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Eric Baković (2013). *Blocking and complementarity in phonological theory*. (Advances in Optimality Theory.) Sheffield & Bristol, Conn.: Equinox Publishing. Pp. viii + 156.

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Blocking, much discussed since the early days of generative grammar, is a phenomenon where an expected input–output mapping is not active in a well-defined set of contexts because some other input–output mapping takes place.[1] In his book, Eric Baković takes the phenomenon apart, examines its pieces, reports the details of previous discussion and, most importantly, compares the predictions that different theoretical approaches make with respect to the different types of blocking. Baković presents an in-depth comparison of two such theories, rule-based *SPE*-style approaches (Chomsky & Halle 1968) and Optimality Theory (Prince & Smolensky 1993). His conclusion (building on a remark in Prince 1997) is that DISJUNCTIVE APPLICATION is predicted by the most basic assumptions of OT, while it necessitates additional machinery (the ELSEWHERE CONDITION) in rule-based frameworks.

This book will be enjoyable for a wide variety of readers: the theorist will find a comparison, rarely attempted in such thoroughness, of the predictions of two theoretical approaches with respect to a certain linguistic phenomenon; the scholar interested in the history of linguistics will find a meticulous description of the history of the discussion of blocking effects and the various attempts to solve the knots; the student of linguistics, finally, will get an excellent and extremely clearly written overview of what the discussion in the literature is about.

After a useful introduction to the topic of the book, Chapter 2 provides a history of the analysis of blocking phenomena discussed in the literature since the 1960s. In a rule-based framework, some blocking phenomena can simply be analysed as the result of rule ordering. This is the case, for example, where a BLEEDING relationship between rules can be proposed, such that the structural description which is necessary for rule 2 to apply is changed by a rule 1, applying earlier in the derivation, thus blocking the application of rule 2. COUNTERFEEDING is another example of relationship between rules which can explain certain blocking effects. The application of rules in a bleeding or counterfeeding relationship is straightforwardly serial ('conjunctive'), but in an order which leads to blocking.

However, since the very beginning of generative phonology it has been assumed that there are cases where rules seem to apply disjunctively, one blocking the application of the other even in the presence of a context suitable

[1] This definition has to be reversed in the case of NON-DERIVED ENVIRONMENT BLOCKING, where a certain mapping is blocked from applying if some other mapping has *not* applied (see below for discussion).

for the application of both. But what are the circumstances under which a rule can block another rule in this sense? The most influential proposal in the literature for defining the context of disjunctive rule application has been the Elsewhere Condition (Kiparsky 1973b). This condition – which has had a variety of definitions – describes a relationship between two rules which can lead to one preventing the other from applying. As such, it is an additional component to the theory of rule-based derivation, a patch which is used to cover the cases where rule ordering is not enough to capture claimed linguistic generalisations. Moreover, as Baković observes again and again throughout the book, even if the Elsewhere Condition is able to capture many, if not all cases of disjunctive application, it is itself nothing more than a stipulation. Why it is formulated as it is (in its various guises) can only be explained by the need to capture the empirical facts. The chapter concludes with a discussion of two further types of blocking, NON-DERIVED ENVIRONMENT BLOCKING and DO-SOMETHING-EXCEPT-WHEN BLOCKING, which also defy the mechanism of rule-based derivation, but do not fall under the Elsewhere Condition without further assumptions.

Chapter 3 shows that, notwithstanding the analytical efforts in the literature, there are cases where it has been claimed that the best available analysis in a rule-based framework has to resort to disjunctive rule application, and hence to machinery outside the basic assumptions of the theory. Baković finds these cases among certain types of complementary distribution. With respect to the distribution of elements, he distinguishes between two types of complementary distribution, UNBOUNDED and BOUNDED complementary distribution (UCD and BCD respectively). The prototypical distribution of allophones of a phoneme is considered to be a case of UCD: we find allophone *y* in a specific context, while the basic allophone *x* is found 'everywhere else'. As a consequence, under UCD allophones never contrast in any context. In the case of BCD, on the other hand, *x* and *y* are in complementary distribution only in a proper subset of contexts, while they contrast in all remaining contexts. While cases of UCD can be analysed in terms of serial derivation without referring to the Elsewhere Condition, some BCD cases are claimed not to be amenable to the same treatment. An example of such a BCD case is the distribution of English vowel length. Vowel length is contrastive in English, except in the heads of branching main stress feet (*σ́σ*). In this proper subset of all possible contexts we find complementary distribution: the vowel is long if (a) it is [−high], (b) the following, non-head vowel is [i] and (c) the non-head vowel is immediately followed by another vowel. In all other cases it is short (e.g. (ˈ*jōvi*)⟨*al*⟩ *vs.* (ˈ*trĭvi*)⟨*al*⟩; (ˈ*grādi*)⟨*ent*⟩ *vs.* (ˈ*grădu*)⟨*al*⟩; (ˈ*rādi*)⟨*al*⟩ *vs.* (ˈ*rădi*)⟨*cal*⟩). An analysis of the facts in terms of serial derivation is possible if we assume a rule shortening branching foot-heads, which is then undone by subsequent lengthening in the subset of contexts specified above (see also discussion of this point in Prince 1997). If, however, overwrite rules of this type are rejected, then the two rules have to apply disjunctively.

Assuming, as Baković does, that disjunctive rule application is necessary for some BCD cases, the question arises whether it might not be the right approach also to the simpler UCD cases. Since the latter are easily analysed with the instrumentarium of serially (conjunctively) applying rules, analyses in terms of disjunctive rule application have rarely been contemplated.

However, as Baković observes in the final section of the chapter, this creates a fundamental difference between UCD (analysed with conjunctive application) and BCD (analysed with disjunctive application), a difference not obvious in the phenomena themselves, which simply instantiate different types of complementary distribution. However, the similarity between UCD and BCD is re-established in OT analyses of complementary distribution (see the discussion below).

In the first part of Chapter 4, considerable effort is put into showing how the blocking typology derived from the rule-based literature can and cannot be analysed in OT. To make a point-by-point comparison possible for certain basic cases, the parts of a phonological rule (structural description, structural change) are translated into the constraint format, where, taking a rule of the type $A \rightarrow B \ / \ C \_\_ D$, $\mathbb{M}$:*CAD stands for the markedness constraint banning the string fitting the structural description and $\mathbb{F}$:*$A \rightarrow B$ for the faithfulness constraint banning the change. This abstract translation of the basic elements allows for a comparison between approaches, a possibility that is often lost when the analyses of linguistic data, fraught with their inevitable complexities, are compared. Just as blocking has to be seen as a special kind of interaction between two (or more) rules in a rule-based approach, it has to be considered as the interaction between pieces of the ranking of a grammar in an OT approach.

To simplify the discussion to its extreme, at the core of the interaction there will be two relationships, each between a markedness constraint and a faithfulness constraint, corresponding to two rules in a rule-based framework. Let us call them $\mathbb{M}_1/\mathbb{F}_1$ and $\mathbb{M}_2/\mathbb{F}_2$. The question is how the relationship between these four constraints (and other constraints which may be involved) is spelled out for each type of blocking phenomenon. Baković discusses every type of blocking, from bleeding to non-derived environment blocking, showing how certain types of blocking (bleeding, do-something-except-when blocking and disjunctive rule application) can be dealt with in the constraint format without further assumptions, while other types (counterfeeding and non-derived environment blocking), which can be characterised as opacity phenomena, cannot be analysed with the basic OT machinery.[2] In what follows, I will first summarise non-derived environment blocking, which exemplifies the type of blocking which is problematic for OT, and then bleeding, an example of blocking which is easily dealt with under basic OT assumptions.

The well-known example of non-derived environment blocking discussed by Kiparsky (1973a, 1993) concerns the interaction between Assibilation and Raising in Finnish. When word-final raising of /e/ to [i] takes place, assibilation of /t/ to [s] before [i] can take place as well, mapping an input /vete/ 'water' to the output [vesi], where the effects of both processes are visible. However, in contexts where raising cannot apply (which therefore qualify as non-derived environments), assibilation will be blocked. The potential assibilation context /äiti/ 'mother' is mapped faithfully to [äiti]. Thus the context of derived environments requires two unfaithful mappings, represented here by the rankings $\mathbb{M}_1 \gg \mathbb{F}_1$ and $\mathbb{M}_2 \gg \mathbb{F}_2$, the former responsible for the process of

[2] But see page 136 for a brief overview of the various proposals on how to deal with opacity inside OT.

raising, the latter generating assibilation, where the constraints can be defined concisely as in (1) (see p. 71).

(1) a. *Raising*
$\mathbb{M}_1$ = No-e# 'no word-final mid vowels'
$\mathbb{F}_1$ = Ident(high) 'identical input–output values for [high]'
b. *Assibilation*
$\mathbb{M}_2$ = No-ti 'no [t] followed by [i]'
$\mathbb{F}_2$ = Ident(cont) 'identical input–output values for [cont]'

Non-derived environments, however, require the reverse ranking for the $\mathbb{M}/\mathbb{F}$ pair responsible for assibilation ($\mathbb{F}_2 \gg \mathbb{M}_2$), since assibilation does not take place in non-derived environments, and inputs are mapped faithfully. This leads to a contradiction in terms of ranking conditions, summarised here very schematically in a comparative tableau (for extensive discussion see page 71).

(2) *Contradictory ranking conditions in non-derived environment blocking*

	Derived environment: /vete/	$\mathbb{M}_1$	$\mathbb{F}_1$	$\mathbb{M}_2$	$\mathbb{F}_2$
a.	i. vesi ~ vete	W	L		L
	ii. vesi ~ veti			W	L
b.	Non-derived environment: /äiti/				
	i. äiti ~ äisi			L	W

In derived environments, where word-final raising takes place, the candidate [vesi], which has undergone both raising and assibilation, defeats [vete], with no raising (a.i), and [veti], with no assibilation (a.ii). For this to happen, each markedness constraint has to outrank the faithfulness constraint it interacts with (and $\mathbb{M}_1$ also has to outrank $\mathbb{F}_2$). In non-derived environments, however, where word-final raising does not take place, the faithful candidate [äiti], without assibilation, wins, an outcome that requires $\mathbb{F}_2$ to dominate $\mathbb{M}_2$ (b.i). We are faced with a contradiction in terms of ranking conditions (indicated by shading in (2)), showing that non-derived environment effects cannot be dealt with within the basic assumptions of OT.

Of course, non-derived environment blocking is a problematic case for serial derivation as well, even if the Elsewhere Condition is invoked, as is attested in the relevant literature (see the overview on page 32). It is in fact not obvious which rule would entertain a specific–general relationship (as defined by the Elsewhere Condition) with assibilation and thus block it from applying in the case of /äiti/.

On the other hand, it is easy to show that other types of blocking *can* be dealt with in OT. Take, for instance, the case of a bleeding relationship. An example of bleeding is the interaction between lowering and palatalisation in Lamba (Doke 1938, Kenstowicz & Kisseberth 1979), discussed by Baković on pages 11 and 68ff. Palatalisation changes /s/ to [ʃ] before [i], but the process does not apply to the sibilant in underlying /kosika/, because the process of Lowering lowers /i/ to [e] after a mid vowel, changing /kosika/ into [koseka], and thus destroying the context for palatalisation. Building on Baković's discussion on page 68ff, we can again characterise the relationship between the two processes in terms of ranking conditions, where $\mathbb{M}_1$ and $\mathbb{F}_1$ are the constraints responsible for palatalisation, while the interaction between $\mathbb{M}_2$ and $\mathbb{F}_2$ generates lowering.

(3) a. *Palatalisation*
$\mathbb{M}_1$ = No-{k,s}i   'no [k s] followed by [i]'
$\mathbb{F}_1$ = Ident(pal)   'identical input–output values for [palatal]'
b. *Lowering*
$\mathbb{M}_2$ = Agree(high)   'vowels agree in feature [high]'
$\mathbb{F}_2$ = Ident(high)   'identical input–output values for [high]'

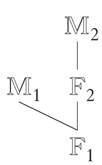
The ranking conditions for this bleeding phenomenon can again be represented in a comparative tableau, as in (4).

(4) *Non-contradictory ranking conditions in bleeding*

	General palatalisation context: /si/	$\mathbb{M}_1$	$\mathbb{M}_2$	$\mathbb{F}_2$	$\mathbb{F}_1$
a.	i. ʃi ~ si	W			L
	ii. ʃi ~ se			W	L
b.	Context for lowering and palatalisation: /osi/				
	i. ose ~ osi	W	W	L	
	ii. ose ~ oʃi		W	L	W

For [ʃi] to win over [si] (comparative pair (a.i)), $\mathbb{M}_1$, which triggers palatalisation, has to dominate the faithfulness constraint $\mathbb{F}_1$, which penalises the input–output mapping /si/ → [ʃi]. For [ʃi] to beat [se] (a.ii), where [se] would be an alternative way to fulfil $\mathbb{M}_1$, the faithfulness constraint $\mathbb{F}_2$, which disfavours lowering, has to dominate $\mathbb{F}_1$. In contexts where lowering is favoured by $\mathbb{M}_2$, the candidate [ose] can, in principle, defeat [osi] (b.i) either if $\mathbb{M}_2$ dominates $\mathbb{F}_2$ (i.e. lowering is triggered by the markedness constraint requiring lowering) or if $\mathbb{M}_1$ dominates $\mathbb{F}_2$ (i.e. lowering is triggered by the fact that $\mathbb{M}_1$ penalises [si]). The comparative pair in (b.ii), however, shows that the crucial ranking is $\mathbb{M}_2 \gg \mathbb{F}_2$, not $\mathbb{M}_1 \gg \mathbb{F}_2$. In fact, in (b.ii) we see that [ose], the candidate displaying lowering, beats [oʃi], the candidate displaying palatalisation, only if either $\mathbb{M}_2$ or $\mathbb{F}_1$ dominate $\mathbb{F}_2$. Since we know from comparison (a.ii) that $\mathbb{F}_2$ has to dominate $\mathbb{F}_1$, the disjunction in (b.ii) will be resolved by the requirement that $\mathbb{M}_2$ dominate $\mathbb{F}_2$. As a consequence, $\mathbb{M}_2 \gg \mathbb{F}_2$ is the crucial ranking also in (b.i).

The comparative tableau makes it clear that no ranking contradiction arises and that a ranking characterising the bleeding relationship can be represented by the Hasse diagram in (5).

(5)


As above, there are two basic $\mathbb{M}$/$\mathbb{F}$ relationships, $\mathbb{M}_1 \gg \mathbb{F}_1$, responsible for palatalisation, and $\mathbb{M}_2 \gg \mathbb{F}_2$, responsible for lowering. The relationship between these two rankings is such that $\mathbb{F}_2$, which is part of the ranking responsible for the bleeding process of lowering, must dominate $\mathbb{F}_1$, which is part of the bled process of palatalisation. This ranking constellation guarantees that $\mathbb{F}_1$ (IDENT(pal)) will be violated whenever $\mathbb{M}_2$ is not active in the evaluation (i.e. palatalisation will take place, as in (4a)), but that $\mathbb{F}_2$ (IDENT(high)) will be violated whenever this is the only way to satisfy $\mathbb{M}_2$ (i.e. lowering will take place, as in (4b)). Recalculating the examples on page 68, I do not think that the ranking $\mathbb{M}_1 \gg \mathbb{F}_2$ is crucial for the bleeding interaction to arise, since violation of $\mathbb{F}_2$ is triggered exclusively by $\mathbb{M}_2$. $\mathbb{M}_1$ can always achieve its goal at the cost of $\mathbb{F}_1$.

A translation of the various blocking phenomena into skeletal OT analyses shows very clearly the predictions that the theory makes for every single type of blocking: some types will be analysable within the basic OT machinery (no contradictions in terms of ranking conditions arise), while others will not. It should be emphasised that it is a point in favour of the theory that the predictions *can* be made clear to this degree, and a virtue of Baković's book that he makes them clear to the reader.

The second half of Chapter 4 is devoted to the analysis of unbounded and bounded complementary distribution in OT. While the treatment of BCD called for disjunctive rule application in an *SPE* framework, no additional component has to be added to OT in order to analyse cases of this type. The fact that in BCD segments contrast in a subset of contexts is accounted for in OT with an $\mathbb{F} \gg \mathbb{M}$ ranking at the base of the (relevant portion of the) constraint hierarchy. Taking as an example the distribution of English vowel length described above, and abstracting away from details (but see page 79ff for extensive discussion), we can say that at the base of the hierarchy we will find a ranking $\mathbb{F}_0 \gg \mathbb{M}_0$, which guarantees preservation of input vowel length by the faithfulness constraint referring to length ($\mathbb{F}_0$) dominating whatever markedness constraints might want to shorten or lengthen vowels in general ($\mathbb{M}_0$). This means that vowel length is contrastive, in principle. However, above $\mathbb{F}_0$ we find a markedness constraint $\mathbb{M}_1$, which favours shortening of vowels in the heads of a branching foot. This means that there is a specific context, the head of branching feet, where vowels are short, in principle. Above $\mathbb{M}_1$, though, there is yet another markedness constraint, $\mathbb{M}_2$, which disallows short vowels in a very specific type of foot-head, one which is [−high] and followed by [i] in a hiatus context. The structure of this grammar can be represented as in (6).

(6)
$$\begin{array}{c} \mathbb{M}_2 \\ | \\ \mathbb{M}_1 \\ | \\ \mathbb{F}_0 \\ | \\ \mathbb{M}_0 \end{array}$$

The $\mathbb{F}_0 \gg \mathbb{M}_0$ ranking at the base of the hierarchy leads to contrast between segments in a subset of contexts. However, in the upper part of the hierarchy $\mathbb{F}_0$ is dominated by two markedness constraints, and this generates the complementary distribution (determined by $\mathbb{M}_1$ and $\mathbb{M}_2$) in the remaining contexts. The only difference between rankings of this type and those responsible for UCD is that at the base of the hierarchy responsible for the latter we have a $\mathbb{M}_0 \gg \mathbb{F}_0$ ranking, which disallows contexts where contrast could occur. The OT analysis of complementary distribution, as opposed to a rule-based framework, thus uncovers the fundamental identity of UCD and BCD.

Chapter 5 discusses at length the various definitions of the Elsewhere Condition encountered in the literature. The Elsewhere Condition attempts to establish the conditions under which rules apply disjunctively. At the core of its original definition by Kiparsky (1973b) we find two conditions that have to be met: (a) the structural description of one rule has to be a subset of the structural description of the other rule, and (b) the structural changes of the two rules are either identical or incompatible. Returning to our example above, the context for vowel lengthening in English (head of a branching foot, which is [−high], followed by [i] in a hiatus context) is a subset of the context for vowel shortening (head of a branching foot), and the output of the rules of lengthening and shortening is incompatible. Given the subset relation between their contexts, lengthening can be considered to be the more specific rule, and shortening the more general rule. Baković discusses at length other conditions which have been claimed to be part of the Elsewhere Condition, and modifications to the core conditions outlined above. He reviews the arguments in the literature in favour of (or against) the requirement that the two rules involved be adjacent or that application of the more specific rule precede application of the more general rule, as well as the complexities surrounding the exact definition of the subset relationship between the two rules or the question of what it means for the output of the two rules to be 'incompatible'. The main conclusion though is that however the Elsewhere Condition is defined, 'there is far more *ad hoc* stipulation than explanation involved in its statement' and that 'each and every aspect of the [Elsewhere Condition] could easily be defined otherwise, with the consequences of such redefinitions being strictly and directly empirical' (p. 89). The Elsewhere Condition may be a useful tool in cases where straightforwardly serial rule ordering doesn't appear to capture the desired linguistic generalisations, but it is not predicted by anything in the basic theory of rule ordering.

The final chapter of the book is dedicated to the proof of what Baković calls the 'Elsewhere Theorem on Constraint-ranking' (ETC). The ETC is based on Pāṇini's Theorem on Constraint-ranking (PTC), stated in Prince & Smolensky (1993), which is modified to cover the typical elsewhere effects discussed in the first part of the book. ETC and PTC – as opposed to the Elsewhere Condition – are not components which are added to the theory. They are statements of predictions that the theory makes, and as such can be proved (see the useful introductory discussion on the difference between Elsewhere Condition and ETC/PTC on page 6). The ETC aims to state the conditions under which a more specific and a more general input–output mapping can coexist in a given grammar, i.e. the conditions under which there are indications that they are both active. The ETC thus states the ranking relations which give rise to the elsewhere effects described by the Elsewhere Condition: when it is the case that a more specific process can take place even though a more general process might be expected.

Baković (p. 120) gives Prince & Smolensky's (1993) definition of the PTC, on which the ETC is based, as (7).

(7) *Pāṇini's Theorem on Constraint-ranking*
Let $\mathbb{S}$ and $\mathbb{G}$ stand as specific to general in a Pāṇinian relation. Suppose these constraints are part of a constraint hierarchy $\mathbb{CH}$, and that $\mathbb{G}$ is active in $\mathbb{CH}$ on some input i. Then, if $\mathbb{G} \gg \mathbb{S}$, $\mathbb{S}$ is not active on i.

where the Pāṇinian constraint relation is defined as in (8) (from Prince & Smolensky 1993, discussed on page 119).

(8) *Pāṇinian constraint relation*
Let $\mathbb{S}$ and $\mathbb{G}$ be two constraints. $\mathbb{S}$ stands to $\mathbb{G}$ as special [= *specific*] to general in a Pāṇinian relation if, for any input i to which $\mathbb{S}$ applies non-vacuously, any parse of i which satisfies $\mathbb{S}$ fails [= *violates*] $\mathbb{G}$.

In general, the task of defining the circumstances under which two constraints stand in a specific–general relationship is far from trivial, considering that relationships between constraints can change with each step in the filtering process by which the constraint hierarchy shrinks the candidate set until the optimal candidate is selected (see Prince & Tesar 2004 for discussion). Baković wants to test the predictions that the theory makes for a specific type of $\mathbb{S}/\mathbb{G}$-relationship – the relationship between two $\mathbb{M} \gg \mathbb{F}$ rankings representing two rules in a rule-based framework. For this type of relationship the definition of Pāṇinian constraint relation in (8) is not adequate. In fact, as Baković observes, there are cases where we would want to assume a $\mathbb{S}/\mathbb{G}$ relationship in the sense of the Elsewhere Condition between two constraints $\mathbb{C}_1$ and $\mathbb{C}_2$, but where candidates take part in the evaluation which satisfy $\mathbb{C}_1$ as well as $\mathbb{C}_2$. In such a constellation, according to the definition of Pāṇinian constraint relation, we would have to conclude that $\mathbb{C}_1$ and $\mathbb{C}_2$ are *not* in a $\mathbb{S}/\mathbb{G}$ relationship. The candidates disturbing the picture are those that, in some sense, are *irrelevant* to establishing the $\mathbb{S}/\mathbb{G}$ relationship, and hence, in Baković's proposal, should be explicitly excluded.

Consider for instance the distribution of voiced stops and fricatives in Spanish, discussed at various points of the book and used on page 124ff to illustrate why the definition of Pāṇinian constraint relation should be modified. In Spanish, voiced obstruents are [+continuant] between vowels and [−continuant] elsewhere.[3] This distribution can be accounted for with a ranking where a general markedness constraint against voiced continuants, $\mathbb{M}$:No-β, outranks the faithfulness constraint preserving continuancy, $\mathbb{F}$:Ident(cont), but is itself outranked by the specific markedness constraint $\mathbb{M}$:No-VbV, penalising intervocalic voiced stops (p. 77).

(9) $\mathbb{S} = \mathbb{M}$:No-VbV $\gg \mathbb{G} = \mathbb{M}$:No-β $\gg \mathbb{F}$:Ident(cont)

$\mathbb{S}$ and $\mathbb{G}$ coexist in the grammar of Spanish, since we see signs of the activity of both of them: $\mathbb{M}$:No-β triggers fortition, banning voiced fricatives in

[3] As pointed out by Baković himself (p. 38), this is a simplified description of the actual Spanish facts (see also page 46 for discussion).

general, while 𝕄:No-VbV triggers spirantisation, eliminating voiced stops in the specific intervocalic context. Their coexistence leads to an elsewhere effect, since the general fortition process is blocked whenever the specific spirantisation process applies; spirantisation applies intervocalically, fortition elsewhere. Thus, it is reasonable to establish a specific–general relationship between 𝕊 = 𝕄:No-VbV and 𝔾 = 𝕄:No-β, in the sense of the Elsewhere Condition. However, when we examine the grammar of Spanish, it is not difficult to find candidates which satisfy both 𝕊 and 𝔾, and it would therefore seem that no such relationship can be established, according to the definition of the Pāṇinian constraint relation above. These are candidates which satisfy both 𝕊 and 𝔾 without violating the relevant 𝔽 constraint which is violated when 𝕊 and 𝔾 are satisfied (in this case 𝔽:Ident(cont)), but violate a higher-ranked faithfulness constraint (e.g. 𝔽′:Ident(voice)) instead. Consider the violation profile of the candidates in (10).

(10) *Satisfaction of both* 𝕊 *and* 𝔾

/VβV/	𝕊=𝕄:No-VbV	𝔽′:Ident(vce)	𝔾=𝕄:No-β	𝔽:Ident(cont)
a. VβV			*	
b. VfV		*		
c. VbV	*			*

Candidate (b) escapes violation of both 𝕊 and 𝔾, by virtue of changing the input fricative /β/ to a voiceless fricative [f].[4] Of course, in the grammar of Spanish, this candidate will be ruled out by the high-ranked faithfulness constraint 𝔽:Ident(voice), but this does not change the fact that it satisfies 𝕊 and does not violate 𝔾. Therefore, according to the definition of Pāṇinian constraint relation, 𝕄:No-VbV and 𝕄:No-β should not stand in a specific–general relationship.

In order to admit cases of this type among the 𝕊/𝔾 family, Baković proposes to introduce the concept of allowance, which distinguishes between allowed candidates, which are relevant for establishing a specific–general relationship, and not allowed candidates, which are not. For a specific 𝕄, 𝔽′ ≫ 𝔽 ranking, a candidate *x* is allowed if it satisfies 𝕄, and all other competing candidates are such that if they disagree with *x* on 𝔽, then they either violate 𝔽′ or 𝕄. In the example in (10), (c) is an allowed candidate for the 𝕄 ≫ 𝔽 ranking 𝕄:No-β ≫ 𝔽:Ident(cont), because all candidates that differ in their performance on 𝔽 either violate 𝔽′:Ident(voice) (candidate (b)) or 𝕄:No-β (candidate (a)). However, candidate (b) is not allowed for 𝕄:No-β ≫ 𝔽:Ident(cont), since the only other candidate which differs from (b) in its evaluation by 𝔽 is (c), which violates neither 𝔽′ nor 𝕄.

With the help of the concept of allowance, Baković defines a specific–general relationship between constraint *rankings* (and hence specific input–output mappings), not simply between constraints. Moreover, this relationship is symmetric.

[4] Candidate (b) here has [f], not, as in tableau (6.5) on page 125, [p], which seems to be a typo.

(11) *Elsewhere mapping relation*

Let $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$ and $[\![\mathbb{G} \gg \mathbb{F}_{\mathbb{G}}]\!]$ be two $[\![\mathbb{M} \gg \mathbb{F}]\!]$ rankings. $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$ stands to $[\![\mathbb{G} \gg \mathbb{F}_{\mathbb{G}}]\!]$ as specific to general in an Elsewhere relation iff

a. any candidate which is allowed by $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$ violates $\mathbb{G}$, and

b. any candidate which violates $\mathbb{S}$ is allowed by $[\![\mathbb{G} \gg \mathbb{F}_{\mathbb{G}}]\!]$.

Applying this definition to the example of Spanish fortition/spirantisation above, we see that the specific ranking $\mathbb{M}$:No-VbV $\gg$ $\mathbb{F}$:Ident(cont) must stand in a specific–general relationship to the general ranking $\mathbb{G} = \mathbb{M}$:No-β $\gg$ $\mathbb{F}$: Ident(cont), since every candidate allowed by the former (i.e. (10a)) violates $\mathbb{G} = \mathbb{M}$:No-β and any candidate which violates $\mathbb{S} = \mathbb{M}$:No-VbV (i.e. (10c)) is allowed by the latter.

The Elsewhere mapping relation thus defines the $\mathbb{S}/\mathbb{G}$ relationship over a limited set of candidates, i.e. those that are relevant for the input–output mapping determined by $\mathbb{M} \gg \mathbb{F}$.

With this definition of the $\mathbb{S}/\mathbb{G}$ relationship capturing the elsewhere cases, Baković (p. 128) reformulates the theorem as in (12).

(12) *The Elsewhere Theorem on Constraint-ranking*

Let $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$ and $[\![\mathbb{G} \gg \mathbb{F}_{\mathbb{G}}]\!]$ stand as specific to general in an Elsewhere relation. If $[\![\mathbb{G} \gg \mathbb{S}]\!]$, then $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$ is not operative on any input.

Apart from the modified definition of the specific–general relationship, this theorem contains also the new concept of operativeness, whose definition on page 128 ensures, with the help of the concept of allowance, that the relevant $\mathbb{M} \gg \mathbb{F}$ ranking is not only active for a particular input, but also responsible for selecting the winner.

The proof of the theorem is then rather simple: under a $\mathbb{S} \gg \mathbb{G}$ ranking, $\mathbb{G}$ will filter out some candidates and let others pass on. The surviving candidates, however, will all be violated by $\mathbb{S}$ because if they were allowed by $[\![\mathbb{S} \gg \mathbb{F}_{\mathbb{S}}]\!]$, they would violate $\mathbb{G}$, according to (9a) above. Hence $\mathbb{S}$ cannot distinguish between them and will not be operative.

Baković thus shows that in Optimality Theory elsewhere effects, which in a rule-based model are often dealt with by invoking the Elsewhere Condition, an additional component outside the core theory, are predicted to arise without further assumptions under a specific constellation of constraints. Whenever two $\mathbb{M} \gg \mathbb{F}$ rankings stand in the $\mathbb{S}/\mathbb{G}$ relationship defined by the Elsewhere mapping relation, $\mathbb{S}$ will only be decisive if it dominates $\mathbb{G}$.

For readers who are reluctant to embark on book-length texts, I suggest at least reading the conclusions (and Chapter 1). Here Baković gives a non-technical summary of the main points, as well as a brief overview of blocking in other fields, such as morphology. In this very last part it becomes especially clear that the ultimate task set in this book is to explore the predictive power of linguistic theories. Baković follows this task scrupulously throughout, down to the last details, without ever giving in to easy rhetoric against one theoretical approach or the other, but, on the contrary, always trying to accurately compare arguments and analyses between frameworks. This general tone of the book – the sense that the endeavour is to understand the predictions, not to condemn one approach or the other – is what makes reading it especially enjoyable and illuminating.

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