*w-um-ejl	*wail*
d.	meri	*m-um-eri	*marry*

As shown by the loan word judgments in Orgun & Sprouse (1999), PCI in Tagalog is productive. When faced with impossible infixation, such as combining *-um-* and *meri,* a speaker must use a morphosyntactically unrelated paraphrase, such as another prefix like *mag-* or phrase like *maging meri.*

As noted above, PCI is often limited to certain morphemes and rife with exceptions, characteristics that are shared across many languages (Hetzron 1975, Orgun & Sprouse 1999, Fanselow & Féry 2002). Both traits are outlined below for Tagalog.

Limited to certain morphemes. In Tagalog, only violations of OCP from *-um-* infixation result in ineffability. OCP is freely violated in prefixes (2a–b), reduplicants (2c), and roots (3).

2. OCP doesn't block *ma-*prefixation or reduplication (Orgun & Sprouse 1999: 205)

a.	mulat	ma-mulat	*have one's eyes opened*
b.	wala?	ma-wala?	*be lost*
c.	mumug	mu-mumug-in	*will gargle*

3. OCP violations are permitted in roots (Orgun & Sprouse 1999: 205)

a.	mumo?		*ghost*
b.	mumo		*particles of cooked rice*
c.	mumug-in		*gargle*

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[2] Other conditions on *-um-* infixation, such as the location of the infix, won't be discussed here.

Lexical exceptions. Even within *-um-* infixation, there are exceptions to OCP-driven ineffability. Below is a licit *-um-* word, from Zuraw & Lu (2009), that violates OCP, contrary to the generalization above.

4. Lexical exception with *-um-* (Zuraw & Lu 2009)

    wagajwaj   w-um-agajwaj   *wave*

These two properties seem cross-linguistically common, and the appendix contains more examples from Turkish, Tuvan, and Norwegian.

Overview of account. To account for PCI and its exceptions, I propose a theory in which phonological constraints can interact with UR selection to cause ineffability. The basic proposal is in (5).

5. Ineffability occurs when the phonological grammar blocks UR selection.

This analysis is cast in a framework in which UR selection occurs during EVAL, at the same time as the evaluation of markedness constraints. The idea that UR selection occurs during EVAL has been pursued extensively in the literature on Phonologically-Conditioned Suppletive Allomorphy (e.g Mester 1994, Russell 1995, Kager 1996, Tranel 1996). In these analyses of allomorphy, the choice between two distinct URs is decided by output constraints like OCP.

Just as constraints can choose between two distinct URs in allomorphy, they can choose that *no UR* is the best option. When a UR-lacking candidate is optimal, the grammar fails, and ineffability results.

The main competitor to the account sketched here is the MPARSE model of Prince & Smolensky (1993/2004). The UR constraint analysis has a few advantages over MPARSE, which are listed below.

6. It provides a means to account for exceptions to ineffability, while avoiding the ranking paradoxes of morpheme-specific MPARSE.

7. In the analysis here, exceptionality to ineffability is modeled as the result of exceptionally ranked lexical constraints — not morpheme-specific markedness or faithfulness constraints. That is, exceptionality is confined to lexical items.

8. It provides a solution to an architectural problem. Prince & Smolensky (1993/2004) stipulate that ineffable candidates must not violate faithfulness constraints. Under the UR constraint analysis, this follows without stipulation.

Perhaps the best argument for this account is that UR constraints are well-motivated outside of PCI. The information encoded in UR constraints (which meanings map to which URs) must be represented somewhere. In other accounts in which UR selection occurs during EVAL, this information is encoded in an external list of vocabulary items, which is consulted during evaluation to generate candidates (in e.g. Wolf 2008). In the analysis here, the list of vocabulary items is part of the constraint set, and ranking these constraints can account for defaults in allomorphy, lexical exceptionality, and lexical variation, in addition to providing a way to learn URs (see Pater et al 2012 for an overview).

2. THEORETICAL BACKGROUND

This section lays out the details of the account, which will be used to account for the Tagalog data.

Input. The input to phonological evaluation is not underlying forms (URs), but a sequence of morpho-syntactic feature bundles. Since URs aren't inputted into the phonological evaluation, the grammar is free to select URs. UR selection and and output selection happen at the same time, taking into account both phonological constraints, like markedness and faithfulness, and UR constraints.

The idea that the input to phonology contains no phonological material whatsoever has been proposed by Zuraw (2000), Boersma (2001), and Wolf (2008). For Zuraw (2000) and Boersma (2001), the input to phonology is intent or meaning. For Wolf (2008), the input to phonology is unlinearized feature bundles. I'll follow the latter, since its formalization is straightforward, although either approach works for the data here.

Notation. Feature bundles (FBs), which make up the input, will be represented by English glosses in small caps ($\sqrt{\text{CARRY}}$, $\sqrt{\text{GHOST}}$), except for the FBs of *-um-*, *ma-*, and *-in*, which are simply represented by UM, MA, and IN. [3] Each FB is separated by a plus sign, e.g. $\sqrt{\text{GARGLE}}$+IN.

UR constraints. UR constraints provide a straightforward way to model phonology's interaction with the lexicon. Each UR constraint requires a FB to be realized by a particular UR. In other words, UR constraints tell the grammar which phonological representations correspond to which morphological features. With UR constraints, there's no need for an external list of vocabulary items that relates morphological structure to phonological form.

The formalization here follows that in Pater et al (2012), although in that analysis, UR constraints refer to meanings rather than FBs.

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[3] *-um-* is a topic/focus marker. *ma-* is the abilitative prefix. *-in* is a patient focus marker. Their syntactic/semantic properties aren't relevant here.

Some example UR constraints are listed below.

9. UM → /um/   Assign a violation if UM is not realized by the /um/.

10. √CARRY → /keri/   Assign a violation if √CARRY is not realized by /keri/.

11. √GHOST → /mumoʔ/   Assign a violation if √GHOST is not realized by /mumoʔ/.

Given that UR constraints are not universal, where do they come from? While not crucial to the analysis here, this is generally an important question with respect to UR constraints. One possibility, explored in Pater et al. (2012), is that a learner posits a UR constraint for every input–output mapping she encounters. For example, √POOR can be realized with or without tapping, so a learner will posit constraints for both URs.

12. √POOR → /ɾalita/   Assign a violation if √POOR is not realized by /ɾalita/.

13. √POOR → /dalita/   Assign a violation if √POOR is not realized by /dalita/.

Candidates. For an input FB, the candidate set consists of all of the possible URs for that FB. Each of these URs is in a correspondence relationship with the input FB, and each of these URs is paired with possible surface representations (SRs), producing a candidate set of (UR, SR) pairs.

14. A partial candidate set for √POOR

	UR	SR
a.	/ɾalita/	[ɾalita]
b.	/dalita/	[dalita]
c.	/dalita/	[ɾalita]
d.	/dalita/	[alita]
	etc.	

Ineffability with UR constraints. The candidate set also contains candidates in which FBs aren't realized at all. A central aspect of the theory here is that any candidate that has an unrealized FB is ineffable. Ineffable candidates can still win against effable candidates, but when one does, the output is grammatically ill-formed and requires periphrasis. I'll formalize this as a post-EVAL filter that rules out candidates containing any unrealized FBs. First an optimum is selected from the candidate set, and then if this optimum lacks a UR, it is cut out and the grammar must try again with a different input.

The table below shows a candidate set for the input UM+√MARRY. The underscores represent input FBs without corresponding URs. This means that any candidate containing an underscore is ineffable.

15. A partial candidate set for UM+√MARRY

	UR	SR	Ineffable?
a.	/um/+/meri/	[mumeri]	
b.	/um/+___	[um]	*yes, requires periphrasis*
c.	___+/meri/	[meri]	*yes, requires periphrasis*
d.	___+___	Ø	*yes, requires periphrasis*

Although the post-EVAL filter proposed here may appear similar to Orgun & Sprouse's CONTROL (1999), a theory of PCI using output filters, the approach here is radically different. The output filters used in Orgun & Sprouse (1999) are morphologically arbitrary and language-specific, e.g. a Tagalog-specific constraint against labial OCP in *-um-* environments. The filter used here is universal and exceptionless. Any candidate with an unrealized FB, regardless of the language, will be ineffable if selected as optimal.

Partial structure. Despite being ineffable, many of these candidates have non-null SRs. The idea of ineffable candidates with partial morpophonological structure has previously been proposed by Walker & Feng (2004), Raffelsiefen (1996), and van Oostendorp (2009). In their analyses, ineffability results when a candidate with partial morphological structure is optimal, although the way partial morphological structure is achieved differs between accounts. In this analysis, the fact that ineffable candidates have partial structure avoids the ranking paradoxes of MPARSE, as shown later in the analysis.

3. ANALYSIS OF TAGALOG

Given the theoretical framework just outlined, I'll show how it accounts for the Tagalog data from the introduction. The goal of the analysis is to account for the following facts.

1. In Tagalog, *-um-* infixation is blocked when it would result in an OCP violation.
2. OCP violations are tolerated outside of *-um-* infixation.

The basic pattern. In general, when a UR constraint is ranked below a markedness constraint (or faithfulness constraint), a UR will not be selected if it occurs violations of the markedness constraint. When no UR is selected, ineffability results.

In the analysis of Tagalog, the constraint OCP is ranked above the UR constraint for *-um-*.

16. OCP: Assign a violation for every two consecutive onsets, so long as both onsets are labial and sonorant.

The optimal candidate does not realize UM, since forgoing selection of /um/ avoids violation of the OCP. This means that *-um-* infixation is blocked when it would violate OCP, consistent with the Tagalog data.

17. UM+√MARRY → *ineffable*
       Input: UM+√MARRY

	UR	SR		√MARRY ↳/meri/	√CARRY ↳/keri/	OCP	UM ↳/um/
a.	/um+meri/	[mumeri]				1_W	L
b.	/um/+_____	[um]		1_W			L
c.	_____+/meri/	[meri]	☞				1
d.	_____+_____	Ø		1_W			1

Recall that any candidate with an underscore results in ineffability. This means that candidates (17b) and (17d) are also ineffable. The reason why the optimal candidate is (17c), and not (17b) or (17d), is that the source of ineffability in Tagalog is an OCP violation from *-um-*, and not an OCP violation from other prefixes or reduplicants. By saying that PCI results from failure to realize the UR /um/, we capture the connection between *-um-* and ineffability.

When no OCP violation is at stake, the output realizes UM without incident. In the tableau below, there's no high-ranked constraint to motivate non-selection of a UR.

18. UM+√CARRY → [kumeri]
       Input: UM+√CARRY

	UR	SR		√MARRY ↳/meri/	√CARRY ↳/keri/	OCP	UM ↳/um/
a.	/um+keri/	[kumeri]	☞				
b.	/um/+_____	[um]			1_W		
c.	_____+/keri/	[keri]					1_W
d.	_____+_____	Ø			1_W		1_W

Analysis of exceptions. Recall that OCP violations result in ineffability for the infix *-um-*, but not for prefixes like *ma-*. In the account here, exceptionality results from high-ranked UR constraints, which force UR selection even when the UR introduces an OCP violation. When a UR constraint is ranked above a markedness constraint, that UR will resist ineffability despite its markedness violations. This is shown below with a high-ranked UR constraint for *ma-*.

19. MA+√OPEN → [mamulat]

Input: MA+√OPEN

	UR	SR	MA ↳/ma/	√OPEN ↳/mulat/	OCP	UM ↳/um/
a.	/ma+mulat/	[ma+mulat] ☞			L	
b.	/ma/+_____	[ma]		1$_W$		
c.	_____+/mulat/	[mulat]	1$_W$		L	
d.	_____+_____	Ø	1$_W$	1$_W$	L	

There are some words in Tagalog that are licit despite containing both *-um-* and an OCP violation, such as *w-um-agajwaj*. If *-um-* ineffability results from OCP-driven failure to insert *-um-*, then *wumagajwaj* should be ineffable.

One solution is that these lexical exceptions are stored as whole words, and don't contain the UR /um/. To capture this, UR constraints must be added that require two FBs to be realized by a single UR, e.g. UM+√WAVE → /wumagajwaj/. This analysis makes an interesting prediction: lexical exceptions to PCI like *w-um-agajwaj* should be high-frequency collocations – frequent enough to be stored as a single UR. This seems to be borne out, at least in that ineffability seems to be more likely for low-frequency words (Albright 2008, Lofstedt 2010).

4. ALTERNATIVE: M-SPECIFIC MPARSE

In this section, I show how the alternative account, M-specific MPARSE, is unable to account for the exceptions in Tagalog (see Wolf & McCarthy 2009 for a similar conclusion for Norwegian).

MPARSE. In an MPARSE analysis, PCI is the result of mapping an input to the null output /X/ → *null output*. The null output is a special candidate. It doesn't violate faithfulness or markedness constraints, and ineffability results when it's optimal. The UR constraint account presented above is similar in that it contains an ineffable candidate, but different in that there are many potential ineffable candidates. In an MPARSE analysis, there is only one ineffable candidate – the null output.

Wolf & McCarthy (2005:18) suggest morpheme-specific MPARSE as a way of accounting for exceptions to ineffability. Their analysis is extended here to account for exceptions to OCP in Tagalog, such as the one below. In the example below, OCP is violated, but the result is perfectly licit.

20. An exception to OCP with reduplication (Orgun & Sprouse 1999)

   mu-mumug-in (RED+√GARGLE+IN)   *will gargle*

To account for this exception, we need a constraint for reduplicant exceptionality in Tagalog. This constraint prevents the null output from winning when the input contains RED.

21. MPARSE(RED)   Assign a violation mark if the output is the null output, and the input contains RED.

For a RED morpheme to surface in an OCP environment, its MPARSE constraint, MPARSE(RED), must be ranked above OCP.

22. Exceptionality with MPARSE(RED)

	UR	SR		MPARSE (RED)	OCP
a.	/RED+mumugin/	[mumumugin]	☞		1
b.	/RED+mumugin/	*null output*		1w	L

The ranking required for (22) makes a pathological prediction. As a result of this ranking, any input containing the RED morpheme will surface in an OCP environment. In other words, OCP-driven ineffability is completely blocked whenever the input contains RED.

The counter-example in (23) shows that, in Tagalog, an input containing RED can result in ineffability, contrary to the prediction above. The reason (23a) is ineffable is that it contains *-um-* and an OCP violation, consistent with the generalization presented earlier. The example in (23b), on the other hand, contains an OCP violation, but this violation is not connected with *-um-*, so the word is able to surface without incident.

23. Reduplicated forms with *-um-* are unacceptable (Orgun & Sprouse 1999) [4]

    a.   *m-um-i-misti na (UM+RED+√MISTI)   *it's misty now*

    b.   mu-mumug-in (RED+√GARGLE+IN)   *will gargle*

The tableau below shows that the two forms in (23) require inconsistent rankings of M-specific MPARSE, creating a ranking paradox. The bombs indicate candidates that are incorrectly predicted to win by the ranking. Beyond the two examples in (23), the ranking of MPARSE(RED) over OCP predicts that any input with a RED *anywhere* must not be ineffable. This is shown in (24e), which contains an *um*-related OCP violation, but contains a RED somewhere later in the input.

24. Ranking paradox with MPARSE(RED)

			MPARSE (RED)	OCP
a.	/RED+mumugin/	[mumumugin] ☞		1
b.	/RED+mumugin/	*null output*	1_W	L
c.	/um+RED+misti na/	[mumimistina] 💣		1
d.	/um+RED+misti na/	*null output*	1_W	L
e.	/um+meri/ … /RED/	[mumeri… RED] 💣		1
f.	/um+meri/ … /RED/	*null output*	1_W	L

UR constraint analysis. In the UR constraint analysis, there is no ranking paradox between between (23a) and (23b). The paradox is avoided because RED is always realized, even in the ineffable (25e).

25. No ranking paradox with UR constraints.

	UR SR		√GARGLE ↪/mumug/	√MISTY ↪/misti/	RED.FUT ↪/RED/	OCP	UM ↪/um/
a.	/RED+mumugin/	[mumumugin] ☞				2	
b.	___+/mumugin/	[mumugin]			1_W	L	
c.	/RED/+___	Ø	1_W			L	
d.	/um+RED+misti na/	[mumimistina]				2_W	L
e.	/___+RED+misti na/	[mimistina] ☞				1	1
f.	/um+___+misti na/	[mumistina]			1_W	1	L
g.	/um+RED+___ na/	[mumistina]	1_W			1	L

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[4] Notes on the forms in (23): Infix -um- along with a CV reduplicant marks present tense. A CV reduplicant marks future. Suffix -in is required for certain verbs if they have objects. More examples: bili 'buy', bibili 'will buy', bumibili 'is buying'.

Faithfulness. Another argument for the UR constraint analysis over M-specific MPARSE is the formalization of faithfulness.

In the MPARSE model, the null output cannot violate input-output faithfulness constraints. If the null output counted as deletion, it would nearly always lose to non-null candidates with partial deletion (Wolf & McCarthy 2009). The requirement that the null output violates no faithfulness constraints is stipulative (for similar criticisms: Kager 1999, Orgun & Sprouse 1999, Rice 2005, Vaux 2008). Wolf & McCarthy (2009) address this stipulation by redefining correspondence theory.

The same requirement holds for the UR constraint analysis. Forgoing selection cannot count as deletion, or candidates with partial deletion will always win. However, under the UR constraint analysis, the requirement that an ineffable candidate violates no faithfulness constraints is satisfied without stipulation or redefinition of correspondence theory. I-O Faithfulness here evaluates correspondences between URs and SRs. Since ineffable candidates lack URs, they vacuously satisfy faithfulness constraints.

5. CONCLUSION

This paper has provided a new account of PCI in OT using UR constraints. The analysis captures both ineffability's rampant lexical exceptionality and its phonological conditioning. Phonological conditioning occurs when a UR constraint is ranked below a markedness constraint. If there are no other URs available, the best candidate will be one in which no UR is selected, and ineffability will result. Lexical exceptionality occurs when a UR constraint is ranked above a markedness constraint. In this case, the UR will be selected regardless of its marked structure.

This analysis provides an explanation for lexically-specific morphophonology without indexing either markedness or faithfulness constraints to individual lexical items. The only constraints that are morpheme-specific are UR constraints, whose morpheme-specificity is inherent.

APPENDIX OVERVIEW

The appendix contains three more cases of PCI that can be analyzed under the UR constraint account: Turkish, Tuvan, and Norwegian. Each case is subject to morphological exceptionality, and one (Turkish) also has a high-frequency lexical exception, similar to *wumagajwaj* in Tagalog. All of the cases can be captured under the following ranking schema.

26. UR CONSTRAINTS (EXCEPTIONS) ≫ MARKEDNESS ≫ UR CONSTRAINTS (UNDERGOERS)

Just as in Tagalog, the morphemes that are sensitive to PCI are ranked under the PCI-driving markedness constraints, and the morphemes that resist PCI are ranked above markedness. Since these cases are so similar to Tagalog, I present each one in condensed form. First, the basic pattern is reported, followed by its morphological exceptions. Then, I give the basic analysis and the markedness constraint that drives PCI, and finally a ranking that follows the schema in (26).

APPENDIX: TURKISH

27. No derived monosyllabic words (Ito & Hankamer 1989)

a.	/fa/	[fa]	the note 'fa'	
b.	/je/	[je]	eat!	CV ➜ CV
c.	/kon/	[kon]	alight! (to a bird)	CVC ➜ CVC
d.	/jen/	[jen]	conquer!	(1σ underived)
e.	/fa-m/	*ineffable* *[fam]	fa-1.sg.gen	CV-C ➜ ineffable
f.	/je-n/	*ineffable* *[jen]	eat-pass	(1σ derived)
g.	/fa-miz/	[famiz]	fa-1.pl.gen	CV-CV ➜ CVCV
h.	/je-n-r/	[jenir]	eat-passive-aorist	(2σ derived)

28. The aorist morpheme is exceptional (Ito & Hankamer 1989)

a.	/de-r/	[der]	eat-aorist	CV-C ➜ CVC
b.	/ye-r/	[yer]	say-aorist	(aorist)
c.	/de-n/	*ineffable* *[den]	say-pass	CV-C ➜ ineffable
d.	/ye-n/	*ineffable* *[yen]	eat-pass	(passive)

29. Raffelsiefen (2004) reports that some musicians do not have a gap for the form "my do",

a. This might be related to frequency (Albright 2003: fn 24)

b. Ineffability is less common for high-frequency words (Albright 2008, Lofstedt 2010)

c. Analyzing this exception requires a UR constraint like the one used for "wumagajwaj":
    "my do", due to its frequency, is stored as /dom/ instead of /do/+/m/

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30. Basic analysis   Ineffability results from blocking the selection of the suffix /m/ or /n/ to satisfy the constraint WD-MIN_{DERIVED}

31. WD-MIN_{DERIVED}   Assign a violation if the output contains a polymorphemic monosyllabic word. (Ito & Hankamer 1989, Downing 2006: 100-102)

32. Ranking: DO-1.SG → /dom/, AORIST → /r/ ≫ WD-MIN ≫ PASSIVE → /n/, SG.GEN → /m/

APPENDIX: TUVAN

33. No intervocalic velars (Harrison 2000: 108)

   a.   *či-gen

         *[či-en]   eat-past

         *[če-en]

   b.   či-p-gen   eat-CV-past   (CV = converb, non-finite verb used to express

   c.   či-p aldɨm   eat-CV Aux-past   adverbial subordination)

34. Many roots are exceptional (Harrison 2000: 90)

   a.   araga   alcohol
   b.   čugaala-ar   speak-future
                                            ∃VGV (underived)
   c.   agaar   air
   d.   igil   horsehead fiddle
   ───
   e.   *či-gen   eat-past   ∄V-GV (derived)

35. Basic analysis   Ineffability results from blocking the selection of the suffix –gen to satisfy the constraint *VKV.

36. *VKV   Assign a violation for every vowel-velar-vowel sequence in the output.

37. Ranking   ALCOHOL → /araga/, etc. ≫ *VKV ≫ PAST → /gen/

38. No sonority sequencing violations (Rice 2007:202-203)

a.	/løft/	[løft]	lift!	CVCC ➜ CVCC
b.	/spis/	[spis]	eat!	(good coda cluster)
c.	/åpn/	*ineffable* *[åpn]	open!	CVCC ➜ gap
d.	/sykl/	*ineffable* *[sykl]	cycle!	(bad coda cluster)
e.	/padl/	*ineffable* *[padl]	paddle!	
f.	/å åpn-e/	[åp.ne]	to open	CVCC-e ➜ CVC.Ce
g.	/å sykl-e/	[syk.le]	to cycle	(no coda cluster)
h.	/å padl-e/	[pad.le]	to paddle	

39. Nouns are exceptional — sonority sequencing violations are repaired with epenthesis

a.	/sykl/	[sykel] *[sykl]	*effable!*	bike	CVCC ➜ CVCeC
b.	/adl/	[adel] *[adl]	*effable!*	nobility	(noun)
c.	/hindr/	[hinder] *[hindr]	*effable!*	hinder	
d.	/sykl/	*ineffable* *[sykl]		cycle!	CVCC ➜ gap
e.	/padl/	*ineffable* *[padl]		paddle!	(verb)

40. Basic analysis   Ineffability results from blocking the selection of bare roots to satisfy SONSEQ.

41. SONSEQ   Assign a violation for every coda cluster with rising sonority, e.g., *dl, *kl, *pn. (Kristoffersen 2000, Rice 2003)

42. Ranking   BICYCLE → /sykl/ ≫ SONSEQ ≫ CYCLE → /sykl/

43. Norwegian also demonstrates the same ranking paradox as Tagalog with respect to M-specific MPARSE.

   a. M-specific MPARSE to account for noun exceptionality: MPARSE(NOUN)

   b. To capture (39), MPARSE(NOUN) ≫ SONSEQ

   c. Predicts that any input containing a noun cannot be ineffable.

44. Contrary to (43c), inputs containing nouns can be ineffable (Rice 2007: 204)

a. Sykl opp bakken   bike up the.hill

b. *Sykl ned bakken   bike down the.hill

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