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George N. Clements

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THE $l \rightarrow o$ RULE IN SERBO-CROATIAN

Harry Bochner

1. Introduction

The subject of this paper is a fairly simple rule that is generally mentioned by most introductory grammars of Serbo-croatian. I will attempt to show that when the phenomenon is examined in full detail, it cannot be handled without a theory of morphological rules like that developed by Aronoff(76) and Carrier(79).

2. The Rules

This section discusses the rules that will be involved in the later discussion.

2.1 $l \rightarrow o$

If we consider some typical Serbo-croatian declensional forms, we can isolate \emptyset as the desinence for the nom. sg. of masculine nouns, and for the nom sg. masc. indefinite of adjectives, contrasting with "-a" for the gen. sg. of these nouns, and for the nom. sg. fem. of adjectives¹.

(1)	a.	covek "man" nom. sg.	čoveka gen. sg.
	b.	visok "high" n.sg.m.ind.	visoka nom. sg. fem.

Now if we examine the paradigms of certain other words, we find a pattern which can best be understood by saying that a stem-final "l" becomes "o" before the \emptyset desinence.

(2)	a.	pepeo "ash" nom sg.	pepela gen. sg.
	b.	beo "white" n.sg.m.ind.	bela nom. sg. fem.

Similarly, we find stem final "l" replaced by "o" in certain derivational environments. We can formulate a simple rule to handle both kinds of cases.

(3)	selo "village" nom.sg	seoce dim.	seoski adj.
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(4)	1 -> o	/	$\begin{cases} \# \\ C \end{cases}$
			L-T0-O

It seems clear that a more appropriate statement of this rule would be: "l" becomes "o" when syllable-final, see Rabadjija (77). A direct statement of this could be made in one of the syllable structure theories now being developed, but as far as I can see such a restatement would have no impact on the issues discussed in this paper. Therefore I will stick with the conventional formalism.

I should note at this point that the most common context for the application of this rule is the past active participle of verbs, used to form the past tense.

(5)	infinitive	pp m. sg.	f. sg.
	čitati	čitao	čitala
	"read"		
	govoriti	govorio	govorila
	"speak"		
	kriknuti	kriknuo	kriknula
	"shout"		
	biti	bio	bila
	"be"		

2.2 Epenthesis

The main rule with which L-T0-O interacts is the rule which governs the appearance of the so-called "mobile a".

Some examples of the phenomenon:

(6)	a.	ostatak "remainder" n.sg.	ostatka gen. sg.	ostatka ² gen. pl.
	b.	lakat "elbow"	lakta gen. sg.	lakatni adj.

Some of the mobile "a"s are historically the reflexes of the common Slavic "yers", which were deleted in certain environments, and otherwise merged (in Serbo-croatian) with original "a"; others are historically epenthetic. Most generative analyses of Slavic languages that I have seen have assumed that the reflexes of these developments in these languages are to be treated by a deletion rule,

but evidence for this analysis is lacking in Serbo-croatian; see Kenstowicz (74) for some discussion. Regardless of the historical source, both types follow the same distributional pattern, which we can approximate with the following rule:

(7)

$\emptyset \rightarrow a / [-\text{syll}] _ [-\text{syll}] \left\{ \begin{array}{l} \# \\ +c \\ \bar{a} \text{ (gen. pl.)} \end{array} \right. \text{ MV}$

condition: [-syll] [-syll] \neq [+cor] [+cor] [-cont]

This phenomenon has a number of interesting aspects which fortunately need not concern us here. The clumsy formulation above will suffice for our purposes.

This rule must be ordered before L-T0-0, in order to produce the right results in cases like the following.

(8)	/rek+l+∅/	/rek+l+a/	
	a	n.a.	MVR (7)
	o	n.a.	L-T-O-O
	<hr/> rekao	<hr/> rekla	

(9)	stem /rek/ "say"	inf. reći "arrive"	pp. m sg. rekao stigao	pp. f sg rekla
	/stig/ "arrive"	stici	stigao	stigla
	/greb/ "scratch"	grepsti	grebao	grebla
	/is/ ³ "go"	ići	išao	išla

(10)	nom. sg. posao "work"	gen. sg. posla
	kotao "kettle"	kotla
	orao "eagle"	orla
	misao "thought"	misli ⁴

The same rules in the same order produce a different surface pattern of alternation when the "l" is not word-final.

(11)	/čita+l c+Ø/	/čita+lo+a/	
	a	n.a.	MVR
	n.a.	o	L-T0-O
	čitalac	čitaoca	(gen. sg.)
	"reader"		

(12)	nom. sg. rukovodilac "leader"	gen. sg. rukovodioca
	talac "hostage"	taoca
	uvelak "wilted flower"	uveoka
	seoce "village" (diminutive)	selaca (gen. pl.)

2.3 Dialect Differences

Serbo-croatian has two standardized varieties, based roughly on Eastern and Western dialect groups. The characteristic difference lies in the development of the common Slavic vowel "é"⁵. In the Eastern dialects this

vowel has merged with "e" (except for some cases that are not relevant here, in which it becomes "i".) In the Western dialects the general development is "je" when short, and "ije" when long.

	eastern	western
(13)	lep	lijep

"beautiful" nom. sg. m. ind.

lepotan ^{lepotan} ljeputa
"beauty"

The development in the western dialects has several special cases, of which one is relevant here. "e" became "i" when followed by "j", "lj", or "o" derived from "l".

	eastern	western
(14)	grejati	grijati

"to heat"

beleg biljeg
"characteristic"

beo bio
"white"

	inf.	pp m. sg.	pp f. sg.
(15)	videti	video	videla (Eastern)
	vidjeti	video	vidjela (Western)

"see"

2.4 Other Rules

There are at least two other rules which have interesting interactions with L-T0-0. One is a minor rule that lengthens vowels before syllable-final sonorants; this rule is bled by L-T0-0. The other is a very interesting rule of accent shift which is fed by L-T0-0.

Since both of these rules are ordered after L-T0-0, they cannot have any affect on whether L-T0-0 applies, which is the issue of this paper. See Kenstowicz(74) for discussion of these phenomena.

3. Complications

This section will attempt to provide a fairly thorough survey of the types of exceptional behavior exhibited by L-T0-0. The goal is to demonstrate that there is no neat generalization that will allow all the cases to be handled.

3.1 Simple Exceptions

There are a few native nouns whose stem-final "l"s never undergo L-T0-0.

(16)	bol	boli
	"pain" nom. sg.	gen. sg.
	val	vala
	"wave" nom. sg.	gen. sg.
	kal	kala
	"mud" nom. sg.	gen. sg.

(17)	*bo	*vao	*kao
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3.2 Regional Variation

In certain cases application of L-T0-0 is consistent in the eastern dialects, but optional or rare in the

western dialects.

	nom. sg.	gen. sg.	
(18)	stō	stola	(Eastern)
	stol	stola	(Western)
	"table"		
	vō	vola	(Eastern)
	vol	vola	(Western)
	"ox"		
	deo	dela	(Eastern)
	dio - dijel	dijela	(Western)
	"part"		
	beo	bela	(Eastern)
	bio - bijel	bijela	(Western)
	"white"		

In cases like "stō" and "vō", the "o" created by L-T0-O contracts with the "o" of the stem, producing a long "ō". In these cases the western dialects systematically prefer the forms where the word-final "l" is retained. On the other hand, the preference is less clear in cases like "dio - dijel"; e.g. my informant (from Zagreb) who preferred "bijel" to "bio" also preferred "cio" ("whole") to "cijel".

3.3 Doubles

In a number of cases a word may have two forms, differing in the application of L-T0-O, which co-exist in a single speaker's competence, usually with some semantic differentiation.

(19) a. selo
"village"

b. seoce selce
dim.
c. seoski selski
adj.

The difference between the two diminutives is stylistic: "selce" is unmarked, while "seoce" has poetic or literary connotations. Of the two adjectives, "seoski" has a more abstract, general sense, while "selski" is used to refer to a specific village; the contrast can be seen in certain contexts:

(20) a. Idem na selski trg.
"I am going to the village market."
b. Zanima me seoski običaji.
"Village customs interest me."

In these cases, and similar ones, it is quite clear that the exceptional form is the one to which L-T0-O has applied, rather than the one to which it fails to apply. For instance, there are about a dozen diminutives in "-ce" in which L-T0-O applies, and all of them have doublets in which the rule does not apply. The remaining diminutives with this suffix never undergo the rule, even optionally.

(21) ogledalo ogledalce *ogledaoce
"mirror" dim.
sedlo sedalce *sedaoce
"seat"

(21) continued

stablo	stabalce	*stabaoce
"trunk"		

koło	kolce	*koce
"circle"		

Similarly, there are about three cases besides "seoski" where L-T0-O applies before "-ski", plus a few more if we count adjectives formed from place names. Outside these cases, the rule never applies before this extremely productive suffix.

Semantically it is also clear that "selce" is unmarked with respect to "seoce". On the other hand, "seoski" is much more common than "selski"; my informant had to be presented with a suitable context before he would accept the latter. This, however, is simply due to the fact that "seoski" is a common word. The limited meaning of "selski" is the meaning produced by general semantic rules; the more general meaning of "seoski" is idiosyncratic.

(22) palac	palca
"thumb" nom. sg.	gen. sg.
palac	paoca
"spoke" nom. sg.	gen. sg.

The two nouns "palac" were originally homophonous; I suspect that the meaning "spoke" may have originally been a metaphorical use of the basic meaning thumb, but I have

not been able to substantiate this. In any case the claim of original homophony is supported by the fact that forms like "paoca" are attested for the meaning "thumb", although these forms are archaic. In the meaning "spoke" a new nominative "paoc" now exists (see the section below on leveling), which, if it completely replaces the form "palac" in this meaning, may make the formal separation of the two words complete.

3.4 Leveling to 0

The pattern of alternation seen in (11) and (12) above has only marginal status in casual usage.

(23)	čitalac	čitaoca	čitalaca	(Prescriptive)
	čitaoc	čitaoca	čitaoca	(Casual)
	"reader"			
	rukovodilac	rukovodioca	rukovodilaca	(Prescriptive)
	rukovodioc	rukovodioca	rukovodioca	(Casual)
	"leader"			

Agentive nouns in "-lac" systematically have casual forms in "-oc", so that the shape of the stem is invariant throughout the paradigm. These leveled forms are condemned as substandard by all prescriptive sources, with a vehemence that seems to parallel their prevalence. My informant assures me that the prescriptive forms survive only because they are taught in school.

This leveling is not limited to these agentive nouns, but seems to extend to most or all the nouns which prescriptively have the pattern of alternation of (11). Prescriptive sources are not as concerned about these other cases (probably just because they are a harder target), and so information is not as readily available, but I have found the following cases.

(24)	old form	leveled form
	palac	paoc
	"spoke"	
	talac	taoc
	"hostage"	
	zaselak	zaseok
	"hamlet"	
	naselak	naseok
	"settlement"	

3.5 Leveling to L

The leveling described in the preceding section does not affect all nouns in "laC", where the "a" is epenthetic. The numerous unaffected cases, however, are those which are exceptions to L-T0-O.

(25)	nom. sg.	gen. sg.
	belac	belca (Eastern)
	bijelac	bijelca (Western)
	"white-man"	
	delak	delka (Eastern)
	dijelak	dijelka (Western)
	"part" dim.	

(25) continued	
nom. sg.	gen. sg.
tkalac	tkalca
"weaver"	
nevaljalac	nevaljalaca
	"good-for-nothing person"

It seems appropriate to think of these forms as the result of leveling to the sort of paradigm found in nouns like "ostatak" etc. (6). Unlike the leveling of the previous section, however, the retention of the "l" in these cases is absolutely standard.

The last two of these examples are interesting in that they involve a suffix "-lac" which appears to be the same suffix as in the preceding section. The prescriptive sources give two subgeneralizations for cases like this. The "l" is retained when the stem is monosyllabic, or when the meaning is not agentive. Both subgeneralizations have counterexamples to some extent.

(26)	znalac	znaoca - znaalca
	"expert"	
	pogorjelac	pogorioca - pogorjelca (Western)
	pogorelac	pogorelca - *pogoreoca (Eastern)
	"fire victim"	

3.6 Adjectives in /-n/

Another complicated situation is presented by adjectives with the extremely common suffix "-n". By the rules we would expect alternations as in (11).

(27)	/Xl+n+Ø/	/Xl+n+a/	MVR (7)
	a	n.a.	
	n.a.	o	L-T0-0
	Xlan	Xona	

There are probably some adjectives which actually exhibit this alternation for some speakers, although I was not able to verify any with my informant. The number of possible cases is severely reduced by a number of factors.

The first and simplest of these is that L-T0-0 often fails to apply.

(28)	sila	silan	silna	*siona
	"power"	"powerful"	fem.	

Another problem is that the only form with zero desinence is the indefinite form of the masc. nom. sg. The definite-indefinite contrast is obsolescent in modern Serbo-croatian, and many adjectives simply have no indefinite forms.⁶

(29)	ugaoni	ugaona	*ugalan	
	"corner" adj. def.	fem.	indef.	
	dioni	diona	?dijelan	
	"parital" masc. def.	fem.	indef.	

One source did give the form "dijelan", but my informant would not accept it. Interestingly, this source did not give the eastern equivalent, "delan".

Finally, and most interestingly, if an adjective does have an indefinite m. sg., the alternation may be leveled

out. Unlike the leveling in cases like "čitaoc", these forms are perfectly standard. In the first two cases below the leveled form is the only possible one.

(30)	nom. sg. m. ind.	fem.	compare
	misaon	misaona	misao - misli
	"thoughtful, abstract"		"thought"
	osion	osiona	osiliti se
	"arrogant"		"to become arrogant"
	smeon	smeona	smeo
	smion - smjelan	smiona-smjelna	smio - smjel
	"daring"		"daring"
	svesion - svesilan		sila
	"omnipotent"		"power"

In some cases a full range of forms is given by the standard sources, with no indication of distribution; if any speaker has all these forms, it's not clear whether it could be called a case of the expected alternation.

(31)	svilan	svilna	svila
	svion	sviona	"silk"

This case is probably unclear for many speakers, since the preferred adjective from "svila" is "svilen - svilena", with a different suffix.

3.7 Past Participles

After this tangled mess of idiosyncracies, it is, perhaps, of interest that one subgeneralization holds true quite systematically: past active participles are never

exceptions to L-T0-O. Forms like "*čital" are impossible, even as options, except in peripheral dialects to which L-T0-O did not originally spread. An interesting case is the verb "ubosti", whose past participle is "ubō" rather than "*ubol" even in dialects that systematically have "stol" rather than "stō", etc. (cf. (18)).

3.8

It should be recognized that the complex picture discussed here is not the result of "pure" historical changes in a single dialect. The situation has been complicated not only by analogy, but also by dialect mixture, and, most likely, by lexicographers attempting to enforce their own arbitrary conceptions of what is regular. As long as the resulting system is in fact learned by speakers, it seems valid to treat it as though it were of homogeneous origin.

4. Exception Features

This section attempts to show that if exception features are used to govern the application of L-T0-O, they must be assigned to words rather than to morphemes. This conclusion is the same as that reached by Harris (77).

4.1 Diminutives in /-k/

The basic problem is to account for words like these:

(32) a. delak delka *deoka (Eastern)
 dijelak dijelka *dioka (Western)
 "part" dim.
 b. andelak andelka andeoka
 "angel" dim.

One of the morphemes of /del+k/ must be given an exception feature to keep L-T0-O from applying in "delka". We can't assign such a feature to the root, because in isolation the root does undergo the rule.

(33) a. deo
 dio - dijel
 "part"
 b. andeo
 "angel"

So we can try marking the diminutive suffix /-k/ as an exception to the rule. This is unsatisfactory as well, since there are other words with what appears to be the same suffix which can undergo the rule.

(34) nasełak naseoka
 "settlement" gen. sg.
 unvelak uveoka
 "wilted flower" gen. sg.
 volak vōka - volka
 "ox" dim.

One last possibility would be to say that the root /del/ is an exception to the subrule which has the

environment C although not to the subrule whose environment is #. This won't work either, because there are words with this root in which the rule applies obligatorily in the former context.

(35)	deoba	*delba	(Eastern)
	dioba	*djelba	(Western)
	"division"		

So we are forced to the conclusion that the exception feature must be a characteristic of the word "delak" as a whole, and not of either of the constituent morphemes.

4.2 Obscurer Cases

Essentially the same argument can be made in several other cases, except that some of the crucial forms dug out of the reverse-dictionary are rather rare, and my informant did not accept them. I will present the facts reported by various sources anyway, in the hope that some speakers do actually accept these forms.

(36) svrdaao svrdla
"drill" gen. sg
svrdalce *svrdaoce
dim.

Here again, the basic noun allows the application of L-T0-O, but the diminutive does not, even though, as we have seen elsewhere, this diminutive suffix does not systematically block the rule. The problem with this example

is that in my informant's dialect the basic noun is neuter rather than masculine⁷, and so has the desinence "-o" in the nom. sg.

(37) svrdlo svrdla

If the noun is neuter, the environment of L-T0-O is never met, because neuter nouns have no forms with zero desinence. In this case there is no reason not to assign the exception feature to the root.

(38) krilo
"wing

krioce - krilce
dim.

sestokril *sestokrio
"six-winged"

This case is slightly more interesting. The form "krioce" shows that the root is not an exception to L-T0-0. Nevertheless the rule is blocked when the root appears word-finally in a common bahu-vrihi construction. This could be handled only by an ad-hoc proposal that this kind of bahu-vrihi compound contains a zero morpheme which is an exception to the environment of L-T0-0. The problem here is that my informant accepts only "krilce" as the diminutive.

(39) vrelo
"spring, fountainhead"

vreoce - vrelce
dim.

vrelske - *vreoski
adj.

The argument should be clear. Again, my informant did not accept "vreoce".

A slightly different argument can also be made.

Again, the data is somewhat obscure. In the standard language, the root /bol/ can simply be marked as an exception to L-T0-O. Archaically, and in some dialects, the derived adjective can undergo the rule (cf. Jovic(68)).

(40) a. bol
"pain"
b. bolan bolna (Standard)
 bōn bōna (Dialectal)
 "painful" masc. fem.

Notice that the form "bona" is associated with a leveled masc. "bon". The important point is that I have not been able to find any attestation for a form "*bō", even in sources that have "bona". In the simple noun an exception feature would have to be associated with the root, and so all derivatives should be exceptional in the same way.

4.3 Conclusion

I conclude that the application of L-T0-O is a characteristic that must be learned separately for each word to which it applies, with the exception of past participles, in which it is perfectly regular. This requires a word-based lexicon, as argued for by Aronoff and others.

5. Reanalysis

In this section we turn to a more difficult theoretical issue. The problem is how to analyze the forms which result from the various analogical leveling processes described earlier. My proposal is that in all these cases it is appropriate to assume that the underlying forms have been reanalyzed, so that the "o" which historically results from the rule L-T0-O is now an underlying segment.

In some of the cases (to be discussed in the first section below), this proposal meets with no major theoretical obstacles, and, I think, will be acceptable to most linguists. In other cases, however, this proposal requires a notion of allomorphy rule similar to that of Aronoff(76). I will attempt to show that the available alternatives simply do not work.

5.1 Simple Cases

Consider a dialect in which the older nom. sg. "talac" has been completely replaced by the leveled form "taoc"⁸.

(41)	taoc	taoca	taōca
	"hostage" n. sg.	gen. sg.	gen. pl.

The simplest possible analysis of this word would say that the stem is underlyingly /taoc-/, and no rules are required to derive any of the forms. I believe this analysis makes good sense historically: originally the stem was /talac-/, with [taoc-] derived by rule, but since the latter was the surface form in 10 out of 12 case forms, it was natural for it to be taken as the underlying form, forcing the nom. sg. and the gen. pl. to be removed.

There is one possible objection to this analysis. Sequences of vowels are quite rare in Serbo-croatian, as in the other Slavic languages. It might be said that such sequences are ruled out by a Morpheme Structure Constraint. In this case /taoc/ would not be a possible underlying form, and would have to be derived by rule. But vowel sequences do exist in the language, not only across morpheme boundaries ("naopak" - "evil"), and in loan words ("stoik" - "stoic"), but also morpheme inter-

nally in native words ("jauk" - "scream", "zaova"⁹ - "sister-in-law").

The case of agentive nouns like "rukovodioč" is essentially the same. The only additional complication is that there also exist other agentive nouns like "tkalac - tkalca". But there are at least four other agentive suffixes in Serbo-croatian ("-ac", "-ar", "telj" and "ač": "glumac" - "actor", "pekar" - "baker", "učitelj" - "teacher" and "svirač" - "musician"), so that the claim that, after leveling, "-oc" and "-lac" are distinct suffixes does not seem to miss any significant generalization.

5.2 Difficult Cases

(42)	osion	osiona	cf.	osiliti se
	"arrogant"	fem.		"to become arrogant"

If we try to analyze this case like the preceding ones, we will have to say that the adjective is underlyingly /o+sio+n/. But the verb from which the adjective is derived appears to have the underlying form /o+sil/. If the underlying forms are different, then in the standard theory of Generative Phonology, the two words must be synchronically unrelated. This conclusion seems implausible, given the transparency of the semantics, and the near transparency of the phonetic forms.

A possible resolution to this problem involves the notion of allomorphy rule discussed by Aronoff (76) and Carrier (79). The idea is that a single morpheme may have alternative underlying forms which are used in specified morphological contexts. So, for instance, the morpheme /stroy/ in English "destroy" has the alternate form /struct/ before certain suffixes: "destruction, destructive".

I propose that these cases of leveling be handled by saying that L-T0-O applies, at least in these cases, as an allomorphy rule. This means that the underlying forms can be taken to be as stated above, and that the relationship between them is taken as a fact about the morphology of the language, rather than as a fact about its phonology.

In Aronoff's theory allomorphy rules are required to be lexically restricted both in their targets and in their environments. I.e., they apply to restricted sets of morphemes in the environment of a restricted set of morphemes. Carrier argues persuasively that this constraint is too strong, and that they may apply to a class of targets defined phonologically, but that the environment must be restricted. My proposal is consistent with this weakened version of the constraint, if we consider only the cases in which there is strong formal evidence for

reanalysis. However, the arguments of the preceding section on exception features, which showed that the application of L-T0-O could not in general be predicted by the morphemic composition of a word, seem to indicate that the environment can be stated insightfully only in phonological terms. This suggests that even Carrier's version of the constraint is too strong.

In any case, let us examine the alternatives.

5.2.1 More Exception Features

One alternative analysis is formally quite simple. All we have to do is to say that the relevant forms are marked as exceptions to MVR (7).

(43)	/o+sil+tn/ blocked o osion	MVR (7) L-T0-O
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This analysis can handle the facts pretty well, but it misses a clear generalization. There are indeed exceptions to MVR (7), although most of them are loan words. There are, however, no surface exceptions involving this adjective-forming suffix. The only adjectives with this suffix which fail to have an epenthetic "a" in the nom. sg. masc. ind.¹⁰ are these cases where a stem-final "l" becomes "o", plus the following "exception that proves the rule".

(44) srebro srebrn (syllabic [r],
"silver" adj.

(45) /srebr + n/
r syllabification
n.a. MVR (7)

srebrn

This seems like an appropriate place to put a further example which didn't fit into my survey above.

(46) deoba deōbā *delābā (Eastern)
dioba diōbā *djalābā (Western)
"division" gen. pl.

(47) /del+b+a/
a MVR (7)
n.a. L-T0-0

*delaba

The derivation (47) is what we might expect, given that this abstract noun is derived from the verb "deliti".

All my sources agree, however, that epenthesis never occurs in this form. Feminine nouns (unlike masculines) frequently fail to undergo epenthesis in the gen. pl.¹¹, so this form by itself does not present a problem.

(48) deobni diobni *delabni *djalabni
"pertaining to division"

Again, failure of epenthesis is extremely rare in this morphological context; I know of no parallel cases.

An exception feature analysis would have to say that the failure of epenthesis here is a coincidence. It seems much more likely that the stem of the noun has been

reanalyzed as /deob/, so that the environment of epenthesis is never met.

5.2.2 Cyclic Application

What the exception feature analysis of the preceding section fails to recognize is that in all the crucial cases MVR (7) is apparently bled by L-T0-0. So the problem can be seen as one of rule ordering: how can we get L-T0-0 to bleed MVR (7) even though, as we saw early on, MVR (7) must apply first in other cases? The only way to do this, other than unconstrained local-ordering, is to use cyclic application. So we might propose derivations like these:

(49) [[o+sil]+n] [[mis l]+n]
cycle 1 n.a. a MVR
o o L-T0-0

cycle 2 n.a. n.a. MVR
n.a. n.a. L-T0-0

osion misaon

This looks very attractive until we try to work out the details. First of all, neither MVR (7) nor L-T0-0, as initially formulated, can apply on the first cycle, since their environments are not met. We could add a right bracket to the disjunctions in the environments of both rules, to force them to apply.

(50)

$$1 \rightarrow o / - \left\{ \begin{array}{l} \# \\ 1 \\ C \end{array} \right. \quad \text{L-T0-O}$$

(51)

$$\emptyset \rightarrow a / [-\text{syll}] _ [-\text{syll}] \left\{ \begin{array}{l} \# \\ +C \\ \bar{a} \text{ (gen. pl.)} \end{array} \right. \quad \text{MVR}$$

This, however, would predict that these rules should apply even if the suffix outside the bracket begins with a vowel. That is, we should expect derivations like the following.

(52)

$$/[[\text{kisel}]+\text{in}]+\text{a}/ \quad \text{L-T0-O}$$

o

*kiseoina

(53)

kiselina cf. kiseo
 "sourness" "sour"

Any particular example of this kind could be handled by saying that the internal bracketing is absent in this case, e.g. $[[\text{kisel}+\text{in}]+\text{a}]$. Crucially, however, examples of the kind predicted by this analysis simply do not occur anywhere in the language. L-T0-O never applies before a vowel-initial suffix. I see no way to get these rules to apply on the inner cycle without running into this problem.¹²

Application of the rules on the innermost cycle also violates the version of strict cyclicity discussed by Halle (78). I conclude that cyclic application is of no

help for this problem.

5.3 Implications

If L-T0-O is an allomorphic rule in at least the troublesome cases, that raises a new question. Are all apparent cases of the rule allomorphic, or does the rule continue to exist as a phonological rule? It does not seem possible to answer this question without a clearer theory of the formal properties of allomorphy rules than is now available.

We know that a word like "seoski" must be a separate lexical item, in order to handle the fact that its semantic range is greater than would be predicted by general rules. We could express the difference between "seoski" and "selski" as follows, where $/ \pm F /$ is the exception feature governing L-T0-O.

$$(54) \quad \begin{array}{ll} \text{a. } / \text{sel} \pm \text{ski} / & \text{b. } / \text{sel} \pm \text{ski} / \\ & \pm F \\ & \text{"seoski"} & \text{"selski"} \end{array}$$

If we admit L-T0-O as an allomorphy rule, however, we can express the same difference more directly as follows.

$$(55) \quad \begin{array}{ll} \text{a. } / \text{se} \pm \text{ski} / & \text{b. } / \text{sel} \pm \text{ski} / \end{array}$$

Similarly, what happens when a speaker who normally says "čitaoč" is taught that the word should prescriptively be "čitalac"? We might say that the old underlying

form /čita+oc/ is replaced by /čita+lc/, so that oblique forms like "citaoca", which previously did not require any rules, are now derived by L-T0-O. This analysis predicts that once the underlying form is replaced, "čitalac" will be the only possible nom. sg. form, and "čitaoc" will no longer be produced. It appears, however, that speakers are quite capable of learning to say "čitalac" in formal settings, while continuing to say "čitaoc" in casual speech. I don't see any way to express this distribution with a single lexical entry. I suggest that what a speaker does when he learns to say "čitalac" is to form a new, separate lexical entry whose underlying form is /čita+lc/¹³, and whose syntactic/semantic features indicate that it is a formal-style alternate stem for the nom. sg. and gen. pl. of /čita+oc/. The formal relationship between these two lexical entries would, again, be expressed only via the allomorphy rule.

All the compelling cases of reanalysis involve cases where L-T0-O applies word-internally. It is possible, as Phil Lesourd has suggested to me, that L-T0-O exists both as an allomorphy rule which handles the highly idiosyncratic word-internal cases, and as a phonological rule whose environment has been restricted to the word-final case. Even this restricted phonological rule would not be exceptionless, but all of its special cases could be

handled by ordinary exception features.

This is just one respect in which this analysis seems less than satisfactory. There are exceptions to L-T0-O in every type of case, except in past participles. Thus the exceptionless application of L-T0-O to the past participle formant is in effect an exceptional property of this morpheme. When a rule applies systematically to just one morpheme, one has to suspect that the rule is not truly phonological, even though it applies sporadically to dozens of other morphemes. It also seems difficult, however, to extend the allomorphic analysis to this case. Hopefully problems of this kind will become clearer when the theory of morphology is developed further.

FOOTNOTES

I would like to thank my informant, Dražen Prelec, as well as Cheryl Kariya, Prof. G. N. Clements, Phil Lesourd, Engin Sezer and Prof. Horace Lunt for their helpful comments on this topic.

1. The latter forms will be used throughout this paper as representative forms of paradigms.
2. An idiosyncratic property of this gen. pl. desinence is that the preceding syllable is always lengthened.
3. This verb is suppletive; this is the stem for the past participle only.
4. The genitive desinence is "-i" here because this noun is in a different declensional class.
5. The phonetic value is unclear, although [æ] seems

likely for the common Slavic period.

6. For instance, adjectives in "-sk-" never have indefinite forms. This is why there is no form "*selask" to go with "seoski".

7. Actually, this is what we would expect, given the diminutive "svrdalce", because this diminutive suffix is generally used only with neuter stems.

8. This ignores the problem of dialects where both forms may be used systematically in different speech styles. This question will be touched on briefly below.

9. The "o" in this word comes from an "l" historically, via L-T0-O. There is no synchronic evidence, however, for an "l" in this stem; no "l" appears in any of the inflectional forms of this word or any of its derivatives. The only reason to posit an "l" here would be to save a Morpheme Structure Constraint of the sort discussed in the text, and this could be done only at the expense of Kiparsky's Derived Environment Condition.

10. If they have this form at all.

11. Furthermore, this noun is sufficiently abstract that the status of its plural forms in actual usage is somewhat uncertain.

12. Even a formulation of L-T0-O in syllable structure terms seems to have this problem.

13. Or perhaps /cita+lac/?

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