The Reduplicative Nature of the Bulgarian Definite Article

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In this paper I argue that the definite article of Bulgarian consists of an empty mora and an unlinked (floating) *t*. The content of the empty mora is determined by constraints that are familiar from reduplicative morphology. In this respect the definite article acts as a reduplicant. Constraints governing the morphology-phonology interface determine the position of the floating *t*.

An important consequence of this analysis is that the behavior of the definite article can straightforwardly be explained in Yearley's (1995) theory of yer vocalization without complicating its underlying representation. A second favorable consequence is that it becomes possible to understand why in certain environments the vowel of the definite article is lowered. Lowering can be seen as an instance of the peak's affinity for segments of relatively low sonority.

The article is structured in the following way. In the first section I present the problem; it is shown that, apparently, the definite article must be assigned an underlying yer. In the second section I show that, on closer view, this is not necessary; all phonological properties of the definite article can be explained if it is assumed that it consists of an empty mora and a floating *t* at the underlying level. A system of ranked constraints decides how the empty mora will be filled, and where the floating *t* will be realized. In the last section I show that this analysis allows us to understand the lowering phenomenon.

1 The Problem

Like all Slavic languages, Bulgarian has at least two yers, vowels that alternate with zero. In Bulgarian the two yers are realized respectively as schwa, and as the front, mid vowel *e*. The forms in (1) illustrate these alternations [1].

(1)	borec	'fighter, sg.'	borci	'fighter, plur.'
	orel	'eagle, sg.'	orli	'eagle, plur.'
	gorək	'bitter, masc. sg.'	gorka	'bitter, fem. sg.'

[1] All Bulgarian examples are taken from Scatton (1983), a classical generative account of all major aspects of Bulgarian word level phonology, and Scatton (1984), a comprehensive reference grammar. With one exception I have adopted Scatton's orthography: I have represented the schwa with the regular IPA symbol.

The appearance of the vowels in the forms on the left in (1) cannot be seen as a simple case of epenthesis. This is easy to demonstrate. Notice that in some of the forms the vowel is located in between a liquid and an obstruent. In Bulgarian there are many examples with the same consonantal sequence, but without an intervening vowel. In other words, in the same environment there is a contrast between a vowel's absence and its presence. This shows that, at least in certain environments, the yers of Bulgarian are not simply epenthetic.[2] Examples demonstrating that a sequence of a liquid and an obstruent is not always broken up are given in (2).

(2)	vəlk	'wolf'
	sərp	'sickle'
	spirt	'alcohol'

In standard generative accounts of Slavic yers it is claimed that an underlying yer is realized if the next vowel is also a yer. In all other environments the underlying yer is deleted (cf. Rowicka (1999) for an exhaustive overview of the literature). In the tradition of Bulgarian linguistics a similar analysis has been proposed in Scatton (1983). Thus, in the examples in (1) the appearance of the vowel is explained by the fact that the masc. sg. marker of nouns and adjectives is a yer. This yer triggers the vocalization of the preceding yer. It does not appear at the surface itself, because, not being followed by another yer, it is deleted. The traditional view is sketched in (3).

(3)	underlying representations [3]	surface realizations
	borEcƏ	borec
	gorƏkƏ	gorək
	borEci	borci

Recently, Yearley (1995) has proposed a rather different theory about

[2]This is not to say that in Bulgarian the yer is never epenthetic. Bulgarian differs from other Slavic languages, like Russian and Polish, in that it does not tolerate a sequence of consonants of increasing sonority. A sequence of this type is always broken up by a schwa yer.

[3]To distinguish yers from normal (non-alterating) vowels I represent the former with capital letters. In classical generative accounts there are two theories about the phonological structure of yers. According to one theory yers are lax vowels, whereas non-alternating vowels are tense. According to the second theory, yers are prosodically deficient; they lack a mora (or timing slot) at the underlying level.

the factors determining a yer's realization. She proposes that a yer is realized in order to block the appearance of a consonant cluster in coda position. In this respect a yer resembles an epenthetic vowel. Yet, a yer cannot be seen as a truly epenthetic vowel, as I have just explained. Yearley explains the partly epenthetic, partly non-epenthetic nature of yers in the following way. First of all she assumes that a yer lacks a mora at the underlying level. Secondly, she postulates a system of ranked constraints, which decides whether the moraless vowel receives a mora, or is deleted.[4]

In a case like *borEc* the second vowel does not have a mora underlyingly. Insertion of a mora violates DEP-μ. On the other hand, deletion of the vowel results in a consonant cluster. This constitutes a violation of NOCOMCOD. Since insertion of a mora is preferred over a complex coda, NOCOMCOD is ranked higher than DEP-μ. The proof of the argument is given in the tableau in (4).

(4) NOCOMCOD » DEP-μ

borEc	NOCOMCOD	DEP-μ
borc	*!	
☞ borec		*

In those cases where there is no threat of a complex coda the underlying yer is deleted. This entails that deletion of an underlying vowel is preferred over insertion of a mora, which suggests that DEP-μ is ranked higher than MAX-V. This is demonstrated in the tableau in (5).

(5) DEP-μ » MAX-V

borEci	DEP-μ	MAX-V
boreci	*!	
☞ borci		*

In those cases where there is no underlying yer no vowel can be inserted to

[4]Yearley's analysis of Russian yers is embedded in a model of Optimality Theory that is based on the principle of Containment (cf. McCarthy and Prince 1993). I have changed the analysis in order to make it compatible with the model of Optimality Theory that is based on Correspondence (McCarthy and Prince 1995). These changes are only superficial; they do not affect the essence of Yearley‘s proposals in any way.

break up a consonant cluster. This suggests that the constraint DEP-V is ranked higher than NOCOMCOD. The proof of the argument is given in the tableau in (6).

(6) DEP-V » NOCOMCOD

spirt	DEP-V	NOCOMCOD
spirət	*!	
☞ spirt		*

Combining the three hierarchies we get the system in (7). It is this system which decides whether an underlying yer is realized or deleted.

(7) DEP-V » NOCOMCOD » DEP-μ » MAX-V

Let us now go back to the masc. sg. of nouns and adjectives. We have seen before that the classical theory maintains that, at the underlying level, lexical items of this type are followed by an inflectional ending containing a yer. This is crucial, because only under this assumption it can be explained why in certain nouns (and adjectives) a vowel appears (cf. (3) for exemplification). On the other hand, in Yearley's proposal it would be quite disturbing to postulate a yer in the masc. sg. inflectional ending. The constraint system in (7) would then wrongly predict that the yer is realized if the inflectional ending follows two consonants. To see why this is the case, consider a form like *spirt* (cf. (2)). In (8) I show that **spirtə* is the predicted outcome.

(8)

spirtə	DEP-V	NOCOMCOD	DEP-μ	MAX-V
spirt		*!		*
☞ spirtə			*	

Faced with this problem it seems necessary to assume that masc. nouns and adjectives are not followed by a yer in the singular. The problem that I want to address now is the fact that the definite article seems to offer good evidence for the hypothesis that the singular marker of masculine nouns and adjectives does consist of a yer at the underlying level.

Feminine, singular nouns and adjectives are normally marked by the vowel *a*. Neuter, singular nouns (and adjectives) are normally marked by the vowel *o*. When the definite article is added to items of these two classes it has the following structure: it begins with *t*, which is then followed by a repetition of the vowel that immediately precedes the *t*. Examples are given in (9).

(9)	kniga	'book, fem. sg.'	knigata	'book, fem. sg., def.'
	koza	'goat, fem. sg.'	kozata	'goat, fem. sg., def.'
	meso	'meat, neut., sg.'	mesoto	'meat, neut., sg., def.'
	selo	'village, neut., sg.'	seloto	'village, neut., sg., def.'

It is clear that the vowel of the definite article is identical to the vowel of the inflectional ending marking the preceding noun (or adjective). In the Bulgarian linguistic tradition this is normally explained by the hypothesis that the definite article is not only preceded, but also followed by an inflectional ending. Furthermore, the vowels of the two inflectional endings surrounding the definite article are identical, at least in most cases. This analysis makes an interesting prediction. If the masc. sg. inflectional ending contains a yer, and if, furthermore, the definite article is surrounded by two identical inflectional endings, then it is predicted that in the masc. sg. the first yer is realized, whereas the yer of the second inflectional ending is deleted. This prediction is a result of the classical theory of yer vocalization, which maintains that a yer is realized if and only if the next vowel is also a yer. It turns out that this prediction is correct, as is shown by the examples in (10).

(10)	grad	'city, masc. sg.'	gradət	'city, masc. sg. def.'
	vol	'thief, masc. sg.'	volət	'thief, masc. sg. def.'
	vəlk	'wolf, masc. sg.'	vəlkət	'wolf, masc. sg. def.'

It is clear, then, that in the classical theory the appearance of the vowel preceding the *t* of the definite article can be explained in a very straightforward way. It simply follows from the morphological structure combined with the basic hypothesis that a yer is realized if and only if it is followed by another yer.

In the theory proposed by Yearley, on the other hand, it seems necessary to complicate the underlying structure of the definite article. Apparently, we are forced to add a yer to the left of *t*. The new yer appears only in those cases when there is a threat of a consonant cluster in coda position. This happens only in the singular of masc. nouns and adjectives, where (in Yearley's theory) the definite article is not followed by an inflectional ending . This analysis is illustrated in (11).

(11)

underlying representations	surface representations
vol+Ət	volət
knig+a+Ət+a	knigata
sel+o+Ət+o	seloto

In this article I want to point out, however, that there is a possibility to avoid complicating the analysis of the definite article. I want to argue that at the underlying level the definite article consists of an empty mora and a floating *t*. A system of ranked constraints, familiar from reduplicative morphology, decides in what way the empty mora is filled and where the floating *t* is realized. Although, strictly speaking, in this view the underlying structure of the definite article is more complicated than the traditional one (which only consists of a *t*), the analysis as a whole is not, because the new underling representation allows us to get rid of the inflectional endings following the definite article. This means that Yearley's theory of yer vocalization does not necessitate us to complicate the analysis of the definite article as a whole. Independent evidence for this approach comes from the lowering process operating in the plural of non-neuter nouns. It becomes possible to understand this phenomenon as a case of the emergence of the unmarked. The empty mora is filled with a relatively low vowel, because syllable peaks favor low vowels over high vowels.

In this view the definite article is a reduplicant. It is treated as a morpheme which is (at least partly) unspecified and which receives its content from its base. Let us now turn to the constraint system that decides how the abstract underlying representation of the definite article is realized.

2 A New Proposal

In the new proposal the structure of a representative feminine, singular noun like *kniga*, followed by the definite article is as follows:

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(12)  μ  μ  μ
      |  |
   kn ig a  t
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In the optimal candidate the vowel of the inflectional ending following the root must be copied in order to fill the empty mora. To obtain this result we must first of all ensure that neither the candidate in which the empty mora is deleted, nor the candidate in which the empty mora remains empty is optimal. This suggests that the constraints NOEMPTYMORA and MAX-μ are high in the hierarchy. Here I assume that they are undominated. MAX-μ will be left out of further consideration.

More importantly, we must also ensure that the empty mora is filled by a copy of the inflectional ending, rather than by some independent vowel. The constraint requiring copying is MAX-BR. It states that the segments of the base must have a correspondent in the reduplicant. Obviously, just one segment of the base is reduplicated. This indicates that the constraint DEP-S(egment) is higher ranked than MAX-BR. This effectively blocks reduplication, unless it must apply to fill the empty mora. Recall that NOEMPTY-MORA is undominated, as I have just suggested. The following ranked constraints account for the fact that one and only one vowel is copied. This is the vowel that fills the empty mora of the definite article.

(13) NOEMPTYMORA » DEP-S » MAX-BR

In the tableau in (14) I demonstrate how this system works.

(14)

<table>
<tr><th>μ μ μ
| |
kni ga t</th><th>NOEMPTYMORA</th><th>DEP-S</th><th>MAX-BR</th><th>IDENT(F)</th></tr>
<tr><td>☞ μ μ μ
| | |
kni g a_5 t a_5</td><td></td><td>*</td><td>****</td><td></td></tr>
<tr><td>μ μ μ
| | |
kni ga_5 t ə</td><td></td><td>*</td><td>*****!</td><td></td></tr>
<tr><td>μ μ μ
| | |
kni ga_5 t $ə_5$</td><td></td><td>*</td><td>****</td><td>*!</td></tr>
<tr><td>μ μ μ
| |
kni ga_5 t</td><td>*!</td><td></td><td>*****</td><td></td></tr>
</table>

In this tableau I have marked the correspondence relation holding between the fifth segment of the base and the segment in the reduplicant with subscripts. In the second candidate no segment of the base has a correspondent. Hence, it has five violation marks under MAX-BR. The fifth mark is fatal, because the first candidate has only four violations. In the third candidate the final vowel of the base does have a correspondent in the reduplicant. However, the two corresponding vowels are not identical. This is a fatal violation of IDENT(F), the constraint that requires that the features of corresponding segments be identical. It is not possible to determine the position of this constraint with respect to the other constraints, because there is no conflict. This is expressed by the dotted line separating MAX-BR and IDENT(F). All candidates, except the final one, violate DEP-S, because they have a vowel that is not present in the input. However, satisfaction of DEP-S by the last candidate leads to a violation of NOEMPTYMORA, which dominates DEP-S. It is clear, then, that the first candidate is optimal.

Although, at the underlying level, no linear order is specified between the mora and the *t*, it is clear that in the optimal candidate the *t* precedes the copied vowel. If the order would be reversed, then the copied vowel would immediately follow the inflectional ending, creating a long vowel, or an onsetless syllable.

So far we have seen that in feminine nouns and adjectives the vowel of the definite article is a copy of the preceding inflectional ending, and that the *t* of the definite article precedes the copied vowel. Normally, the definite article behaves in exactly the same way in neuter nouns and adjectives. From *selo*, for instance, we get *seloto* (cf. (9)). There is one environment, however, where the copied vowel following neuter nouns or adjectives is not identical to the vowel of the inflectional ending. This happens when the inflectional ending undergoes fronting, a process that changes underlying *o* to *e*. Fronting applies after alveopalatal consonants, palatalized consonants, and after the affricate *c*. The process of fronting and its interaction with reduplication is illustrated in (15).

(15)	lice	'face, neut., sg.'	liceto	'face, neut., sg. def.'
	pole	'field, neut., sg.'	poleto	'field, neut. sg. def.' [5]
	naše	'our, neut., sg.'	našeto	'our, neut. sg. def.'

In the analysis developed so far, it is difficult to understand how the content of the underlying inflectional ending can be visible for the reduplicant. The reason is that I have operated on the assumption that there is no correspondence relation between the reduplicant and the input. In this way it can be

[5]This form must have a palatalized consonant at the underlying level, because the plural is *pol'a*, rather than **pola*. In Bulgarian the palatal element can only surface immediately before a back vowel. That is why in the singular the final segment of the root is depalatalized.

explained very easily why just one segment is copied from the base; it follows from the fact that DEP-S dominates MAX-BR (cf. (14) for the illustration).

I can only very briefly sketch a possible solution to this problem. Obviously, the underlying quality of the inflectional ending must somehow be made accessible to the reduplicant. This can be done in the framework of Sympathy Theory, recently proposed in McCarthy (1997). Suppose that the candidate which preserves the underlying quality of the vowel is the sympathetic candidate. This result can be obtained if it is assumed that IDENT(F)-IO, a faithfulness constraint controlling the correspondence relations between input and output, selects the sympathetic candidate. The sympathetic candidate paralleling the optimal candidate *liceto* would then be *licoto*. Notice now that the optimal candidate *liceto*, where the copied vowel is not identical to its source in the base, is more faithful to the sympathetic candidate than the candidate *licete*, in which the vowel of the reduplicant is identical to the vowel of the base. This shows that IDENT(F)-SYM, a faithfulness constraint controlling the correspondence relation between any output candidate and the sympathetic candidate, dominates IDENT(F)-BR, the faithfulness constraint which controls the correspondence relation between the reduplicant and the base. In its turn IDENT(F)-SYM must be dominated by FRONTING, otherwise the process would never have visible effects. This hierarchy, listed in (16), is illustrated in (17).

(16) FRONTING » IDENT(F)-SYM » IDENT(F)-BR

(17)

μ μ μ li co t	FRONTING	IDENT(F)-SYM	IDENT(F)-BR
licoto	*!		
licete		**!	
☞ liceto		*	*

The first candidate fatally violates FRONTING. The second candidate violates faithfulness to the sympathetic candidate (i.e. *licoto*) twice. The second violation is fatal, because the third candidate violates it only once.

In the masc. sg. the mora of the definite article is filled by a schwa. Furthermore, the *t* of the definite article follows the schwa. Examples illustrating this pattern have been given in (10). The first question we have to answer is why in the masc. sg. the empty mora is not filled by a copy of the preceding vowel. We can solve this problem with the constraint LINEARITY and by relativizing it to morphological structure. According to LINEARITY the linear order of a string of segments must be maintained by the string of corresponding segments. If in the input sequence V_1C_2 the vowel is copied over the consonant, yielding the sequence $V_1C_2V_1$, then the LINEARITY constraint is obviously violated. In the input string the vowel precedes the consonant, but in the output its correspondent follows the consonant (although another correspondent precedes the consonant). Let us now make a distinction between a specific constraint LINEARITY(*Stem*) and a general constraint LINEARITY. The specific constraint is ranked above the general constraint, and MAX-BR is ranked in between them. We thus get the following ranking:

(18) LINEARITY(*Stem*) » MAX-BR » LINEARITY

As a consequence of this ranking a vowel can only be copied from an inflectional ending, because an inflectional ending is not located in the morphological stem. In the masc. sg., however, there is no inflectional ending. Hence, vowel copy is blocked, and vowel insertion takes over. The analysis is illustrated in the tableau in (19).

(19)

μ μ gra d t	LINEARITY (*Stem*)	MAX-BR	LINEARITY
μ μ ☞ gra$_3$d ət		****	
μ μ gra$_3$da$_3$t	*!	***	*

The first candidate is a complete failure with respect to MAX-BR. Nonetheless it is optimal, because any attempt to improve on MAX-BR leads to a violation of LINEARITY(*Stem*), as is shown by the second candidate.

This solution closely follows a proposal of McCarthy and Prince (1995). McCarthy and Prince propose to split up the family of faithfulness constraints into two subsets, one applying in the domain of roots, the other in the domain of affixes. The proposal made here extends this original idea by making a further bifurcation between faithfulness constraints applying in the domain of inflectional endings and constraints applying in the stem. There is independent evidence supporting this idea. In many languages the phonological content of inflectional endings is extremely restricted compared to what is allowed in roots and derivational affixes. Dutch is a typical example of such a language. In Dutch the inflectional endings can only contain a schwa or a coronal consonant, or both. No such restriction holds in other morpheme types.

The second question we have to answer is why, in the masc. sg., the vowel of the definite article is schwa. Apparently, in Bulgarian the schwa is a kind of default vowel. The default status of schwa in Bulgarian is confirmed by the fact that it can function as an epenthetic vowel. In Bulgarian a coda consonant cluster of rising sonority is not allowed. In this respect Bulgarian differs sharply from other Slavic languages, like Russian and Polish. In Bulgarian, but not in Russian and Polish, a sequence of coda consonants of rising sonority is avoided by epenthesis of schwa. Examples showing that schwa can be epenthetic are given in (20).

(20)

Bulgarian		Russian	
filtər	‘filter’	fil’tr	idem
bodər	‘alert, adj., masc. sg.’	bodr	‘energetic, adj., short form’
podəl	‘base, adj., masc. sg.’	podl	‘mean, adj., short form’
krəgəl	‘round, adj., masc. sg.’	krugl	‘round, adj., short form’

In OT the default status of a given segment is explained in terms of constraint ranking. To account for the Bulgarian case I propose that schwa lacks place features, and that the constraint ruling out empty place nodes is ranked below the constraint penalizing the presence of vocalic place features. Of course, this should not lead to the elimination of place features that are present in underlying forms. We thus have to rank IDENT(F)-IO above the constraint that penalizes the presence of place features. This leads to the following subhierarchy:

(21) IDENT(F)-IO » *VOCPF » *EMPTYPN

In the tableau in (22) I show that this hierarchy enforces insertion of schwa. I have taken into consideration only candidates in which there is no correspondence relation between an input vowel and the vowel of the definite article.

(22)

μ μ grad t	IDENT(F)-IO	*VOCPF	*EMPTYPN
μ μ gradit		**!	
μ μ ☞ gradət		*	*
μ μ grədət	*!		**

In the first candidate the empty mora is filled by *i* creating a (second) violation of *VOCPF, which is fatal. In the third candidate there is no vocalic place node. This, however, creates a (fatal) violation of IDENT(F)-IO, because the underlying *a* has been changed to schwa. Consequently, the second candidate is optimal.

It should be mentioned that *VOCPF is also crucially dominated by MAX-BR and IDENT(F)-BR. This ranking ensures that, if reduplication can apply (i.e. if there is an inflectional ending), it has to apply. In this way insertion of schwa is preempted by reduplication. This ranking, made explicit in (23), is illustrated in (24).

(23) MAX-BR, IDENT(F)-BR » *VOCPF

(24)

μ μ kniga t	IDENT(F) -IO	MAX-BR	IDENT(F)- BR	*VOCPF
☞ kniga$_5$ta$_5$		****		***
kniga$_5$tə$_5$		****	*!	**
kniga$_5$tə		*****!		**
knigə$_5$ tə$_5$	*!	****		*

The first candidate is optimal, because it best satisfies the BR-faithfulness constraints, even though this creates additional place features.

The third problem concerning the realization of the definite article in the masc. sg. is the fact that the only fixed segment of this morpheme, *t*, is realized after the vowel. Why, in other words, do we get *volət*, rather than **voltə*. In fact this problem is easy to solve. Both forms are identical in syllable structure in all relevant respects. However, the second form violates the constraint ANCHOR, which says that if a segment occupies the edge position of some designated morphological constituent, then its correspondent should occupy the same edge position of a designated phonological constituent. Notice now that in the masc. sg. the *t* of the definite article occupies the final position of the morphological word. If the epenthetic schwa is inserted before *t*, then *t* also occupies the final position of the phonological word. This is fine with respect to ANCHOR. On the other hand, if the epenthetic vowel is inserted after *t*, then ANCHOR is violated. Although at the underlying level *t* occupies the final position of the morphological word, its correspondent does not occupy the final position of a phonological word. This is illustrated in (25).

(25) underlying representations

$$\begin{array}{ccccc} & \mu & \mu & & \\ & | & & & \\ |\,v_1 & o_2 & l_3 & t_4\,| & \end{array} \qquad \begin{array}{ccccc} & \mu & \mu & & \\ & | & & & \\ |\,v_1 & o_2 & l_3 & t_4\,| & \end{array}$$

surface representations

$$\begin{array}{ccccc} & \mu & \mu & & \\ & | & | & & \\ \{v_1 & o_2\,l_3 & ə & t_4\} & \end{array} \qquad \begin{array}{ccccc} & \mu & & \mu & \\ & | & & | & \\ \{\,v_1 & o_2 & l_3\,t_4 & ə\,\} & \end{array}$$

There are two constraints that conflict with ANCHOR: CONTIGUITY and ONSET. CONTIGUITY requires that corresponding segments are a contiguous string. Insertion of schwa to the left of *t* creates a violation of this constraint, as is shown the subscripts in (25). Since schwa is inserted to the left of *t* ANCHOR dominates CONTIGUITY. In its turn ANCHOR is dominated by ONSET. We have seen that a copied vowel follows the *t* of the definite article, violating ANCHOR. If the order would be reversed, then ONSET would be violated. We thus get the following rankings:

(26) ONSET » ANCHOR » CONTIGUITY

Let me now summarize this section. I have argued that the definite article can be represented as an empty mora and a floating *t* at the underlying level. A system of ranked constraints accounts for the precise surface realization of the definite article. If an inflectional ending is available then the definite article receives a copy of the vowel of the inflectional ending. The copy is inserted after the *t*. If no inflectional ending is available, as in the masc. sg., then a schwa is inserted to the left of *t*. I now will turn to a process of vowel lowering. This process can be interpreted as independent evidence for the proposed analysis.

3 Lowering

In the plural of masc. and fem. nouns and adjectives the inflectional ending is *i*. Interestingly, in this case the copied vowel is not identical to the inflectional ending. It shares its place features, but not its aperture features. We thus get *e*, rather than *i*. Examples are given in (27).

(27)	singular	plural	definite plural	
	kniga	knigi	knigite	'book'
	koza	kozi	kozite	'goat'

In our analysis it is easy to understand this phenomenon. We can rely on Prince and Smolensky's (1993) approach to Berber syllabification. To account for syllabification in Berber Prince and Smolensky propose that the sonority hierarchy is mapped onto a set of constraints. One subset of these constraints relates vowel height to the syllable's peak position. These constraints are given in (28), together with their ranking.

(28) *N/I » *N/E » *N/A

The leftmost constraint excludes high vowels from the nucleus position. It dominates the second constraint, which disallows mid vowels in nucleus position. In its turn, this constraint is ranked higher than the rightmost constraint, which disallows low vowels in nucleus position. Lowering can simply be explained if we split up IDENT(F)-BR into two constraints: IDENT(Place Feature)-BR and IDENT(Height Feature)-BR. The former dominates the latter, and in between them *N/I is ranked. In this way, the vowel in the reduplicant is a lowered version of its source in the base, but lowering may not lead to a change in place features. Accordingly, *i* is lowered to *e*, not to *a*. Of course, an underlying high vowel is not lowered, which implies that IDENT(F)-IO dominates *N/I. We thus postulate the following rankings:

(29) IDENT(F)-IO, IDENT(PF)-BR » *N/I » IDENT(HF)-BR

The hierarchy is illustrated in the following tableau:

(30)

μ μ μ kozi t	IDENT(F)- IO	IDENT(PF)- BR	*N/I	IDENT(HF)- BR
koziti			**!	
kozita		*!	*	*
kozete	*!			
☞ kozite			*	*

The fact that only the vowel of the definite article undergoes lowering is difficult to understand in the standard account. Why should there be a difference between the two inflectional endings surrounding the definite article? In this framework we have to write an ad hoc rule (or constraint) requiring that a front high vowel is lowered if it is in the domain of an inflectional ending, and if it follows a front high vowel which is also located in an inflectional ending.

In my analysis, on the other hand, the special behavior of the high vowel of the definite article is explained in a natural way. In this view the definite article is a reduplicant. Hence, a special set of faithfulness constraints, FAITHFULNESS-BR, controls its structure. If the relevant member of this set is ranked below the constraint requiring lowering, the difference between the copied vowel and the underlying high vowel is explained. This constitutes strong evidence for the hypothesis that the Bulgarian definite article is a reduplicant.

In this paper I have argued that the Bulgarian definite article is a reduplicative morpheme. One consequence of this analysis is that Yearley's theory of yer vocalization can be extended to Bulgarian without complicating the representation of the definite article. The second advantage is that it is possible to understand why the vowel is lowered in the definite article; low vowels are favored in the syllable's peak position. Due to constraint ranking lowering can only take effect in the reduplicant, a clear case of the emergence of the unmarked.

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