Uniform Exponence: Exemplification and Extension

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Kenstowicz, Michael. 1997. Uniform Exponence: Exemplification and Extension. *Studies in Phonetics, Phonology and Morphology* 3, 1-23. This paper exemplifies the constraint of Uniform Exponence. We see how this constraint elucidates an otherwise mysterious double retraction of stress in certain plural formation in Russian and the scope of an allomorphy process in Dominican Spanish. In the body of paper we see how a simple typology of stress in five Australian languages is available when Uniform Exponence for the stress of roots and affixes is variably ranked with Alignment and Lapse constraints on good metrical form. .The final section of the paper suggests an extension of the notion uniformity to the effect of a lexcial item on its context. **(MIT)**

In this paper we motivate and exemplify instances of the general constraint of Uniform Exponence stated in (1).

(1) Uniform Exponence: a lexical item (stem, affix, word) has the same realization for property P in its various contexts of occurrence.

This constraint is proposed independently in Burzio (1996a, 1996b), Flemming (1995), and Kenstowicz (1996). It finds plausible psychological motivation on the assumption that words are stored in memory in their surface phonetic form. To the extent that two instances of a given lexical item share the same phonological structure, the amount of space required to store the words in memory is minimized. But this faithfulness relation is in tension with markedness constraints on phonological form. By familiar OT reasoning, a rich array of grammars arises from different rankings of the two classes of faithfulness and markedness constraints.

In the traditional generative model the only way in which one word can effect the phonological shape of another word is to embed the derivation of one inside the other--the principle of the cycle

(Chomsky & Halle 1968). To the extent that we can demonstrate a genuine phonological connection between words that do not satisfy the containment properties of the cycle, we have empirical motivation for subsuming cyclic phenomena under the more general constraint of Uniform Exponence. See Benua (1995), Ito & Mester (1996), and Steriade (1996), for additional cases; see also Booij (1996) and Peperkamp (1997) for critical assessment.

This paper is organized as follows. First, we examine a case from Russian where the stress of one word critically affects the stress of a related word but where neither is a substring of the other. To the extent that our interpretation of the data is valid we have motivation for Uniform Exponence over and above the cycle. We then show how uniformity for stress helps to explain the scope of an allomorphy rule in a dialect of Dominican Spanish. The body of the paper utilizes Uniform Exponence to develop a new typology of the stress contours in several Australian languages, supplanting the alignment-based analyses of Crowhurst (1994) and Kager (1995). In the final section we speculate on an extension of the notion of uniformity from constraints on the shape of a given lexical item to uniformity in the effect a lexical item has on the surrounding context.

1. Russian stress retraction

Russian stems (as well as derivational affixes) fall into three accentual classes: class A (barytone) have a fixed stress on some vowel of the stem; class B (oxytone) stress the immediately following syllable; class C (mobile) stress the ending (if the latter bears an underlying accent) and otherwise take a default accent on the first syllable of the phonological word (see Halle 1997 for recent discussion). Like all Slavic languages, Russian has a pair of abstract vowels that alternate with zero--the so-called "jers" or "fleeting" vowels. Their distribution runs as follows: a jer surfaces (vocalizes) if the following syllable contains a jer and otherwise deletes. In the nominal inflection the jer of the final syllable of the stem vocalizes in the nominative/accusative singular of the masculine declension and in the genitive plural of the feminine and neuter declensions.It is natural to conclude that these case forms are

marked by a jer suffix. This suffix never surfaces as such because it is not itself followed by a jer. Although their analysis has been controversial (see Yearley 1995 for a recent OT analysis), we follow Kenstowicz & Rubach (1987) in assuming that the jers are represented as underlying floating vowels.

When a jer bears stress but fails to vocalize then stress regularly appears on the immediately preceding syllable. This point is easiest to see with nouns belonging to the class B accentual category that stresses the desinence. When that desinence is a jer the stress falls on the final syllable of the stem--in the masculine declension the nom./acc. sg. (e.g. ogón' < /ogYn-Ý/) and in the feminine and neuter declensions the gen. pl. (e.g. kajóm < /kajYm-Ý/, seléc < /sel'Yc-Ý/).

(1)	sing.	pl.	sing.	pl.	sing.	pl.
nom.	ogón'	ogn-í	kajm-á	kajm-ý	sel'c-ó	sel'c-á
gen.	ogn'-á	ogn-éj	kajm-ý	kajóm	sel'c-á	seléc
dat.	ogn'-ú	ogn'-ám	kajm-é	kajm-ám	sel'c-ú	sel'c-ám
acc.	ogón'	ogn-í	kajm-ú	kajm-ý	sel'c-ó	sel'c-á
instr.	ogn-ëm	ogn'-ámi	kajm-ój	kajm-ámi	sel'c-óm	sel'c-ámi
loc.	ogn-é	ogn'-áx	kajm-é	kajm-áx	sel'c-é	sel'c-áx
	'light'		'border'		'village'	

A substantial subset of the class B nouns that belong to the feminine and neuter (but not the masculine) inflection retract their stress from the case ending to the final syllable of the stem in the plural. Examples of this plural retraction appear in (2).

(2)	sing.	pl.	sing.	pl.
nom.	kolbas-á	kolbás-y	koles-ó	kolës-a
gen.	kolbas-ý	kolbás	koles-á	kolës
dat.	kolbas-ú	kolbás-am	koles-ú	kolës-am
acc.	kolbas-ú	kolbás-y	koles-ó	kolës-a
instr.	kolbas-ój	kolbás-ami	koles-óm	kolës-ami
loc.	kolbas-é	kolbás-ax	koles-é	kolës-ax
	'sausage'		'wheel'	

Halle (1973) cites Zaliznjak (1967) who finds 340 class B nouns in the feminine inflection which do not retract in the plural (e.g. gospož-á nom.sg., gospož-ý nom.pl., gospóž gen.pl. 'lady') as opposed to some 185 which do (e.g. kolbas-á, kolbás-y, kolbás 'sausage'); in the neuter declension 130 class B nouns retain stress on the ending in the plural (e.g. božestv-ó nom.sg., božestv-á nom.pl., božéstv gen.pl. 'deity') while 70 retract stress (e.g. koles-ó, kolës-a, kolës 'wheel').

The point of interest to us concerns class B stems whose final syllable contains a jer. This vowel will vocalize in the genitive plural. Many of these stems show a mysterious double retraction of the stress in the genitive plural: remesl-ó nom.sg., remësl-a nom.pl., remësel gen.pl. instead of *remesël 'trade, profession'. Why should we have remësel and not *remesël? After all *remesël < /remesel+Y/ satisfies both retraction requirements simultaneously: stress falls on the final syllable of the stem (plural retraction) and on the syllable immediately preceding the underlyingly stressed weak jer. Class B jer stems belonging to the feminine and neuter declensions that lack retraction in the plural systematically lack the double retraction in their genitive plural forms: there are no feminine or neuter nouns with the stress patterns CVCC-á, CVCC-ý, CÚCeC or CVCC-ó, CVCC-á, CÚCeC. Stated differently, all nouns with double retraction in the genitive plural have retracted stress in the other forms of the plural. There is a strong but not invariant implication in the opposite direction as well: most jer stems with retracted stress in the plural have double retraction in the genitive plural. In the feminine declension we found 19 class B jer stems with retraction in the plural: 13 have double retraction in the genitive while 6 have a single retraction. In the neuter declension the correlation is stronger. Of the 32 class B jer stems with retracted plural stress, 30 have double retraction in the genitive while only 2 do not. In (3) we show the paradigms for the double retracting remesl-ó 'trade' and the single retracting kol'c-ó 'ring'. They can be compared with the nonretracting se'lc-ó in (1). See the appendix for a list of the stems belonging to each class.

(3)	sing.	pl.	sing.	pl
nom.	remesl+ó	remësl+a	kol'c-ó	kól'c-a

gen.	remesl+á	remësel	kol'c-á	koléc
dat.	remesl+ú	remësl+am	kol'c-ú	kól'c-am
acc.	remesl+ó	remësl+a	kol'c-ó	kól'c-a
instr.	remesl+óm	remësl+ami	kol'c-óm	kól'c-ami
loc.	remesl+é	remësl+ax	kol'c-é	kól'c-ax
	'trade'		'ring'	

As Halle (1973) notes, double retraction in remësel creates a situation in which the stress falls on the same vowel as in the other forms of the plural--a case of "columnar" stress when the paradigm is written out as in (3). He formulates a special rule to achieve this effect.[1] We propose instead to see the double retraction as a direct reflex of Uniform Exponence: remësel is more optimal than *remesël because the former stresses the same vowel as the one that bears stress in the other forms of the plural inflection. Our analysis is sketched informally in (4).

(4)

/remesYl+á/	Retraction	Faith(stress)
remesl-á	*!	
☞remësl-a		*
remësl-a		**!

/remesYl+Ý/	Un-Exp(stress)	Faith(stress)
remesël	*!	*
☞remësel		**

For the handful of retracting stems like kol'c-ó, kól'c-a, kol'éc 'ring' with just a single retraction in the genitive plural, we assume a lexically determined ranking of Faith(stress) >> Uniform Exponence.

(5)

/kol'Yc+Ý/	Faith-(stress)	Un-Exp(stress)
☞koléc	*	*
kólec	**!	

[1] Even in the more sophisticated Sinplified Bracketed Grid model of Idsardi (1992) a special rule must be stipulated to achieve the double retraction (cf. Halle (1997).

It should be noted that double retraction cannot be treated in terms of the cycle--the only way in which a derivational model lacking outpant is a velar. In view of these facts one might pursue an alternative analysis in whhe reason is that the genitive plural is not a substring of the other forms of the plural paradigm.[2] It is noteworthy that the majority of stems with double retraction like remësel superficially terminate in an obstruent+sonorant cluster before a nonjer desinence: remesl-ó, remësl-a. Furthermore, the quality of the fleeting vowel appearing in the cluster is predictable: it is /e/ unless the preceding consonant is a velar. In view of these facts one might pursue an alternative analysis in which the fleeting vowel is epenthetic. If epenthesis is ordered after retraction then the columnar stress is just a byproduct of rule ordering: /remesl-Ý/->/remësl-Y/->/remësl/. There are several problems with this alternative analysis which lead to its rejection. First, as observed by Rubach (1986) for Polish, epenthesis into CR clusters cannot be a general rule as Russian has many final CR clusters which are not broken: tigr 'tiger', rubl' 'ruble', etc. Second, a jer appears in the retracted stems when a jer suffix such as the diminutive is added: metl-á, mëtl-y, mëtel 'broom'; cf. metël-k-a, metël-ok. If the stem really lacked on underlying jer, we should expect gen.pl. *metl-ók diminutive. Most importantly, this alternative just trades one distributional gap for another. In order for this appeal to rule ordering to work, the stems with no retraction and a fleeting vowel must have an underlying vowel: /kn'azYn-Y/ -> /kn'azYn-Y/ -> /kn'azén/ But now the problem reemerges: why is epenthesis only found in stems like remesl-ó that have retracted stress in the plural? We conclude that the problem of double retraction of stress in remësel cannot be avoided by treating the fleeting vowel as epenthetic. Rather it is an instance of paradigmatic uniformity that is best expressed directly in terms of Uniform Exponence.

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[2] One might try to avoid this conclusion by proposing that the stress retraction class of stems such as remesl-ó have a floating accent that shuns jers and otherwise seeks out the rightmost position. However, docking the floating accent to the stem must only apply in the plural. Under the most straightforward conception of the cycle, the grammar cannot tell whether the word is in a particular category until the cycle reaches the morpheme that marks that category--in this case the plural desinence.

2. Dominican Spanish plural allomorphy

Another example of Uniform Exponence for stress is found in the Surenyo dialect of Dominican Spanish (Aguero-Bautista 1997,p.c.). Like other Carribean dialects, Surenyo bars [s] from the coda of the syllable, where it is replaced by [h] or zero. The plural suffix /-s/ in nouns is augmented to [-se] via epenthesis (presumably in order to ensure that the plural category has a (robust) exponence). This epenthesis only affects the plural suffix; an underlying stem-final /s/ appears as [h] or zero (cf. /mes/ 'mouth'->me(h), *mese). The interesting point from our perspective is that augmentation of the plural suffix only affects stems whose singular form has stress on the penultimate or the final syllable. Proparoxytones with antepenultimate stress such as /sábana/ never augment the plural: *sábana-se.

(6)

singular	plural	
muchácho	muchácho-se	'boy'
cása	cása-se	'house'
café	café-se	'coffee'
maní	maní-se	'peanut'
sábana	sábana(h)	'sheet'

We interpret these data as follows. As in other dialects of Spanish, primary stress is located within a three-syllable window at the right edge of the word (Harris 1995). Augmentation of a proparoxytone such as sábana to *sábana-se would push stress outside this window--a violation of the Lapse constraint proposed in Green & Kenstowicz(1995) that bars two successive unstressed syllables not separated by a foot boundary. Another alternative would be to augment the plural but satisfy Lapse by shifting the stress to the right: *sabána-se, *sabaná-se. Neither of these alternatives is acceptable. They are blocked by Uniform Exponence for stress. The stress of the plural must mimic that of the singular.[3] We sketch our analysis in the

[3] It will be necessary to sensitize Uniform Exponence to primary vs. secondary stress: *sàbaná-se would match the stress of the singular sábana with a secondary stress. But this is not sufficient to license plural augmentation. The

tableaux below.

(7)

/muchacho+s/	*Coda-[s]	Faith-[s]	Dep-IO
muchacho-s	*!		
$muchacho-se			*
muchacho-h		*!	

/sábana+s/	Un-Exp	Lapse	Faith-[s]
$(sába)na-h			*
(sába)na-se		*!	
sa(bána)-se	*!		
saba(ná-se)	*!		

3. Australian stress systems: a typology

Once Uniform Exponence is admitted into the theory of constraints, it can be called upon to elucidate data which have heretofore been described in other terms. We develop this point by proposing a new typology for stress in various native Australian languages that have been discussed in the recent literature(cf. Crowhurst 1994, Kager 1995).[4] The languages we discuss here are Diyari, Dyirbal, Jingulu, Warlpiri, and Pintupi. As seen in (8), these languages assign the same stress contours to monomorphemic disyllabic, trisyllabic, and quadrisyllabic stems. However, the languages diverge when odd-parity stems combine with suffixal material of various shapes.

(8)

Diyari	Dyirbal	Jingulu	Warlpiri	Pintupi
s's	s's	s's	s's	s's
s'ss	s'ss	s'ss	s'ss	s'ss
s'ss's	s'ss's	s'ss's	s'ss's	s'ss's

singular and plural must match in the location of primary stress in order to satisfy Uniform Exponence. Contrast this case with various Australian languages discussed below where Uniform Exponence for stress is satisfied regardless of the distinction between primary versus secondary stress.

[4] The research reported in this section was conducted jointly with Robert Pensalfini

s'ss+s	s'ss+s	s'ss'+s	s'ss'+s	s'ss'+s
s'ss+s's	s'ss+s's	s'ss+s's	s'ss+s's	s'ss'+ss
s'ss+s+s	s'ss+s'+s	s'ss+s'+s	s'ss+s'+s	s'ss'+s+s
s'ss+s+s's	s'ss+s'+ss	s'ss+s'+ss	s'ss'+s+s's	s'ss'+s+s's

Our major claim is that the contrasting stress contours manifest differen resolutions of the tension between Uniform Exponence on the one hand and stress calculated in terms of odd-even position from the left edge of word on the other. In all these systems there is as well an undominated constraint of Foot-Binarity.

Let us survey the terrain before developing analyses for the individual grammars. As seen in (8), when a monosyllabic suffix is added to an odd-parity (trisyllabic) stem, Diyari and Dyirbal preserve the stress contour of the isolation form of the stem at the cost of Lapse violation; on the other hand, Jingulu, Warlpiri, and Pintupi avoid the lapse of three successive unstressed syllables at the cost of introducing a dispsrity between the stem's isolation form and its affixed form. In the /sss+ss/ case we see that when an odd-parity stem is combined with a disyllabic suffix, Pintupi splits off from Jingulu and Warlpiri by stressing the final syllable of the stem in order to maintain a smooth binary alternation of stress. The latter two languages preserve the stress contour of the bare form at the expense of an alignment violation Next Diyari parts company with Dyirbal in the case of /sss+s+s/ by failing to stress any monosyllabic suffixes; Dyirbal freely stresses such monosyllables when they occupy an odd-numbered position in the affixal string. Finally, Warlpiri and Jingulu diverge when a monosyllabic suffix is followed by a disyllabic one /sss+s+ss/. We shall see that these cases also fall under Uniform Exponence provided that it is properly ranked with other constraints.

3.1 Diyari

According to Austin (1981:30-31) "Stress in Diyari is not phonologically contrastive and is entirely predictable from the shapes of roots and suffix morphemes. Primary stress falls on the first vowel of a root and secondary stress is assigned to the third vowel of a

four-syllable root (no roots are longer than four syllables) and to the first vowel of a disyllabic suffix."(Austin 1981:30-31).

(9)

kána	'man'
pínadu	'old man'
wílapìna	'old woman'
kána-wàra	'man-pl'
pínadu-wàra	'old man-pl'
wílapìna-wàra	'old woman-pl'
kána-ni	'man-loc'
kána-ni-màta	'man-loc-ident'
kána-wàra-u	'man-pl-loc'
kána-wàra-ùndu	'man-pl-abl'

(Poser 1989 data from Austin p.c.)

táyi-yàtimàyi	'to eat-opt'
púl,uru-ni	'mud-loc'
máda-la-ntu	'hill-charac-proprietive'
púl,uru-ni-máta	'mud-loc-ident'
yákalka-yìrpa-màli-na	'ask-ben-recip-part'

Working in the rule-based metrical parsing system, Poser (1989) sees the Diyari stress contours as the product of a grammar in which each morpheme is treated as a separate domain for a binary left-headed left-to-right trochaic parse. If each morpheme is parsed in isolation from its neighbors then it follows that it will have a uniform stress contour regardless of context. We propose that rather than being an epiphenomenal byproduct of isolating the morpheme as a stress domain, uniformity across contexts is the driving force behind stress in Diyari. Given that Foot-Binarity and Lapse/Parse-s dominate Align-Foot, disyllabic and longer morphemes parse at least one foot. On the other hand monosyllables cannot support a disyllabic foot. Given undominated Foot Binarity, monosyllabic suffixes satisfy Uniform Exponence by taking an unstressed shape across all contexts. As seen in the tableaux below, the cost of maintaining Uniform Exponence for stress in Diyari

is Lapse and Alignment violations.

(10) Un-Exp(root,affix) >> Lapse >> Align-Ft-Left

/sss+s/	Un-Exp	Lapse
(s's)(s'+s)	*!	
$(s's)s+s		*

/ss+s+s/	Ft-Bin	Un-Exp	Lapse
('ss)+('s+s)		*!	
$('ss)+s+s			*
(s's)+(s')+(s')	**!		

/sss+ss/	Un-Exp	Align-Left
(s's)('s+s)s	*!	#, #ss
☞(s's)s+(s's)		#, #sss

3.2 Pintupi

In comparison to Diyari, Pintupi (Hayes 1994, McCarthy & Prince 1993, based on Hansen & Hansen 1969) falls at the opposite end of the spectrum where which uniformity for stress is demoted below the Lapse and Alignment constraints. Pintupi is the textbook exemplar of binary left-to-right trochaic parsing: foot boundaries freely cross both stem and suffix junctures.

(11)

púli-kà-latju	'sit-loc-1pl.excl'
yúmarì-ka-màratjùraka	'mother-in-law-loc-because'
yúma ř i	'mother-in-law'(p. 155)[5]
tjámu-lì-mpa-tjù-ku	'our relation'
tíli-rìu-là-mpa-tju	'the fire for our benefit flared up'

From our perspective, Uniformity is demoted below Lapse and

[5] This form is transcribed without a stress mark but follows Hansen & Hansen's Characterization of the stress as alternating.

Alignment. The cost is to introduce alternations in the shape of the odd-parity stems when followed by a monosyllabic suffix (cf. 'sss but 'ss's+s...). Similarly, suffixes such as the locative -ka and -tju display alternative prominences depending on their odd-even location in the word.

(12) Lapse >> Align-Ft >> Un-Exp(root,affix)

/sss+s/	Lapse	Un-Exp
$(s's)(s'+s)		*
(s's)s+s	*!	

/sss+ss/	Align-Left	Un-Exp
$(s's)('s+s)s	#, #ss	*
(s's)s+(s's)	#, #sss!	

3.3 Dyirbal

Dyirbal (Dixon 1972; Crowhurst 1994) follows Diyari in maintaining a constant stress contour for the root (13a); but suffixes such as the comitative freely alternate between stressed and unstressed variants as a function of their odd-even position in the suffixal string (13b).

(13) a.

búrgurrum	'jumping ant'
búrgurum-bu	erg.

b.

ñúnay-man	'sit-comit'
ñinay-má-riy	'sit-comit-reflex'
ñinay-má-ri-man	'sit-comit-reflex-comit'
dága-ná-mbila	'eat-pron-with'
bánagay-mbá-ri-ju	'return-comit-refl-p/p'
mándalay-mbál-bila	'play-comit-lest'

In other words, Uniform Exponence for the root dominates the Lapse and Alignment constraints; but the latter in turn dominate Uniform Exponence for affixes. The constraint ranking and associated tableaux in

(14) illustrate our analysis.

(14)Uniform Exp(root) >> Lapse >> Align-Ft >> Uniform Exp(affix)

/sss+s/	Un-Exp(root)	Lapse
(s's)(s'+s)	*!	
$(s's)s+s		*

/ss+s+s/	Lapse	Un-Exp(affix)
(s's)+('s+s)		*
$(s's)+s+s	*!	

/sss+s+ss/	Un-Exp(root)	Align-L
('ss)('s+s)s	*!	#, #ss
$(s's)s+('s+s)s		#, #sss

/ss+s+ss/	Align-L	Un-Exp(affix)
$(s's)+(s'+s)s	#, #ss	**
(s's)+s+(s's)	#, #sss!	*

3.4 Jingulu

Jingulu stress differs from the other systems considered here in a couple of noteworthy respects (see Pensalfini 1997 for details). First, it is the rightmost rather than the leftmost foot that projects the primary stress of the word. Second, a lexically determined class of stems align their feet to the right instead of displaying the leftward alignment that uniformly governs affixes: ('ss)s vs. s('ss) and ('ss)("ss)s vs. ('ss)s("ss): compare bákuri 'headband' vs. jarráda 'song' and kùrdijálaka 'mussel' vs. ngàjalakúrru 'mouth'. We abstract away from these differences and concentrate on the similarities with the other systems studied here.

In (15a) we see the alternating stress of monomorphemic stems. In (15b) we see that odd-parity stems stress their final syllable when a single monosyllabic suffix is added; but when the suffixal string consists of two or more syllables then stress falls on the first syllable

of the suffixal string and not on the root. Finally, in (15c) we see that just as in Dyirbal suffixes freely alternate between stressed and unstressed variants as a function of their odd-even position.

(15) a. ngáwu 'camp'
bárdarda 'younger brother'
jàlurrúka 'tea'

b. bárdarda 'younger brother' jíkaya 'lake'
bàrdardá-rni 'erg' jíkaya-mbíi 'lake-loc'

mánkiyi 'sit'
mànkiyá-mi 'sit-irr'
mànkiya-gá-ju 'sit-1sg-irr'

c. ngàwu-ngkámi-rni 'camp-abl-foc'
yùkulyàrri-nà-ngkamí-rni 'goat-dat-abl-foc'
yùkulyàrri-ná-ngkami 'goat-dat-abl'

dùla-ngá-rruku 'seek-1sg-went' ('I went looking for him')
ngàja-rrúku 'see-went' ('he went looking')
ngába-ngà-na-rríki 'have-2sg-1obj-went'('You took me there')

wùngkarra-jíyimi 'whistle-come'('she's coming up whistling')
yà-jiyímí '3sg-come' ('here he comes')

ngàwu-ngkámi-rni 'camp-abl-foc'
ngàwu-rní-na 'home-foc-dat'

The alternation between s'ss and s'ss'+s indicates that the Lapse constraint has risen above Uniform Exponence(root) forcing the insertion of a stress to avoid three successive unstressed syllables at the cost of introducing a disparity between the isolation form of the stem and its contextual form. However, when Lapse can be satisfied by stressing the suffix then this option is always taken. This indicates that Uniform Exponence for the root is still in effect--it dominates Alignment which

in turn dominates Uniform Exponence for the affixes--a classic ranking effect. Our analysis is sketched in (16).

(16) Lapse >> Un-Exp(root) >> Align-Ft >> Un-Exp(affix)

/sss+s/	Lapse	Un-Exp(root)
$(s's)(s'+s)		*
(s's)s+s	*!	

/sss+s+s/	Un-Exp(root)	Alignment
(s's)(s'+s)+s	*!	#, #ss
$(s's)s+(s'+s)		#, #sss

/sss+ss/	Un-Exp(root)	Alignment	Un-Exp(affix)
(s's)(s'+s)s	*!	#, #ss	*
$(s's)s+(s's)		#, #sss	*

It is worth observing that the isolation form of the root has a privileged status in Jingulu. Given that the Lapse >> Uniform-Exponence(root) ranking forces a ('ss)('s+s) parse, the paradigm built from a given trisyllabic root has both 'sss and 'sss' variants. Consequently in order to assign a violation mark to the (s's)('s+s)+s and (s's)(s'+s)s parses Uniform Exponence for the root must evaluate in terms of deviation from the isolation form (s's)s.[6]

3.5 Warlpiri

In Warlpiri (Nash 1981, K. Hale p.c.) Lapse violations on the root are avoided just as in Jingulu. This explains the alternation between wátiyà-rla and wátiya-rlà-rlu.

[6] It is interesting that the bare form of the root is only found in subordinate clauses; in Jingulu main clauses the verbal root is always followed by an inflection. It is unclear to what extent this fact detracts from the learnability of the proposed analysis (cf. Lightfoot's 1989 notion of degree zero learnability).

(17) yáparla-ngùlu 'father's mother-elative'
/ápa-rlángu-rlu 'person-.e.g.-erg'

N	wáti	wátiya	mánangkàrra
N-loc	wáti-ngka	wátiyà-rla	mánangkàrra-rla
N-loc-erg	wáti-ngkà-rlu	wátiya-rlà-rlu	mánangkàrra-rlà-rlu
	'man'	'tree'	'spinifex plain'

wátiya-rlà-rlu-ju 'tree-loc-erg-top'
wátiyà-rla-jùku 'tree-loc-still'

The Jingulu and Warlpiri grammars diverge in their treatment of disyllabic affixes. In Warlpiri these morphemes are always stressed on their first syllable (just as in Diyari) while in Jingulu their stress varies as a function of context. Warlpiri's uniform stress for disyllabic affixes underlies the shift of stress from the first to the second suffix in wátiya-rlà-ju versus wátiyà-rla-jùku. To maintain a uniform stress on disyllabic affixes in the /sss+s+ss/ construction and at the same time avoid a Lapse violation the root must give way: (s's)(s'+s)+(s's). We explain this case if Uniform Exponence for affixes dominates Uniform Exponence for the root--a point demonstrated in the following tableaux.

(18) Lapse >> Un-Exp(affix)[7] >> Un-Exp(root) >> Align-F

/sss+s+ss/	Lapse	Un-Exp(affix)	Un-Exp(root)	Align-Ft
☞(s's)(s'+s)+(s's)		*	*	#,#ss,#ssss
(s's)s+(s'+s)s		**!		
(s's)s+s+(s's)	*!	*		
(s's)(s'+s)+ss	*!			

/sss+s+s/	Un-Exp(affix)	Un-Exp(root)	Align-Ft
(s's)(s'+s)+s	**	*!	#, #ss
☞(s's)s+(s'+s)	**		#, #sss

[7] Since monosyllabic affixes are stressed or unstressed depending on position, we count a Un-Exp violation for each one regardless of whether it is stressed or unstressed.

The table in (19) recaps the analysis demonstrating that the subtle differences among the languages reviewed here are succinctly described by variable ranking of the faithfulness constraint of Uniform Exponence with respect to the Lapse and leftward Foot Alignment constraints that enforce good metrical form.

(19) Diyari: Uniform Exp(root,affix) >> Lapse >> Align-Ft
Dyirbal: Uniform Exp(root) >> Lapse >> Align-Ft >> Uniform Exp(affix)
Jingulu: Lapse >> Uniform Exp(root) >> Align-Ft >> Uniform Exp(affix)
Warlpiri: Lapse >> Uniform Exp(affix) >> Uniform Exp(root) >> Align-Ft
Pintupi: Lapse >> Align-Ft >> Uniform Exp(root,affix)

4. Jingulu metaphony: uniformity of effect

In this section we speculatively identify another uniformity phenomenon--the effect of a morpheme on its context. Our example concerns the vowel raising process in Jingulu (Pensalfini 1997). Jingulu has three vowel phonemes: /i,u,a/. As shown by the paradigms in (20a) the high vowel of a suffix raises the [a] of a preceding root to [i]. But metaphony does not affect another suffix (20b); only roots undergo raising.

(20)	a.	walanja	'goanna'
		wilinji-rni	'goana-female'
		mamabiyaka	'soft'
		mamabiyiki-mi	'soft-vegetable class'
		ngaja-nga-ju	'see-1sg-do'
		ngiji-ngurru-ju	'see-1pl.incl-do'
		ngiji-kunyi-ju	'see-2dl-do'
	b.	ngaja-nga-ju	'see-1sg-do'
		ngunya-na-mi	'give-1obj-irr'
		langalanga-nya-mi	'think-2sg-irr'

However, not all suffixes induce metaphony. It turns out that only gender suffixes on nouns and subject marking suffixes on verbs raise the vowels of a root. Compare the absence of metaphony in (21a) where the root is combined with other inflectional suffixes. The descriptive generalization in (21b) succinctly characterizes the distinction between those suffixes that condition metaphony and those that do not.

(21) a. bardarda-ni 'younger brother-erg'
jikaya-mbili 'lake-loc'
mamambiyaka-bila 'big-dual'
ambaya-ju 'talk-do'
ngaja-mi 'see-irr'

b. raising suffixes are never preceded by another affix while nonraising ones can have another suffix intervening between the root and themselves in some form of the nominal or verbal inflection.

We propose to view the peculiar restrictions on metaphony as a "uniformity" phenomenon--one concerning the effect of a morpheme on its context. Specifically, suppose a constraint bars a low vowel before a high one. To account for the fact that affixes never undergo raising, we suppose that Uniform-Exponence for affixes ranks higher than Uniform-Exponence for roots. The fact that a suffix only affects a root if it stands next to the root in all of its occurrences is a "uniformity of effect". If metaphony was launched from an affix such as the irrealis marker -mi, this morpheme would be nonuniform in its effect on the context: it would raise a preceding vowel if that vowel belonged to a root (*ngiji-mi instead of ngaja-mi 'see-irr') but not if it belonged to an affix (ngunya-na-mi 'give-1obj-irr'). Rather than introduce this variability, the language evidently chooses to suspend metaphony except in contexts where a given affix always collocates directly with a root and hence can always satisfy *[low] [high]: in autosegmental terms, the raising suffixes are uniformly multipionlinked. If there is a another species of Uniformity constraint--Uniform Effect--then the distribution of metaphony in Jingulu can be expressed directly in terms of constraint ranking. See Pensalfini (1997) for an alternative interpretation

appealing to a special morphosyntactic domain.

5. Conclusion

In this paper we have exemplified the constraint of Uniform Exponence. We saw that this constraint elucidates an otherwise mysterious double retraction of stress in certain plural formations in Russian and the scope of an allomorphy process in Dominican Spanish. In the body of the paper we saw how a simple typology of stress in five Australian languages is available when Uniform Exponence for the stress of roots and affixes is variably ranked with Alignment and Lapse constraints on good metrical form. The final section of the paper suggested an extension of the notion uniformity to the effect of a lexical item on its context.

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Appendix
Russian Class B (Oxytone) nouns (Zaliznjak 1987)

Feminine

sosna, sosny, sosen	'pine'
kosma, kosmy, kosem	'felt'
cuxna, cuxny, cuxon	'Finn'
t'ur'ma, t'ur'my, t'urem	'prison'
sud'ba, sud'by, sudeb	'fate'
vetla, vetly, vetel	'white willow'
metla, metly, metel	'broom'
kopna, kopny, kopen/kopen	'rick'
vesna, vesny, vesen	'spring' (season)
desna, desny, desen	'gum'
blesna, blesny, blesen	'spoon bait'
pl'usna, pl'usny, pl'usen	'metatarsus'
kirka, kirki, kirok	'pick-axe'
kn'azna, kn'azny, kn'azon	'prince'
kajma, kajmy, kajom	'border'
kocerga, kocergi, kocerek	'poker'
mosna, mosny, moson	'purse'
syrca, syrcy, syrec	'dampness'
kabarga, kabargi, kabarok	'pollard'
kiska, kiski, kisok	'intestine'
ser'ga, ser'gi, sereg	'earing'
sestra, sestry, sester	'sister'
ovca, ovcy, ovec	'sheep'

skam'ja, skam'ji, skamej 'bench'
sem'ja, sem'ji, semej 'family'
svinja, svin'ji, svinej 'pig'

Neuter

polotno, polotna, poloten 'linen'
okno, okna, okon 'window'
pis'mo, pis'ma, pisem 'letter'
dolotco, dolotca, dolotec 'chisel' dimin.
kopjo,kop'ja, kopij 'spear'
greblo, grebla, grebel 'rake'
skreblo, skrebla, skrebel 'scraper'
steblo, stebla, stebel
t'ablo, t'abla, t'abel 'shelf for icon'
sedlo, sedla, sedel 'saddle'
steklo, stekla, stekol 'glass pane'
soplo, sopla, sopol 'nozzle'
duplo, dupla, dupol 'cavity'
veslo, vesla, vesel 'oar'
remeslo, remesla, remesel 'trade'
rukomeslo, rukomesla, rukomesel
teslo, tesla, tesel 'adze'
cislo, cisla, cisel 'number'
brevno, brevna, breven 'beam'
stegno, stegna, stegon 'thigh bone'
r'adno, r'adna, r'aden 'sackcloth'
lukno, lukna, lukon
sukno, sukna, sukon 'shelve'
gumno, gumna, gumen/gumen 'floor'
p'atno, p'atna, p'aten 'stain'
rebro, rebra, reber 'rib'
bedro, bedra, beder 'hip'
vedro, vedra, veder 'pail'
jadro, jadra, joder 'kernel'
ruzjo, ruzja, ruzej 'gun'

slovco, slovca, slovec	'witty remark'
sel'co, sel'ca, selec	'village' dimin.
pitjo, pitja, pitej	'beverage'
babjo, babja, babej	
dubjo, dubja, dubej	
svezevjo, svezevja, svezevej	
surovjo	
mostovjo	
svezjo, svezja, svezej	
kol'co, kol'ca, kolec	'ring
jajco, jajca, jajic	'egg'