

Positional Constraints

Linguistics and Phonetics 2002 (LP2002)
 Meikai University
 Urayasu, Japan
 September 2-6, 2002

Junko Ito and Armin Mester
 University of California, Santa Cruz

ito@ling.ucsc.edu
 mester@ling.ucsc.edu

Typological explanations in OT achieved through the interplay/rankings of M(arkedness constraints) and F(aithfulness constraints).

Besides general M and F, current OT analyses employ positionally-restricted versions, M/p (positional markedness) and F/p (positional faithfulness).

PosMark: No-x/p: "element x in position p is disallowed"

PosFaith: Ident-x/p: "element x in position p is identical to the input"

Problem: Overlap in coverage and redundancy in analysis between positional faithfulness and positional markedness accounts.

Question: Do we need both types of positional constraints?

Or should one of them be eliminated?

If so, which one?

Focus here: Two alternative explanations for Coda Devoicing

Positional (onset) faithfulness	Positional (coda) markedness
F: Ident[voi]/Ons NoVoiObs	M: NoVoiObs/Coda F: Ident[voi]
F: Ident[voi]	M: NoVoiObs

Both are *position-focused*, but one proceeds on *faithfulness* grounds, the other one in terms of *markedness*.

Question: Can one of them be eliminated?

Tableaux for German /gro:b/ → [gro:p] 'coarse'

Positional (Onset) Faithfulness

/gro:b/	Ident[voi]/Ons	NoVoiObs	Ident[voi]
▲ gro:p	*		*
gro:b	**!		
kro:p	*!		**

Positional (Coda) Markedness

/gro:b/	NoVoiObs/Coda	Ident[voi]	NoVoiObs
▲ gro:p	*		*
gro:b	*!		**
kro:p	**!		

	PosFaith: VoiObs	PosMark: VoiObs
Basic generalization:	disallowed generally: NoVoiObs » Ident[voi]	allowed generally: Ident[voi] » NoVoiObs
Special case:	VoiObs allowed in onsets: Ident[voi]/Ons » NoVoiObs	VoiObs disallowed in codas: NoVoiObs/Coda » Ident[voi]
	Obstruent voicing is non-contrastive everywhere	Obstruent voicing is contrastive everywhere except in codas (or nonreleased consonants).

In the positional faithfulness view of things, in syllable-final devoicing languages such as Dutch and German, the basic generalization is that voiced obstruents are ruled out in a context-free way (NoVoiObs » IDENT[VOI]).

But in positions of prominence such as Onset (or "released consonant", see Padgett 1995a, Steriade 1995a), a voicing contrast is allowed to arise.

Obstruent voicing is non-contrastive everywhere except in onsets.

The whole explanation is cast in terms of faithfulness and is focused on strong positions such as onsets.

Codas are not singled out in any way as being weak, they are simply included among the non-strong positions.

In the positional markedness view of things, syllable-final devoicing languages are characterized by a context-free voicing contrast (IDENT[VOI] » NOVOIOBS), but position-specific markedness in codas (or: in unreleased consonants) neutralizes the contrast in one specific area.

Here, obstruent voicing is contrastive everywhere except in codas.

Overlap in coverage and redundancy in analysis between positional faithfulness and a positional markedness is not uncommon, and there is currently no straightforward way of selecting one of them as the right one since they both have their virtues. Both theories have their limitations, and while they overlap in many cases, they are in some respects complementary.

Advantage of Positional Faithfulness I (Lombardi 1999):

Direction of Voicing Assimilation is predicted by PosFaith: Default is regressive (right-to-left), progressive (left-to-right) only when regressive assimilation is blocked by higher-ranking constraints

PosFaith account: successful with a nondirectional Agree constraint

	/prosba/	Agree	Ident[voi]/Ons	NoVoiObs	Ident[voi]
	prosba	*!		*	
desired output	▶ prozba			**	*
	prospa		*!		*

PosMark account: unsuccessful with a nondirectional Agree constraint

	/prosba/	Agree	NoVoiObs/Coda	Ident[voi]	NoVoiObs
	prosba	*!			*
desired output	▶ prozba		*!	*	**
	▶ prosba			*	

Advantage of Positional Faithfulness II(?): Typological evidence

Lombardi 2001: typological claim

"Cross-linguistically, vowel epenthesis is never used to 'rescue' voiced obstruents in codas as an alternative to devoicing."

Typology predicted by PosFaith: Epenthesis candidate (c) as an eternal loser (i.e., under any ranking)

	/lo:b/	Ident[voi]/Ons	NoVoiObs	Ident[voi]	Dep
	a. lo:p			*	
	b. lo:b		*		
harmonically bounded by b:	c. lo:bə		*		*

For an input like /lo:b/, the epenthesis candidate [lo:bə] can never emerge as a winner, wherever DEP (here, militating against vowel insertion) is ranked, since it is harmonically bounded by [lo:b].

This typology is NOT predicted by PosMark: Epenthesis candidate (c) can be the winner if Dep ranked below NoVoiObs/Coda

	/gro:b/	NoVoiObs /Coda	Ident[voi]	NoVoiObs	Dep
a. gro:p			*!	*	
b. gro:b		*!		**	
c. gro:bə				**	*
winner unless Dep ranked high					

Lombardi 2001: *The absence of epenthesis as a repair strategy to avoid voiced codas* is a predictable consequence of the assumptions of positional faithfulness theory, in particular, of the absence of any positional markedness constraint against voiced obstruent codas.

Such speakers sometimes use protective epenthetic schwa-type vowel to preserve word-final voiced obstruents, as in examples such as

...b/ _{wd}	...d/ _{wd}	...g/ _{wd}	...ʃ/ _{wd}	...z/ _{wd}
Bausch & Lomb [bə]	good-bye [də]	Gig [gə]	Rouge [ʒə]	Marseillaise [zə]
superb [bə]	Grand Canyon [də]			

For PosMark, the more powerful theory in this respect, such occasional epenthesis effects can be straightforwardly analyzed as low-ranking Dep (NoVoiObs/Coda, Ident[voi] >> Dep) in the interlanguage grammar.

/superb/	NoVoiObs/Coda	Ident[voi]	NoVoiObs	Dep
a.superp		*!		
b.superb	*!		*	
c.superbə				*
→				

The claimed typological *absence of epenthesis as a repair strategy* is empirically questionable.

Empirical argument I: Loanword nativization strategies and second language acquisition (and other situations involving language contact).

Example: Speakers of final-devoicing languages like Polish/German/Dutch etc. with only limited knowledge of non-devoicing languages such as French or English.

For PosFaith, **superb**_σ is markedness-wise no worse than **super**[bə]_σ

—and it is *better* faithfulness-wise:

	/superb/	Ident[voi]	Ons	NoVoiObs	Ident[voi]	Dep
→	a.superp			*		
	b.superb		*!			
	c.superbə		*!			*

	/superb/	Ident[voi]	Ons	Ident[voi]	NoVoiObs	Dep
→	a.superp		*!			
harmonically bounded by b.	b.superb				*	
	c.superbə				*	*

Empirical argument II: Historical evidence from German

As part of a group of sweeping apocope processes characterizing the transition from Middle to Modern High German, adjectives (and other lexical items) lost their final [ə] (orthographic <e>).

Apocope:

Middle German	>	Modern German	'sweet'
sü[s]e	>	sü[s]	'sweet'
schöne	>	schön	'beautiful'

Apocope often did *not* apply when:

"the consonant preceding the undeleted final vowel of the adjective was a voiced obstruent"

Suppression of apocope: (final [ə] preserved)

<i>mü</i> [d]e	>	<i>mü</i> [d]e	'tired'
<i>bö</i> [z]e	>	<i>bö</i> [z]e	'evil'
<i>lei</i> [z]e	>	<i>lei</i> [z]e	'soft'
<i>trü</i> [g]e	>	<i>trü</i> [g]e	'listless'

Optionally in *ba*[ŋ]e 'afraid' (in contemporary German *ba*[ŋ]e) or *lo*[z]e 'loose'

The non-apocopating (c) *my:da*, the real-world winner, has no chance of winning. The harmonic bounding of (c) by (b), made possible by the absence of a NOVOI/OBS/CODA constraint, becomes a liability. There is no markedness factor distinguishing voiced obstruents in onsets and in codas, so what is the point of violating the apocope requirement in such cases?

PosMark ranking: Apocope-suppressing candidate (c): *müde* 'tired' correctly emerges as the winner.

	/my:de/	NoVoiObs/ *Ident[voi]	NoVoiObs "apocope"
a.	my:t	*!	
b.	my:d	*!	*
actual output	my:de		*

Better evidence: Kwak'wala (Amerind)

Syllable-final voiced and glottalized obstruents are repaired by vowel epenthesis.

Ref.:

Kirchner, Jesse Saba. 2010. UCSC dissertation, ch. 2

Davenport, Tristan. 2007. Alternations in Place and Laryngeality: On the Coda Condition of Kwak'wala. Master's thesis, University of California, Santa Cruz.

Avoidance of apocope is not the same as across-the-board epenthesis, but the logic of the situation is entirely parallel.

Historical stage when apocope was an active process:

PosFaith ranking: Apocope-avoiding actual output (c) *müde* wrongly declared an eternal loser: (no assumed ranking between NoVoiObs, Ident[voi], and constraints requiring apocope)

	/my:de/	Ident[voi] /Ohs	NoVoiObs	Ident[voi]	"apocope"
a.	my:t			*	
b.	my:d		*		
actual output	my:de		*		*

Positional markedness has no trouble with the situation since it is virtually built on the assumption that there is a markedness constraint specifically targeting voiced obstruent codas, which bars candidate (b) and thus opens the way for the non-apocopating (c).

Summing up so far: Positional faithfulness theory has certain points in its favor (direction of assimilation, etc.), but the claimed typological advantage of a version of OT with positional faithfulness but without positional markedness does not appear to hold up empirically.

From Kirchner ch.2

Kwak'wala consonantal inventory:

	lab.	alv.	sib.	lat.	pal.	vel.	uvu.	uvu.	uvu.	lar.
					rd.	rd.	rd.	rd.	rd.	
plain	p	t	c	ʃ	k	k ^w	q	q ^w	q ^w	ʔ
ejective	p̥	t̥	c̥	ʃ̥	k̥	k̥ ^w	q̥	q̥ ^w	q̥ ^w	
voiced	b	d	d [#]	ʒ	g	g ^w	g	g ^w	g ^w	h
fricative		s	ʃ	x	x ^w	ʒ	ʒ	ʒ ^w	ʒ ^w	
sonorant	m	n		ɲ		w		w		
glottal sonorant	m̥	n̥		ɲ̥		w̥		w̥		

Consonants at every place of articulation can surface as codas. But one large class of consonants cannot be codas: laryngeally-marked consonants (Lombardi 1991, 1995), i.e. voiced and glottalized obstruents. Such segments are kept from occurring in codas by the addition of an epenthetic vowel:

$/g^{w,od} + x^{l,od}/ \rightarrow [g^{w,od}x^{l,od}i:]$ 'to begin to untie' (Boas 1947: 211)
 $/d^{l,ax}w + =ad + li:nu:z^{w}/ \rightarrow d^{l,ax}wada^{l,od}ri:nu:z^{w}$ 'people of Knight Inlet'

Added note: There are interesting differences in the behavior of these classes when they occur word-finally; just in that case, voiced obstruents devoice, while glottalized obstruents are left unrepaired. This is a pattern which has not been attested in any other language, and which has been claimed to be impossible. See Davenport (2007) for discussion.

From Boas 1947 Kwakiutl Grammar:

Voiced and glottalized stops behave similarly in so far as they cannot be followed by a suffix without having an i or a following, that is to say, the voicing respectively glottalization are continued as a vocalic vibration of the vocal cords after the consonantic closure. It will be shown later that the two groups behave in similar ways in many respects. The phonetic impression of the difference between voiced and glottalized stop is much weaker than that between the strongly aspirate voiceless stop and either the voiced or glottalized sound.

Advantage of Positional Markedness I: Derived marked structures

Zoll 1998 shows that certain types of positional markedness constraints are an irreducible part of phonological theory and cannot be subsumed under faithfulness considerations.

Example:

In many Australian languages the familiar limitation of vowel length to the first (and main-stressed) syllable of a prosodic word extends beyond faithfulness to cases where vowel length is not a faithfully preserved input property, but arises through an alternation triggered by another element (i.e., as a **faithfulness violation**).

It is therefore an issue not of letting input vowel length through only in position p (faithfulness), but of allowing output vowel length only in position p (markedness).

Is this an isolated (or very special) case that favors PosMark?

No, the same argument carries over even to the more familiar cases of coda markedness.

PosMark insures unmarked status of codas independent of faithfulness, i.e., also in cases of *non*-faithfulness.

Example: onsets, not codas, as preferred anchors for suprasegmental featural morphemes. In systems with palatalization, aspiration, voicing, used as suprasegmental markers ("floating autosegments"), **onsets** are cross-linguistically preferred as anchors, not codas.

E.g. Japanese mimetic morpheme π : (Mester and Ito 1989, *Language*)

$poN + \pi/ \rightarrow [p^{oN}], *[poN^l]$ 'jumping up and down'

This is *not* enhanced faithfulness in onset position, rather the opposite.

High-ranking Realize-Morpheme requires "unfaithfulness" to the input:

PosFaith: unsuccessful

	/p _{ON} + π/	Realize Morpheme	FaithOnset	No-Pal	Faith
desired output	p _{ON}		*!	*	*
	▶ p _{ON}			*	*
	p _{ON}	*!			

Illustration with 'coda voicing': Hypothetical German with a voicing morpheme β = [+voi] (cf. language games invented by children).

PosFaith account: Incorrect anchoring to coda, subverting otherwise exceptionless coda devoicing: *markedness-wise* [g] is just as good/bad syllable-finally as [b] syllable-initially, and *faithfulness-wise* even better

	/β+park/	Realize-M	Id[voi]/Ons	NoVoiObs	Id[voi]
	park	*!			
desired output	bark		*!	*	*
▶	▶ parg			*	*

Recap so far:

The PosFaith scheme incorrectly predicts that codas should constitute ideal anchors to associate morphemic markers, since they are not protected by higher ranking onset faithfulness and are therefore more likely to be *unfaithful* to the input.

On the other hand, the PosMark scheme makes the correct prediction: Featureally marked codas are banned independent of faithfulness.

PosMark: successful

	/p _{ON} + π/	Realize Morpheme	NoCoda/Pal	Faith	No-Pal
desired output	▶ p _{ON}			*	*
	p _{ON}		*	*	*
	p _{ON}	*!			

NoCoda/Pal: part of a more general CodaCond disallowing nonplace-linked codas in Japanese.

PosMark account: Correct anchoring to onset. As a pure markedness effect, coda devoicing is also active in cases of forced unfaithfulness.

	/β+park/	Realize-M	NoCoda/VoiObs	Id[voi]	NoVoiObs
	park	*!			
desired output	▶ bark		*	*	*
▶	▶ parg		*!	*	*

Advantage of Positional Markedness II: "Allophony" (cf. also Kager 1999)

Example: German allophonic R-Vocalization
 R-vocalization replaces postvocalic /ʀ/ in syllable codas by a nonsyllabic version of the central vowel [ɐ] (Moulton 1962:
 "lower mid unrounded vowel between central and back")

[ʀ]	[ɐ]
Türen [ty:.ʀən.]	Tür [ty:.ɐ.] <i>door.pl/sg</i>
Ohren [o:.ʀən.]	Ohr [o:.ɐ.] <i>ear.pl/sg</i>
hören [hø:.ʀən.]	hört [hø:.ɐt.] <i>hear.inf/3sg</i>

PosMark: No-R/Coda » NoLowGlide » Ident(cons)
 PosFaith: IdentOns(cons) » No-R » Ident(cons)

PosMark account: Correct output with either input (fulfilling ROB)

a. input /R/

/ty: R/	NoR/Coda	NoLowGlide	Ident(cons)
► ty: v		*	*
ty: R	*!		

input /v/

/ty: v/	NoR/Coda	NoLowGlide	Ident(cons)
► ty: v		*	*
ty: R	*!		

PosFaith account:

Correct outputs with [R]'s and [v]'s in codas:

Input /R/:

/ty: R/	Ident(cons)	No-R	Ident(cons)
► ty: v			*
ty: R		*!	

Input /v/:

/ty: v/	Ident(cons)	No-R	Ident(cons)
► ty: v			*
ty: R		*!	

Cf. de Lacy 2001's work, which develops a particular format for positional markedness constraints (while continuing to assume a full-fledged PosFaith theory), with an attempt to limit positional markedness constraints to sonority-related properties.

b. input /R/

/ty: R+ən/	NoR/Coda	NoLowGlide	Ident(cons)
.ty: .ən.		*!	
► .ty: . Rən.			*

input /v/

/ty: v+ən/	NoR/Coda	NoLowGlide	Ident(cons)
.ty: .ən.		*!	
► .ty: . Rən.			*

Problem with [R]'s and [v]'s in onsets:

PosFaith protects [R]'s in onsets, but it has no means of ruling out the faithfully parsed low glide [v̥] in onset position.

Input /R/:

/ty: R+ ən/	Ident(cons)	No-R	Ident(cons)
.ty: . v ən.	*!		*
► .ty: . R ən.		*	

Input /v/:

/ty: v+ ən/	Ident(cons)	No-R	Ident(cons)
► .ty: . v ən.			
.ty: . R ən.		*!	*

desired output ►

Problems with Positional Faithfulness I: "Overkill effects"

Hidden danger for PosFaith (Keer 1998, talk at UMass, Amherst 1998)

Recall that

PosFaith: **"No contrastive voicing"**
 ([d|voij]/Ons ») **NoVoiObs** » **Id|voij**

PosMark: **"Contrastive voicing"**
 (NoVoiObs/Coda ») **Id|voij** » **NoVoiObs**

DANGER: *NoVoiObs* can exert its influence whenever the segment is not in the onset position.

"Keer ranking": **NoVoiObs** » **Onset**

PosFaith

ranking:

	/aba/	Id[voi]/Ons	NoVoiObs	Id[voi]	Onset
	a.ba		*!		
	a.pa	*!		*	
	ab.a		*!		*
pathological winner:	▶ ap.a			*	*

PosMark

ranking:

	/aba/	NoCoda/VoiObs	Id[voi]	NoVoiObs	Onset
sensible winner:	▶ a.ba			*	
	a.pa		*!		
	ab.a	*!		*	*
	ap.a		*!		*

Possible remedy for PosFaith (de Lacy 2001):

- Stipulate "anti-Paninian" -flavored ranking ONSET » IDENT[VOI]/ONS. "Any constraint mentioning ONSET must be ranked below ONSET."

Problems:

- The ranking ONSET » IDENT[VOI]/ONS is not anti-Paninian, just as IDENT[VOI]/ONS » ONSET is not Paninian. There is no Spec » Gen relation here: it is not the case that whenever a winner *fulfills* IDENT[VOI]/ONS it *violates* ONSET (cf. /ba/ → [ba]). (Example of Paninian ranking: NonFinality » Rightmost)

- Invocation of Panini is irrelevant anyhow since there are other constraints, besides ONSET, that have the same disastrous effect, e.g., No-CODA:

PosFaith account: Derives unwanted contrastive syllabification

	/abra/	Id[voi]/Ons	NoVoiObs	Id[voi]	NoCoda
	a.bra		*!		
	a.pra	*!		*	
	ab.ra		*!		*
if input is voiced:	▶ ap.ra			*	*

	/apra/	Id[voi]/Ons	NoVoiObs	Id[voi]	NoCoda
	a.bra	*!		*	
if input is voiceless:	▶ a.pra				
	ab.ra		*!		*
	ap.ra				*

Problems:

- Derives *contrastive syllabification*: a.pra vs. ap.ra, encoded as a spurious segmental contrast /apra/ vs. /abra/. But syllabification has never been found to be contrastive in this way.

- Undermines the attempt in McCarthy 2003 to make contrastive syllabification impossible by excluding any IO-faithfulness constraints preserving syllable role—as long as PosFaith constraints exist, and NoCoda can be ranked below the PosFaith block.

- No justification on general grounds for universal stipulation NoCoda » NoVoiObs.

The problems do not arise for PosMark accounts.
PosMark ranking

	/abra/	NoCoda/VoiObs	Id[voi]	NoVoiObs	NoCoda
▶	a.bra			*	
	a.pra		*!		
	ab.ra	*!		*	*
	ap.ra		*!		*

▶ faithful complex onset winner

	/apra/	NoCoda/VoiObs	Id[voi]	NoVoiObs	NoCoda
	a.bra		*		
▶	a.pra			*	
	ab.ra	*!	*	*	*
	ap.ra				*!

Problem for Positional Faithfulness II: "Learnability"

Prince and Tesar 1999 Learning phonotactic distributions. ROA. (pp.19-23) (earlier ref. (Prince 1997, Tesar 1995, Tesar and Smolensky 1998)

An algorithm for the acquisition of OT-grammars on the basis of purely distributional evidence (i.e., without alternations and non-trivial underlying forms), which incorporates an M>F (Markedness over Faithfulness) ranking bias.

PosFaith is built on special/general relationships among F constraints.

Such relations between F constraints can cause significant difficulty for distributional learning (cf. also Smith 1999 and Hayes 1999):

The general version can always do what the special version can do.

But if the general F constraint is mistakenly ranked highly, there will be no positive evidence that can contradict the error.

•Learner hears [da].

What should the learner deduce?

Positional Faithfulness account (with F/p, F, and M):

F/p: Ident[voi]/Ons

F: Ident[voi]

M: NoVoiObs

P&T Learning Algorithm (roughly): Rank M-constraints as high as possible (i.e., as long as observed forms are generated).

•Learner encounters [da]

Ranking: M highest	/da/	NoVoiObs	Ident[voi]/Ons	Ident[voi]
wrong result:	▶ [da]	*		
	▶ [ta]		*!	*

Ranking: F/p highest	/da/	Ident[voi]/Ons	NoVoiObs	Ident[voi]
wrong result:	▶ [da]		*	
	▶ [ta]	*!		*

Ranking : F highest	/da/	Ident[voi]	NoVoiObs	Ident[voi]/Ons
	▶ [da]		*	
	▶ [ta]	*!		*

•Learner hears [da].

What should the learner deduce?

Positional Faithfulness account (with F/p, F, and M):

F/p: Ident[voi]/Ons

F: Ident[voi]

M: NoVoiObs

P&T Learning Algorithm (roughly): Rank M-constraints as high as possible (i.e., as long as observed forms are generated).

Both German and English learners will be OK with the latter two rankings, i.e., /da/ → [da].

•Learner encounters: [rat]

F/p highest	/rat/	Ident[voi]/Ons	NoVoiObs	Ident[voi]
▶	[rat]		*	
	[rad]		*!	

F highest	/rat/	Ident[voi]	NoVoiObs	Ident[voi]/Ons
▶	[rat]		*	
	[rad]	*!		

Both English and German learners are OK so far with either ranking.

•English learners encounter [rad] (German learners do not.)

F/p highest	/rad/	Ident[voi]/Ons	NoVoiObs	Ident[voi]
▶	[rat]		*	
	[rad]		*!	

F highest	/rad/	Ident[voi]	NoVoiObs	Ident[voi]/Ons
	[rat]	*!		
▶	[rad]		*	

English learners that had mistakenly adopted the first ranking with F/p highest ranking will now correct their grammar to the F-highest ranking (i.e., English ranking).

BUT: German learners with the mistaken F-highest ranking do not encounter any positive evidence to correct their error – i.e., they do not learn that [rad] is impossible in German, and are stuck with the wrong grammar. **A non-recoverable learning error has occurred.**

How does the positional markedness approach fare?

F: Ident[voi]

M/p: NoVoiObs/Coda

M: NoVoiObs

Recall learning algorithm: Rank M-constraints as high as possible.

•Learner hears [da]:

Ranking: both M high	/da/	NoVoiObs/Coda	NoVoiObs	Ident[voi]
	[da]		*	
wrong result:	►! [ta]			*!

Ranking: M high	/da/	NoVoiObs	Ident[voi]	NoVoiObs/Coda
	[da]		*	
wrong result:	►! [ta]	*!		

Ranking: M/p high	/da/	NoVoiObs/Coda	Ident[voi]	NoVoiObs
correct result:	► [da]			*
	[ta]		*!	

•Learner hears: [rat]

/rat/	NoVoiObs/Coda	Ident[voi]	NoVoiObs
► [rat]			
[rad]	*	*	*

Nothing interesting happens.

Learner relaxes.

•English learners encounter [rad].

The ranking adopted so far produces the wrong result:

/rad/	NoVoiObs/Coda	Ident[voi]	NoVoiObs
►! [rat]	*		
[rad]	*		*

English learners will demote NoVoiObs/Coda below Ident[voi]:

/rad/	Ident[voi]	NoVoiObs/Coda	NoVoiObs
[rat]	*!		
► [rad]	*		

The (English) learner demotes the M-constraint NoVoiObs/Coda when she encounters a form that violates it, i.e., a form that contains a voiced obstruent coda.

Absent such forms, the (German) learner stays with the more restrictive grammar (with more M-constraints dominating F-constraints).

Attempts to save positional faithfulness from non-recoverable learning errors

Hayes 1999, Smith 1999: Add a meta-constraint with the effect of always picking "the special over the general"

Prince and Tesar 1999 (pp.22-23) show that in a theory with the special-general relationships between faithfulness constraints characteristic of positional faithfulness, there is no general way enabling the learner to make this selection in the correct way.

The recipe of "always picking the special over the general", while deceptively simple, in fact hides the real problem, viz., how to identify the existence of a special-general relation between two constraints.

Ranking	/pa:to/ /initial-σ"	"Ident[μ] /initial-σ"	NoLongVowel	"Ident[μ] /stressed-σ"	Ident[μ]
1	▲ 'pa:to 'pato	*	*	*	

Ranking	/pa:to/ /stressed-σ"	"Ident[μ] /initial-σ"	NoLongVowel	"Ident[μ] /initial-σ"	Ident[μ]
2	▲ 'pa:to 'pato	*	*	*	

Ranking 2 constitutes an irrecoverable learning error in a language that in fact allows long vowels only in first syllables (which are always stressed), not in all stressed syllables.

Problem: Derived subset relations.

Ident[F]/initial-σ Ident[F]/stressed-σ

If high-ranking constraints place stress on initial syllables and other syllables, then initial syllables are a subset of stressed syllables, but not vice versa.

"Ident[F]/initial-σ" is a special case of "Ident[F]/stressed-σ"

This special/general relationship is not decidable by an inspection of the formulation of the constraints alone, but depends on the details of the individual constraint hierarchy and requires a rather complex meta-analysis of the grammar itself, and of the way in which it sifts the set of candidates. I.e., not a task that could be solved by a simple decision algorithm.

The subset problem arises here out of the contingent special/general relationship between the two F-constraints that is not visible just by inspecting the constraints themselves.

Summary and remaining questions:

Advantages of Positional Faithfulness:

1. Direction of assimilation
2. Typology of repair strategies (questionable empirically)

Advantages of Positional Markedness:*

1. Derived marked structures
2. Allophony

*These cases show that a strictly PosFaith version of OT (with no PosMark constraints) is untenable.

Problems for Positional Faithfulness:**

1. Overkill
2. Learnability

**These illustrate problematic predictions made by PosFaith constraints.

<p>Marked elements in prominent positions can come about in two ways: by keeping marked input specifications (faithful output), and by changing to marked specification through higher-ranked constraints (unfaithful output).</p> <p>Nonprominent positions also repel marked elements in two ways: by changing an input marked specification to an unmarked specification (unfaithful output) or by not allowing a change to a marked specification (faithful output).</p> <p>Thus, both faithfulness and unfaithfulness lead to the overall greater/lesser inventory found in prominent/nonprominent positions.</p> <p>Flemming, Padgett: "Contrast", Dispersion Theory.</p>	<p>Overlap in coverage and redundancy in analysis between positional faithfulness and a positional markedness is not uncommon, and there is currently no straightforward way of selecting one of them as the right one since they both have their virtues.</p> <p>Both theories have their limitations, and while they overlap in many cases, they are in some respects complementary.</p>
<p>References</p> <p>de Lacy, Paul. 2001. Prosodic markedness in prominent positions. Ms.: University of Massachusetts, Amherst.</p> <p>Kager, René. 1999. <i>Optimality Theory</i>. Cambridge textbooks in linguistics. Cambridge, U.K. ; New York: Cambridge University Press.</p> <p>Lombardi, Linda. 1999. Positional faithfulness and voicing assimilation in Optimality Theory. <i>Natural Language and Linguistic Theory</i> 17. 267-302.</p> <p>Lombardi, Linda. 2001. Why place and voice are different: constraint-specific alternations in Optimality Theory. In Linda Lombardi, ed. <i>Segmental Phonology in Optimality Theory. Constraints and Representations</i>. Cambridge: Cambridge University Press. 13-45.</p>	<p>McCarthy, John J. 2003. Sympathy, cumulativity, and the Duke-of-York gambit. In Caroline Féry and Ruben v.d. Vijver, eds. <i>The Syllable in Optimality Theory</i>. Cambridge, U.K.: Cambridge University Press. 23-76.</p> <p>Mester, Armin, and Ito, Junko. 1989. Feature predictability and underspecification: Palatal prosody in Japanese mimetics. <i>Language</i> 65. 258-293.</p> <p>Moulton, William G. 1962. <i>The Sounds of English and German</i>. Chicago: University of Chicago Press.</p> <p>Padgett, Jaye. 1995. Partial class behavior and nasal place assimilation. In Keiichiro Suzuki and Dirk Elzenga, eds. <i>Proceedings of the South Western Optimality Theory Workshop 1995</i>. 145-183.</p> <p>Prince, Alan. 1997. Elsewhere & otherwise. Ms.: Rutgers University. [ROA-217-0997].</p>
<p>Prince, Alan, and Tesar, Bruce. 1999. Learning phonotactic distributions. Ms. Brunswick, New Jersey: Rutgers University. [ROA-353-1099].</p> <p>Steriade, Donca. 1995. Positional neutralization. Ms. Los Angeles, CA: UCLA.</p> <p>Tesar, Bruce. 1995. Computational Optimality Theory, Linguistics Department, Rutgers University, New Brunswick, New Jersey.</p> <p>Tesar, Bruce, and Smolensky, Paul. 1998. Learnability in Optimality Theory. <i>Linguistic Inquiry</i> 29. 229-268.</p> <p>Zoll, Cheryl. 1998. Positional asymmetries and licensing. Ms. Cambridge, MA: MIT. ROA-xxxx-xxx.</p>	