Comparative Markedness vs. Standard Faithfulness Theory: A typological comparison[*]

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Comparative Markedness (CM) is an approach to Optimality Theory which draws a distinction between 'old' and 'new' markedness constraints. The CM treatment of Mekkan Arabic [–voice] assimilation is compared with one which employs Standard Faithfulness Theory (SFT). The latter approach will be argued to be superior to the former because only SFT makes the correct typological predictions concerning voicing assimilation.

Keywords: markedness, comparative markedness, faithfulness, grandfather effects, typology, Optimality Theory

1 Introduction

McCarthy (2002, 2003a) proposes an approach to Optimality Theory (Prince & Smolensky 1993; henceforth OT) called Comparative Markedness (henceforth CM), which offers a novel perspective on several disparate sets of issues in phonology.[1] The basic idea behind CM is that markedness constraints compare the candidate under evaluation with another candidate, namely the most faithful one. This theory draws a distinction between two types of markedness constraints, namely those penalizing 'old' and 'new' structures (abbreviated below as $_{O}$M and $_{N}$M respectively).

In (1) I have listed the two types of rankings McCarthy (2002, 2003a) proposes. In (1a) we can see that the ranking of the 'new' markedness constraint over 'old' one is intended to account for a phenomenon McCarthy calls 'grandfather effects', as well as the well-known phenomenon of Nonderived Environment Blocking (Kiparsky 1993). In (1b) we can observe that the ranking of the old markedness constraint over the new one is required to capture non-iterative processes as well as counter-feeding opacity.

(1) Two types of rankings within CM:
  a. The ranking $_{N}$M » $_{O}$M: 'grandfather effects', Nonderived Environment Blocking effects.
  b. The ranking $_{O}$M » $_{N}$M: non-iterative processes, e.g. apocope and local tone spreading, and counter-feeding opacity.

In the present article I discuss a concrete example of a 'grandfather effect', which requires (1a). General discussion of CM markedness constraints and how the ranking in (1a) captures the effects listed will be presented in section 2 below.

In this article I argue in favor of an alternative approach to CM, which I refer to as the Standard Faithfulness Theory (SFT). This approach, which is implicit in many non-CM

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1 For some work in which the CM model is applied to various problems in acquisition, see Farris (2005), Barlow (2007), Dinnsen (to appear), and Dinnsen & Farris (to appear).

approaches to OT, is intended to account for the same phenomena in CM but without recourse to old and new markedness constraints. Instead, SFT makes use of (standard) markedness constraints and (standard) faithfulness constraints. The 'standard' faithfulness constraints include those that are not always crucial in a CM treatment. For example, in CM there is usually assumed to be a single featural faithfulness constraint, e.g. IDENT-[±F], which is violated in surface forms which show a change from [+F] to [–F] as well as [–F] to [+F]. By contrast, SFT makes crucial use of the constraints IDENT [+F] and IDENT [–F] (or, alternatively, MAX-F and DEP-F), because they can be shown to occupy different slots in language-specific constraint rankings. Although the bifurcation of faithfulness constraints into opposites has been assumed by many linguists operating in the OT framework, (e.g. Pater 1999, Inkelas 2000, Rubach 2003 and especially Hall 2006), its adherents have not, to my knowledge, applied that approach to OT to the examples I discuss below, nor have they compared SFT with CM.

I discuss below one of McCarthy's examples illustrating a 'grandfather effect', namely [–voice] assimilation in Mekkan Arabic and compare it with a SFT treatment. Although both analyses of the data generate the correct outputs, I argue against CM because it makes incorrect predictions concerning voicing typology. Since SFT makes the right predictions, I conclude that it is the preferred approach.

This article is organized as follows. In section 2 I provide a general discussion of CM and SFT. In that section I also discuss the phenomenon of 'grandfather effects' and show how they are supposed to be captured in CM and how one might reanalyze these examples with SFT. In section 3 I turn to Meccan Arabic [–voice] Assimilation. There I present the CM treatment proposed by McCarthy (which adheres to the ranking in 1a) and then the alternative SFT analysis. Section 4 is devoted to a discussion of typological predictions made in CM vs. those made in SFT. It will be demonstrated that only the predictions made in the latter approach are correct. In section 5 I conclude.

2 'Grandfather Effects' in Comparative Markedness and Standard Faithfulness Theory

In this section I give a brief overview of CM and discuss the way in which 'grandfather effects' are captured in that theory. I conclude with a brief discussion of SFT.

According to McCarthy (2003a: 3) a 'grandfather effect' can be described as follows:

> "…[s]uppose there is a language that tolerates M-violating structures inherited from the input but blocks processes from creating those same structures. This is a "grandfather effect".'

'M-violating structures' are structures which violate some markedness constraint. Thus, one could paraphrase the definition above as follows: A 'grandfather effect' occurs in a language which tolerates a certain structure [X] which is inherited from the input (/X/), but the same language blocks processes from creating [X]. We will see below that CM and SFT have alternate ways of accounting for 'grandfather effects'.[2]

Traditional OT recognizes two types of constraints, i.e. faithfulness and markedness. Whereas the former penalize disparities involving the input and the output, the latter

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[2] Operating within SFT, Hall (2006) argues that 'grandfather effects' can be seen as the blockage of some phonological process in a derived environment (Nonderived Environment Blocking). See also Yip (2003) for a similar critique of 'grandfather effects' in CM.

constraints impose restrictions on the output without reference to the input. The key idea behind CM is that markedness constraints assign violation marks to output candidates by comparing them to the fully faithful candidate (FFC), which is present in every candidate set. These novel markedness constraints distinguish between the following two situations: (a) Mappings that fail to correct a marked configuration in the FFC; and (b) Mappings that introduce new marked configurations (McCarthy 2003a: 2).

The mappings in (a) and (b) are distinguished in CM by replacing every traditional markedness constraint M with two freely rankable constraints $_{O}$M and $_{N}$M. The former one is violated in an output form which contains an 'old' structure, i.e. a structure that is present in the fully faithful form. The latter markedness constraint is violated only in 'new' structures, i.e. in those structures that are not present in the fully faithful form, but which instead arise via some phonological process.

Consider by way of illustration the following hypothetical example. In this language there is a process of glide formation whereby /i/ surfaces as the corresponding glide [j] before a vowel, i.e. /atia/ → [atja].[3] The process is blocked before the vowel /i/, i.e. /atii/ → [ati.i], but there are some (exceptional) input /ji/ sequences that surface faithfully as such, i.e. /atji/ → [atji]. A CM account of the 'grandfather effect' in this language requires the two markedness constraints in (2a-b) in addition to the standard markedness constraint ONSET in (2c) and the faithfulness constraint in (2d).

(2) Constraints and rankings in a hypothetical CM treatment:
a. *$_{N}$ji: No new [ji]
b. *$_{O}$ji: No old [ji]
c. ONSET: Every syllable must have an onset.
d. FAITH-μ : The mora must be the same in input and output (no insertion or deletion of a mora)

Consider now the tableaux in (3-5). I assume here that all vowels are linked with a mora in the input; hence, glide formation involves the deletion of a mora.

(3)

	/atia/	*$_{N}$ji	ONSET	FAITH-μ	*$_{O}$ji
a.	→[atja]			*	
b.	[ati.a] (FFC)		*!		

(4)

	/atii/	*$_{N}$ji	ONSET	FAITH-μ	*$_{O}$ji
a.	[atji]	*!		*	
b.	→ [ati.i] (FFC)		*		

(5)

	/atji/	*$_{N}$ji	ONSET	FAITH-μ	*$_{O}$ji
a.	[ati.i]		*!		
b.	→ [atji] (FFC)			*	*

3 In fact, the example described here corresponds to Modern German. See Hall (2006) for data and a detailed treatment.

In (3) the candidate with the glide wins out over the faithful one because the latter candidate fatally violates ONSET. The blockage of glide formation is illustrated in tableau (4). If glide formation were to apply (see 4a) then the high ranking constraint $*_N$ji would be violated because the [ji] sequence is 'new' in the sense that it is not present in the fully faithful candidate (FFC). That the distinction between $*_N$ji and $*_O$ji is necessary can be gleaned from tableau (5). Since the surface [ji] in (5a) is 'old' and not 'new' it satisfies $*_N$ji and is able to beat out [ati.i], which violates ONSET.

Before turning to the SFT analysis for this hypothetical example, a comment is in order concerning FAITH-μ in (2d). This constraint combines the two familiar OT constraints MAX-μ and DEP-μ (see 6b-c below). Since the burden of the analysis in CM is placed on the markedness constraints as opposed to the faithfulness constraints, it is not necessary to split FAITH-μ into MAX-μ and DEP-μ.[4] Since McCarthy (2002, 2003a) does not split up his faithfulness constraints into opposite pairs, I retain FAITH-μ in (3-5).

In SFT the examples in (3-5) require (in addition to ONSEt) the markedness constraint *ji (see 6a). In contrast to CM, the alternative SFT treatment requires that the faithfulness constraint in (2d) be split up into the two faithfulness constraints in (6b-c):

(6) Constraints in a hypothetical SFT treatment:
a. *ji: No [ji]
b. MAX-μ : No deletion of a mora
c. DEP-μ : No insertion of a mora

Consider now the three tableaux in (7-9), which illustrate the SFT approach:

(7)

	/atia/	DEP-μ	*ji	ONSET	MAX-μ
a.	→[atja]				*
b.	[ati.a]			*!	

(8)

	/atii/	DEP-μ	*ji	ONSET	MAX-μ
a.	[atji]		*!		*
b.	→ [ati.i]			*	

(9)

	/atji/	DEP-μ	*ji	ONSET	MAX-μ
a.	[ati.i]	*!		*	
b.	→ [atji]		*		*

We can observe in (7) that glide formation in SFT requires the ranking of ONSET » MAX-μ. This example is formally similar to the CM approach in tableau (3). The crucial examples are illustrated in (8) and (9). In the former tableau the high ranking markedness constraint *ji prevents glide formation from applying.

[4] McCarthy's claim that the burden of the analysis is carried by markedness constraints is only true because his use of markedness constraints blurs the distinction between traditional markedness and faithfulness constraints. In traditional OT only faithfulness constraints can compare candidates. See also van Oostendorp (2003: 66), who writes that the "difference between faithfulness and well-formedness constraints has become blurred in CM".

Tableau (9) illustrates an important conceptual difference between SFT and CM: The preservation of input /ji/ in (9) as [ji] demonstrates that FAITH-μ *must* be split up into the opposite pair DEP-μ and MAX-μ. The reason for this bifurcation is that candidate (9a) loses out to the faithful one in (9b) because it violates DEP-μ. By contrast, the CM treatment in (5) allows for input /ji/ to surface as [ji] because this surface [ji] sequence is an old [ji] and hence it escapes the high ranking constraint *$_{N}$ji.

To summarize, CM accounts for 'grandfather effects' with an enriched inventory of markedness constraints, whereas SFT captures the same phenomena with standard faithfulness constraints referring to opposite values of some parameter, which occupy different slots in the constraint hierarchy.

3 Mekkan Arabic [–voice] Assimilation

3.1 The data and the CM approach

McCarthy (2003a: 3) cites the following data from Mekkan Arabic illustrating a process of [–voice] assimilation. The original sources are Abu-Mansour (1996) and Bakalla (1973), which I have not seen.

(10) [–voice] Assimilation in Mekkan Arabic:

a.	/ʔagsam/	[ʔaksam]	'he swore an oath'
	/mazkuːr/	[maskuːr]	'mentioned'
b.	/ʔakbar/	[ʔakbar]	'older'
	/matdʒar/	[matdʒar]	'shop'
c.	/ʔibnu/	[ʔibnu]	'his son'
	/ʔadʒuːz/	[ʔadʒuːz]	'old'
	/dabdaba/	[dabdaba]	'pitter-pat (footsteps)'

The data in (10a) show that coda obstruents become voiceless before a following voiceless obstruent. The examples in (10c) illustrate that there is no general process of coda devoicing and the ones in (10b) that voiceless coda obstruents do not become voiced before voiced obstruents.

According to McCarthy (2003a: 4) "...voiced obstruents present in the input are grandfathered (e.g. *dabdaba*), but new voiced obstruents cannot be created by the voicing assimilation process (/ʔakbar/ → *ʔakbar*, **ʔagbar*). The markedness constraint NOVCDOB blocks assimilation but cannot itself compel unfaithfulness". Given this interpretation of the data in (10), McCarthy (2003a) proposes that the general markedness constraint NOVCDOB be replaced by $_{O}$NOVCDOB and $_{N}$NOVCDOB. The latter constraint is violated by new instances of voiced obstruents, i.e. those that are not present in the FFC. $_{O}$NOVCDOB is violated by old instances of voiced obstruents, i.e. by those already present in the FFC. For example, the ungrammatical form *ʔagbar* (an incorrect output for the first example in 10b) violates both of these constraints once: $_{N}$NOVCDOB by virtue of the *g*, whose counterpart in the FFC *ʔakbar* is not voiced, and $_{O}$NOVCDOB by the *b*, whose counterpart in the FFC is not voiced. Since assimilation is blocked, McCarthy reasons that $_{N}$NOVCDOB needs to be ranked above the constraint responsible for assimilation, namely AGREE (voice), according to which obstruent clusters agree in voicing (see also Lombardi 1999: 272, who McCarthy follows). AGREE itself is ranked above the faithfulness constraint IDENT (voice), in order to force assimilation. The constraint $_{O}$NOVCDOB is ranked lowest in the language-specific hierarchy for Mekkan Arabic:

(11) McCarthy's proposed ranking for Mekkan Arabic:
$_{N}$NOVCDOB » AGREE (voice) » IDENT (voice) » $_{O}$NOVCDOB

The ranking in (11) is illustrated with the concrete examples in tableaux in (12-14), which are representative of (10a-c). In tableau (12) (=McCarthy's tableau (2), p. 4) we can observe that the general process of assimilation is captured with the ranking AGREE (voice) » IDENT (voice):

(12)

	/ʔagsam/	$_{N}$NOVCDOB	AGREE (voice)	IDENT (voice)	$_{O}$NOVCDOB
a.	→ [ʔaksam]			*	
b.	(FFC) [ʔagsam]		*!		*

In this tableau the faithful candidate in (12b) loses out to the assimilated form in (12a) because the former candidate does not satisfy AGREE (voice).

The data in (10b-c) are said to require the two markedness constraints $_{N}$NOVCDOB and $_{O}$NOVCDOB because they need to be situated at opposite ends of the constraint hierarchy for this language. This point is illustrated in tableaux (13-14) (=McCarthy's tableaux (2) and (3), pp. 4-5):

(13)

	/ʔakbar/	$_{N}$NOVCDOB	AGREE (voice)	IDENT (voice)	$_{O}$NOVCDOB
a.	(FFC) → [ʔakbar]		*		*
b.	[ʔagbar]	*!		*	*

(14)

	/ʔibnu/	$_{N}$NOVCDOB	AGREE (voice)	IDENT (voice)	$_{O}$NOVCDOB
a.	→ [ʔibnu]				*
b.	[ʔipnu]			*!	

In the first tableau the faithful form in (13a) is selected as optimal because its closest competitor in (13b) violates the high ranking constraint $_{N}$NOVCDOB. By contrast, the faithful form (14a) in the second tableau is selected as optimal over (14b) because (14b) violates IDENT (voice). Note that (14a) satisfies $_{N}$NOVCDOB by virtue of the fact that the [b] in this form is 'old' (i.e. it is present in the fully faithful candidate). Thus, the [b] in (14a) only incurs a violation of the low ranking constraint $_{O}$NOVCDOB.

3.2 An alternative treatment

The Meccan Arabic data in (10) can be analyzed in SFT without making reference to ‘old’ and ‘new’ markedness constraints.

The constraints required in the SFT analysis are the two faithfulness constraints in (15a-b), as well as the markedness constraints AGREE (voice) and NOVCDOB employed by McCarthy.[5]

(15) a. MAX (voice): The feature [voice] in the input corresponds to the feature [voice] in the output. (Don’t delete the feature [voice]).
b. DEP (voice): The feature [voice] in the output corresponds to the feature [voice] in the input. (Don’t insert the feature [voice]).
c. DEP (voice) » AGREE (voice) » MAX (voice) » NOVCDOB

Constraints (15a-b) penalize the deletion and insertion of the feature [voice] respectively. The bifurcation of a general IDENT [voice] constraint (as in McCarthy’s treatment) into the two separate constraints in (15a-b) is necessary to account for the typology of voicing assimilation (see section 4 below). See also Wetzels and Mascaró (2001), who show that both values of the feature [voice] can be active phonologically, which would not be surprising if these two feature values are under control of two separate constraints. The reason I require the two constraints in (15a-b) as opposed to the one general constraint IDENT (voice) is that MAX (voice) and DEP (voice) occupy different slots in the constraint ranking for Mekkan Arabic (see 15c and below).

The process of voicing assimilation in (10a) requires the ranking AGREE (voice) » MAX (voice), as illustrated in (16) below. In this respect the SFT treatment does not differ significantly from the CM treatment in (12) above.

(16)

	/ʔagsam/	DEP (voice)	AGREE (voice)	MAX (voice)	NOVCDOB
a.	→ [ʔaksam]			*	
b.	[ʔagsam]		*!		*

The fact that no voicing assimilation occurs in the words in (10b) can be accounted for by ensuring that the candidates with assimilation (e.g. *[ʔagbar] for the first example) violate a constraint higher ranked than AGREE (voice). What examples like *[ʔagbar] have in common is that the underlying voiceless (coda) obstruent becomes voiced, which is penalized by the faithfulness constraint DEP (voice) in (15c). Thus, consider the tableau in (17):

(17)

	/ʔakbar/	DEP (voice)	AGREE (voice)	MAX (voice)	NOVCDOB
a.	→ [ʔakbar]		*		*
b.	[ʔagbar]	*!			**

[5] MAX [voice] and DEP [voice] could be substituted with IDENT [+voice] and IDENT [–voice] respectively and my analysis would not be affected. The choice of constraint (or the choice of binary vs. privative [voice]) are questions that are independent of my analysis.

In (17) we can see that the winner in (17a) is selected over (17b) because the latter form does not satisfy DEP (voice).

The final case to consider is (10c), in which coda obstruents are voiced. The preservation of underlying voiced obstruents in these examples follows because candidates in which the corresponding sounds are devoiced violate the lowest constraint MAX (voice). The winning candidate in (18a) only violates the low ranking markedness constraint NOVCDOB.

(18)

	/ʔibnu/	DEP (voice)	AGREE (voice)	MAX (voice)	NOVCDOB
a.	→ [ʔibnu]				*
b.	[ʔipnu]			*!	

Note that the tableau in (18) is formally similar to the one proposed by McCarthy (2003a) in (14).

The crucial difference between the CM treatment of Mekkan Arabic and the SFT analysis involves examples like [ʔakbar] in (10b). In my analysis in (17) the non-assimilation is accounted for because assimilation (i.e. /k/ to [g]) would require the feature [voice] to be added. Put differently, SFT says that we may delete, but not introduce voicing to comply with agreement. By contrast, CM says that we should satisfy agreement, but not at the cost of introducing new voiced obstruents.[6]

4 Comparative Markedness vs. Standard Faithfulness Theory: Typological predictions

In section 3.1 I have shown that while CM *can* be used to account for Mekkan Arabic, it is not *required* because SFT can also generate the facts. Thus, the reader will want to know how one can decide which of the two theories is to be preferred. How can the two theories be evaluated?

A proponent of CM might criticize SFT because it requires faithfulness constraints such as [+voice] and [–voice] (or MAX (voice) and DEP (voice)), which are not necessary in the former theory. This may be true; however, it is not always the case that SFT faithfulness constraints are superfluous in CM. Consider the case of German and French glide formation discussed in Hall (2006), which crucially require the general constraint FAITH-μ be split up into MAX- μ and DEP-μ. In contrast to the featural faithfulness constraints [+voice] and [–voice] mentioned above, there exists little controversy in the literature that both MAX-μ and DEP-μ are independent constraints in the sense that certain languages require one to be ranked high and the other low. What this example tells us is that research from other languages is necessary to decide whether of not standard faithfulness constraints like [+voice] and [–voice] are required.

The most profitable was to evaluate CM and SFT lies in the realm of typology. In fact, the two theories make radically different typological predictions, to the detriment of

6 Kenstowicz, Abu-Mansour & Törkenczy (2000) offer an alternative approach to the Arabic examples under the asumption that AGREE (voice) is replaced with a hierarchy of constraints which license voicing contrasts (see Steriade’s 1999a, b). I see the analysis of Meccan Arabic presented by Kenstowicz, Abu-Mansour & Törkenczy (2000) as yet another alternative non-CM treatment. I do not compare their analysis with my own because this would be peripheral to the points I discuss below.

CM as I show below. In the remainder of this section I focus on a typology of voicing assimilation because the Mekkan Arabic example involves the feature [voice]. I ultimately argue that only the SFT treatment makes the correct typological predictions.

There are four logical voicing assimilation types (referred to below as Types A-D), depending on what value of the feature [vc] assimilates, i.e. Type A: assimilation of [–vc], Type B: assimilation of [+vc], Type C: assimilation of [±vc] and Type D: no assimilation. In (19) I have listed these four language types in the first column, the assimilating features in the third column and representative languages in the final column.[7] In (19) and below I restrict my typological remarks to regressive assimilations.

(19) A voicing typology in SFT:

Type	*Ranking*	*Effect*	*Example*
Type A	DEP (voice) » AGREE (voice), MAX (voice)	[–vc] assimilation	Mekkan
Type B	MAX (voice) » AGREE (voice), DEP (voice)	[+vc] assimilation	Ukranian
Type C	AGREE (voice) » DEP (voice), MAX (voice)	[±vc] assimilation	Yiddish
Type D	MAX (voice), DEP (voice) » AGREE (voice)	no assimilation	Berber

In the second column in (19) I list the rankings for Types A-D. In Type A languages like Mekkan Arabic (recall the tableaux in section 3.2) assimilation of [–vc] requires that DEP (voice) dominate AGREE (voice) and MAX (voice).[8] If [+vc] assimilates (Type B) then we see in (19) that MAX (voice) is the highest ranking constraint. This point is illustrated in (20) for a hypothetical language:

(20) Type B rankings:

	/t-b/	MAX (voice)	AGREE (voice)	DEP (voice)
a.	→ [db]			*
b.	[tb]		*!	

	/d-k/	MAX (voice)	AGREE (voice)	DEP (voice)
c.	→ [dk]		*!	
d.	[tk]	*!		

By contrast, Type C requires that AGREE (voice) dominate the two faithfulness constraints. This point is illustrated for a hypothetical language in (21):

(21) Type C rankings:

	/t-b/	AGREE (voice)	MAX (voice)	DEP (voice)
a.	→ [db]			*
b.	[tb]	*!		

[7] None of the language types in (19) has a process of coda devoicing.
See Cho (1991), Lombardi (1999) and Wetzels and Mascaró (2001) for a more extensive typology of voicing assimilation, which also includes the effects of coda devoicing. Data from Yiddish and Berber can be found in those sources. See below for a discussion of Ukranian.

[8] In section 3.2 the ranking DEP (voice) » AGREE (voice) » MAX (voice) » NOVCOBST was proposed for Mekkan Arabic. The constraint NOVCDOB is ignored in (19) for simplicity.

	/d-k/	AGREE (voice)	MAX (voice)	DEP (voice)
c.	[dk]	*!		
d.	→ [tk]		*	

Finally, Type D in (19) would be obtained by ranking AGREE (voice) low, thereby ensuring that input sequences like the ones in (21) surface faithfully.

Let us now consider the CM treatment for Mekkan from section 3.1: $_N$NOVCOBST » AGREE (voice) » IDENT (voice). In (22) I have shown that three of the four language types in (19) can be generated given a permutation of these constraints, namely Type A, C and D:

(22) CM rankings required for language Types A, C and D:

Type	*Ranking*
Type A	$_N$NOVCOBST » AGREE (voice) » IDENT (voice) » $_O$NOVCOBST
Type C	AGREE (voice) » $_N$NOVCOBST » IDENT (voice) » $_O$NOVCOBST
	AGREE (voice) » IDENT (voice) » $_N$NOVCOBST » $_O$NOVCOBST
	AGREE (voice) » IDENT (voice) » $_O$NOVCOBST » $_N$NOVCOBST
Type D	IDENT (voice) » $_N$NOVCOBST » AGREE (voice) » $_O$NOVCOBST
	IDENT (voice) » $_N$NOVCOBST » $_O$NOVCOBST » AGREE (voice)
	IDENT (voice) » AGREE (voice) » $_N$NOVCOBST » $_O$NOVCOBST
	IDENT (voice) » AGREE (voice) » $_O$NOVCOBST » $_N$NOVCOBST
	IDENT (voice) » $_O$NOVCOBST » AGREE (voice) » $_N$NOVCOBST
	IDENT (voice) » $_O$NOVCOBST » $_N$NOVCOBST » AGREE (voice)

A comparison of the language types in (22) with those in (19) reveals that CM is overly restricted in the sense that Type B cannot be generated.

Type B languages are those languages in which there is spreading of [+voice] only (and in which there is no coda devoicing). Put differently, a Type B language is like Mekkan Arabic, but instead of [–vc], it is [+vc] which assimilates. Type B is attested by Santee (Shaw 1980) and Ukranian (Humesky 1980). The following Ukranian data (from Cho 1991: 165 and Wetzels & Mascaró 2001: 209) illustrate that there is regressive spreading of [+voice] (in 23a) but that [–voice] does not spread (in 23b). In (23c) we can see that there is no process of coda devoicing:

(23) [+voice] assimilation in Ukranian:

a.	/borot-ba/	[borodba]	‘struggle’
	/jak-ze/	[jagze]	‘how’
	/os’-de/	[oz’de]	‘here/there’
b.	/s’vbyd-ko/	[s’vydko]	‘quickly’
	/v’id-pov’idatje/	[v’idpov’idatje]	‘answer (imperative)’
	/berez-ka/	[berezka]	‘little birch’
c.	/raz/	[raz]	‘time’
	/sad/	[sad]	‘garden’

The following three tableau provide an evaluation of the first example in each of the three categories in (23) in the SFT approach:

(24)	/borot-ba/	MAX (voice)	AGREE (voice)	DEP (voice)
a.	→ [borodba]			*
b.	[borotba]		*!	

(25)	/s’vbyd-ko/	MAX (voice)	AGREE (voice)	DEP (voice)
a.	→ [s’vbydko]		*	
b.	[s’vbytko]	*!		

(26)	/sad/	MAX (voice)	AGREE (voice)	DEP (voice)
a.	→ [sad]			
b.	[sat]	*!		

In (24) we can observe that if AGREE (voice) outranks DEP (voice), then a voiceless sound becomes voiced before a voiced sound. Tableau (25) illustrates that the high-ranking status of MAX (voice) protects a voiced sound in the input from becoming voiceless before a voiceless sound. Finally, the constraint MAX (voice) rules out the devoiced candidate in (26b). (The winner violates NOVCDOB, which I have ignored; recall note 8.)

By contrast, CM cannot generate Type B language like Ukranian. In a CM treatment of Ukranian the process of voicing assimilation is captured with the ranking AGREE (voice) » IDENT (voice). This would give the right results for words like [borodba] in (23a) but would present a problem for examples like [s’vbydko] in (23b). This is illustrated in the following two tableaux. The backwards arrow ‘←’ in (28) indicates the intended winner.

(27)	/borot-ba/	AGREE (voice)	IDENT (voice)
a.	→ [borodba]		*
b.	[borotba]	*!	

(28)	/s’vbyd-ko/	AGREE (voice)	IDENT (voice)
a.	← [s’vbydko]	*!	
b.	[s’vbytko]		*

Neither of the two CM constraints $_{N}$NOVCDOB and $_{O}$NOVCDOB can be used to select (28a) over (28b). The reason is that the intended winner in (28a) violates $_{O}$NOVCDOB twice, while candidate (28b) incurs only one violation mark. Both candidates satisfy $_{N}$NOVCDOB.

I conclude that the SFT approach to Mekkan Arabic is to be preferred over the CM treatment because only the latter theory makes the correct predictions with respect to voicing assimilation typology.[9] [10]

[9] For criticisms of other aspects of CM see the contributions in *Theoretical Linguistics* 29 (2003) and McCarthy (2003b) for responses to those criticisms. See also deLacy (2006) for discussion of CM.

5 Conclusion

In this article I have provided a brief comparison of the theory of Comparative Markedness (CM) and Standard Faithfulness Theory (SFT). I focused on one of McCarthy's crucial examples of 'grandfather effects' (Mekkan Arabic) and compared a CM treatment with a SFT approach. The difference between the two treatments was shown to lie in the realm of voicing typology. CM was argued to be too restrictive because it cannot generate languages of a certain type, i.e. languages with the assimilation of [+voice] only. By contrast, the advantage of SFT is that such languages are predicted to be occurring.

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[10] The typology in (19) is based on the constraint AGREE (voice), but other typologies are conceivable if one adopts alternate views concerning the constraints necessary for voicing assimilation (e.g. the proposal referred to in note 6). One might assume that CM is not as problematic as I suggest if one were to find the right constraints to replace AGREE (voice). The reason I employ AGREE (voice) in the typology and not some other one is that this is the constraint McCarthy is assuming (recall Mekkan Arabic in section 3.1), and it is his analysis my typology is intended to evaluate. Since CM is the innovative theory, I would argue that the burden of proof lies on the shoulders of its practitioners. For this reason I do not set up some straw man typology incorporating a different set of constraints which might be compatible with CM.

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