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FOREWARD

The editors of this issue, Julie Bailey, Ana Pasquini, Laura Smith and Lorna Rowsell, are pleased to present the eighteenth issue of the *Calgary Working Papers in Linguistics* published by the Department of Linguistics at the University of Calgary. The Papers published here represent works in progress and as such should not be considered in any way final or definitive.

This issue of CWPL includes papers by professors and students, both graduate and undergraduate, of the University of Calgary. John Archibald's paper examines Yucatecan Maya data collected while doing field research in Mexico and argues that this is a stress accent language. Andrew Carnie and Jonathan Bobaljik's paper discusses, within the Minimalist framework, VSO as the unmarked word order for languages with both verb raising and Object Shift. Michael Dobrovolsky's paper addresses gemination in Chuvash within the framework of tiered phonology.

As a representation of our M.A. program, Julie Bailey draws together the arguments concerning the Glottalic Theory within Indo-European Linguistics and argues for a PIE reconstruction which includes both implosives and ejectives. Laura Smith examines Vennemann's Bifurcation Theory and details the effects of this theory on Verner's Shift and rule ordering within Germanic. Fumi Watai discusses Cree syntax in length and argues that this is a nonconfigurational language. She argues further, however, that a rigid hierarchical structure controlling constituent movement makes Cree compatible with configurational structure.

Finally, we have, as an undergraduate submission, Sean McLennan's paper which discusses the sociolinguistics of 'Serbo-Croatian' and the history behind its development into two socially distinct dialects.

We would like to extend our thanks to Vi Lake for all of her help in transferring disk formats. Thanks also to Betsy Ritter for her generous help in editing Fumi Watai's syntax paper. And, of course, we would like to thank all of the contributors without whom we would not have had an eighteenth issue of CWPL.

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CALL FOR PAPERS

Calgary Working Papers in Linguistics is an annual journal which includes papers by faculty and students in Linguistics and related disciplines, both at the University of Calgary and elsewhere.

The editors would like to encourage all readers to submit papers for future publication. The deadline for submission of papers is December 1, in order to meet a Winter publication date. However, we strongly recommend submission of papers well before this date to allow time for solving the inevitable editorial problems or questions which crop up. Contributions must be on 3 1/2 inch Micro Floppy Disks in Microsoft Word (Macintosh) format. We furthermore request that the submissions follow the APA style sheet, use 10x10 point Times font, and leave a 1" top- and bottom-margin, as well as a 1" margin on both the left and right hand side. In those rare circumstances in which the contributor does not have access to a computer, the editors will accept two typed copies of the paper to be submitted no later than November 1. Those wishing to submit papers should send manuscripts to the address given below. Postage costs should be included if the disk containing the manuscript or the paper copy is to be returned. Appearance of papers in this volume does not preclude their publication in another form elsewhere.

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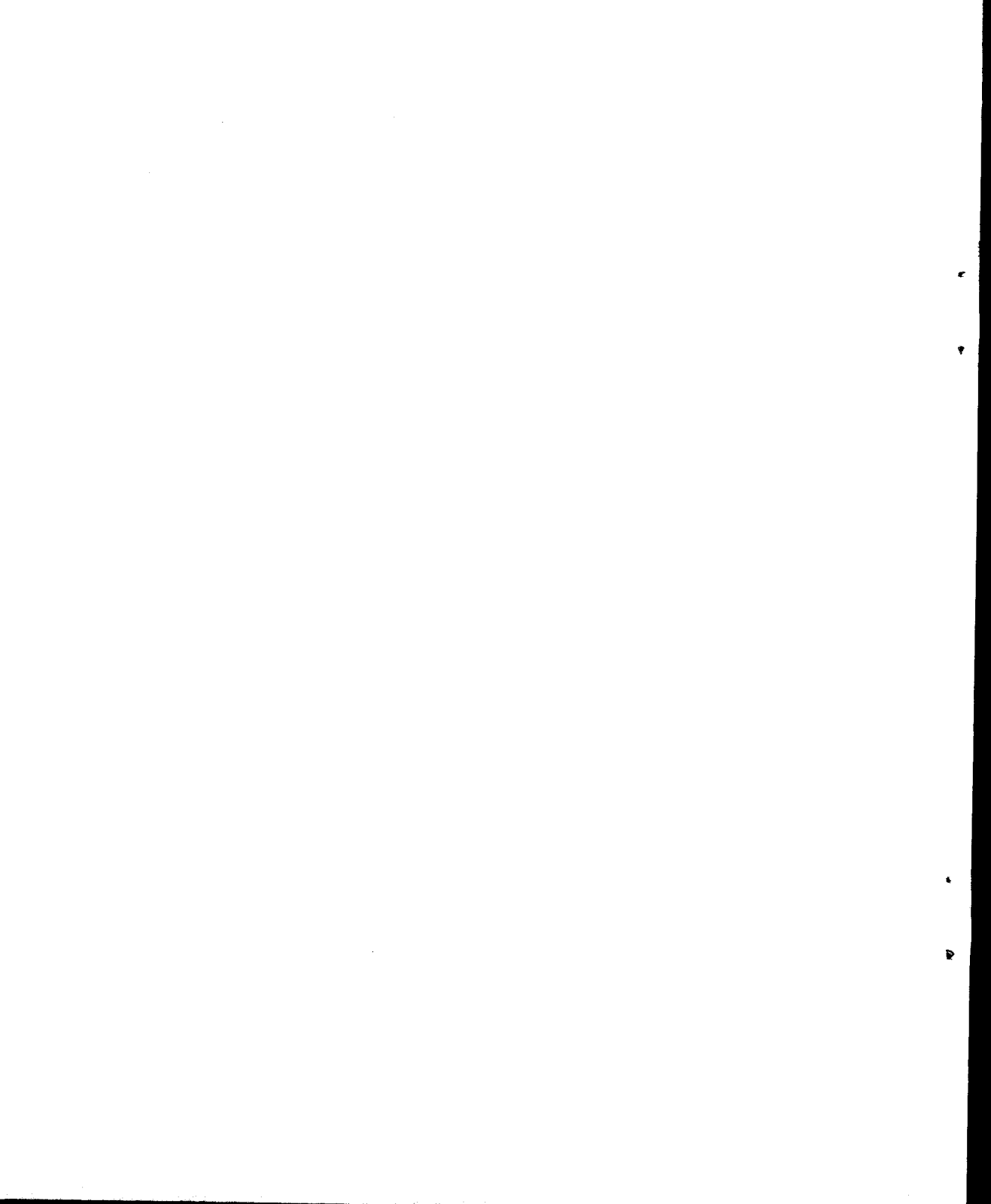
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THE ACQUISITION OF YUCATECAN MAYA PROSODY

John Archibald
University of Calgary

Paper presented at The UBC International Conference on the Acquisition of Phonology

1.0 Overview

In this paper I'm going to talk about some data that I gathered and analyzed while I was in Mexico. I had the opportunity to get involved with a research project at the Autonomous University of the Yucatan, headed by Dra. Barbara Pfeiler, that was looking at the acquisition of Yucatecan Maya.

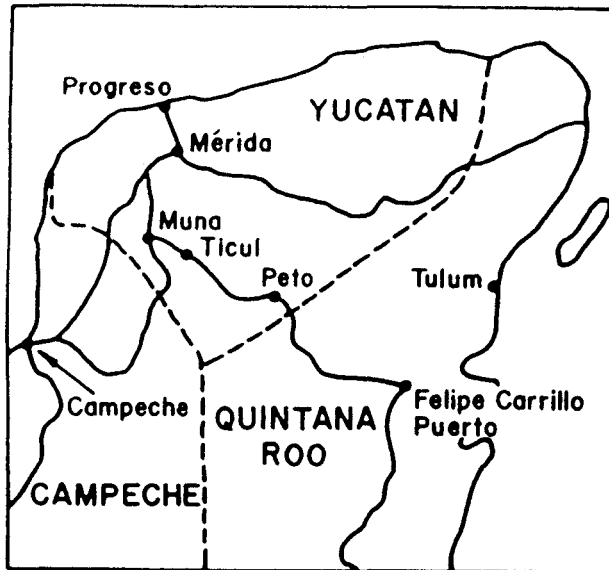
The Maya language family consists of 31 languages, spoken mainly in Guatemala and the south of Mexico by about 3.5 million people. See Figures 1 & 2 below. Yucatecan Maya is estimated to have about 600,000 speakers. The influence of Spanish in the area is, of course, strong. Many of the people are bilingual and the issue of maintaining the Mayan language in the next generation is a hot educational topic. This will become an important factor when we look at some of the prosodic changes that seem to have happened to YM in the past century. But outside of the major cities it is possible to find people who have very little contact with Spanish.

Figure 1 - Middle America



1. Middle America

Figure 2 - The Yucatán Peninsula



2. The Yucatán Peninsula

The data that we collected were drawn from a family outside of Valladolid (between Peto and Tulum on the map in Figure 2). The mother speaks to the children all the time in Maya. The father has some knowledge of Spanish as he works in the tourist town of Cancun. However, the father is away for most of the week and by all reports didn't talk much to the kids anyway. By these controls (such as they are), I was hoping to get Maya data fairly uncontaminated by Spanish influence. Ultimately, it seems that on a micro-level the influence of Spanish can be minimized while on the macro-level it cannot. The data I refer to here were taken from a recording of a family in their home. The mother was playing with her three children ages two, four and five. A bilingual Maya/Spanish researcher was also present. In this paper I will only refer to the words spoken by the two-year old (listed in the Appendix).

For your information, Figure 3 shows the phonetic inventory of Yucatecan Maya:

Figure 3 - Phonetic Inventory

Stops	p	t	c	č	k	ʔ
Ejectives	p'	t'	c'	č'	k'	
	b'					
Fricatives	(f)		s	š		h
Nasals	m	n		(ɲ)	(ŋ)	
Glides	w			y		
Liquids		l				
		r (ɾ)				
Vowels	i	e	a	o	u	

Note that there are glottalized consonants that I will refer to very briefly when discussing the acquisition data. Or maybe now - the two-year-old seemed to be very good at her glottalized consonants. We also note that vowel length is contrastive in Yucatecan Maya. Traditional grammars have referred to a wide range of vowel types as shown in Figure 4:

Figure 4 - Vowel Types

Long	vv
Short	v
Clipped	vʔ
Rearticulated	vʔv

My position is that we really just have a two way distinction of long versus short vowels to be acquired. The clipped vowels seem to arise as a result of having to have a word-final coda. If there is none, then a glottal stop is epenthetically inserted. These epenthetic consonants are quite unstable in informal speech (Pfeiler, undated). Sometimes they are deleted and sometimes they become [h]. The rearticulated vowels seem to pattern as a series of short vowels, as, we shall see, they never attract an irregular accent.

2.0 Yucatecan Maya Prosody

Now, when it comes to describing the prosody of this language, there seems to be a fair amount of controversy. Some researchers (e.g. Pike, 1943) refer to Yucatecan Maya as a tone language because of what was referred to as its "sing-song" nature and the existence of a few minimal pairs that seemed to be contrasted only by pitch differences. However, it should be noted that so-called high tone is found only on long vowels. Short vowels never have a high tone. Hanks (1984) seems to suggest that it is a quantity-sensitive stress language with stress

"predictable from the pitch contour". Pfeiler (1992) suggests that it is a pitch accent language. Perhaps, not surprisingly, there seem to be good and bad points of all of these positions. Exactly how to distinguish between stress, pitch accent and tone languages has generated a considerable amount of discussion in the literature (Beckman, 1986; Haraguchi, 1991; Hyman, 1978; Hayes, 1995; McCawley, 1968; Mock, 1988; Pulleyblank, 1986; van der Hulst & Smith, 1988; Woo, 1972). Hayes (1995:49-50) comes out most clearly when he says, "pitch accent languages must satisfy the criterion of having *invariant tonal contours* on accented syllables, since tone is a lexical property. This is not so for pure stress languages, where the tonal contours of stressed syllables can vary freely" and furthermore be influenced by intonation.

Pike first proposed that YM was a tone language because of the existence of a small number of minimal pairs that differed only in terms of pitch. I believe that many of the cases cited were in fact length differences (i.e. long versus short vowels), but there do still seem to be a small number of words that are said to be distinguished only by pitch (e.g. long vowel with high pitch and long vowel with low pitch). My suspicion is that current speakers of YM would not have a significant pitch difference on these words - for reasons that I will get to - but, sadly, I do not have recordings of these words. Because it seems to affect such a small number of words, and for other reasons that I will discuss shortly, I am questioning the classification of YM as a tone language. But what of deciding between pitch accent versus stress?

In Yucatecan Maya, the vast majority of words seem to have only one accent (making it seem to be a lexical property, and hence pitch accent). In the dictionary search I conducted, I could find only one word that had two accents marked, *cháacháal* 'cloth'. This fact too, seems to argue against the tone analysis. But what about a stress analysis? There are a couple of reasons that a stress analysis appeals to me. One is that we see an interaction of syllable weight and accent and (2) we see patterns that suggest metrical constituents. All this has to do with the distribution of the long vowels.

The vast majority of words seem to have only one long vowel in them (usually in the first syllable). Again, in the dictionary search, I found three examples - *ánikaab* 'wicker', *cháacháal* 'cloth', and *iip'il* 'traditional dress'. It is also worth noting that I found no words in which the second syllable of a three-syllable word was long. In other words, there were no non-initial, non-final long vowels. This looks to be some sort of foot constraint. The second syllable of a three syllable word looks to be a weak metrical position that cannot branch. This fits in well with an analysis of YM stress as iambic. We wouldn't expect this kind of constituency in a pitch accent language. Also, more anecdotally, many of the grammars that I consulted (e.g. Blair & Vermont Salas) spend an enormous amount of time on how YM intonation patterns can change the accent in a word. Again, following Hayes (1995) this seems to point more to a stress analysis than a pitch accent one.

The fact that long vowels tend to occur non-finally has something to do with a constraint that makes strong syllables be bimoraic. A YM word must end in a consonant. Final superheavy syllables can occur but are much rarer than final CVC syllables. The non-final syllable can either be CVV or CVC.

The big question that remains in my mind about the adult grammar of YM is why some long vowels are accented and some are not. If it is stress it should be predictable. At this point, I

am just going to consider them as irregular stresses that have to be learned. I feel this is consistent with the small number of words said to be distinguished by accent alone. There may also be historical support for this, as it has been suggested that the irregular accents in YM derive from heavy syllables in Proto-Maya (e.g. VhC or VjC sequences). Sociolinguistically, it has been noted, as well, that irregular accents (high tones) tend to be deleted in informal contexts (Pfeiler, undated). This makes YM fit in with other Mayan languages which are stress languages, as shown in Figure 5:

Figure 5 - Stress Types

- Type A: •stress the heaviest syllable in the word
•Wasteko, Mam del Norte
- Type B: •stress the first syllable of the root of a word
in the middle of a phrase; stress the last vowel
of a word at the end of a phrase
•Tzeltal, Q'anjob'al
- Type C: •stress the penultimate syllable
•Mam del Sur, Ixil
- Type D: •stress the last vowel of each word
•K'iche', Mam Occidental, Q'eqchi', Poqom

Salmons (1992: 56) proposes a general tendency (particularly in language contact situation) for languages to move along the following path shown in Figure 6:

Figure 6 - Move From Tone to Stress Accent Tone -> Pitch Accent -> Stress Accent

As documented in Bantu languages, first we might see the H/L contrast change into a H/Ø contrast, and then a metrical grid would take the H as a prominent position. Once a word can have only one H tone then that syllable becomes prominent. This kind of prominence is more of an accentual than a tonal phenomenon. Goldsmith (1987a: 76-77) considers the limiting of one H per word to be causal in the development of a metrical grid.

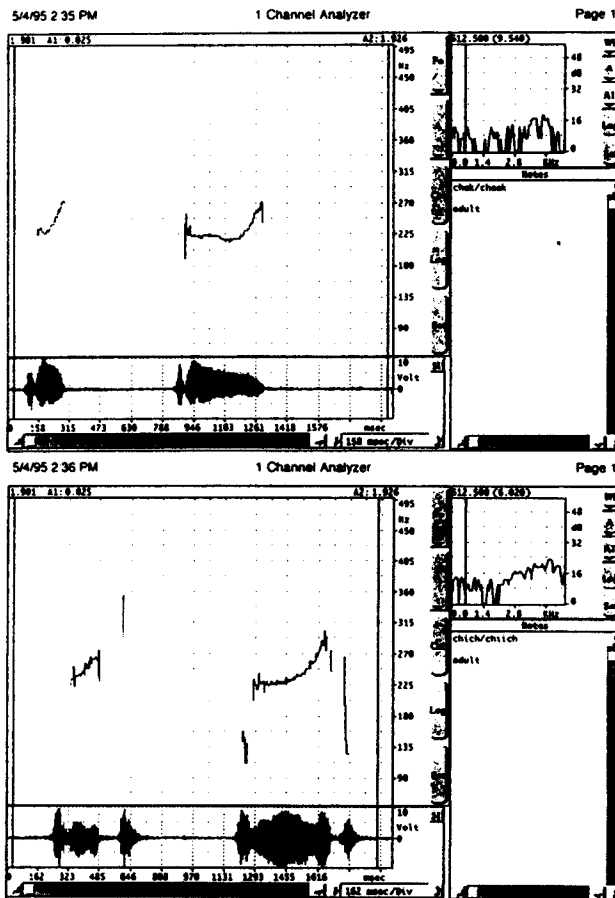
Salmons' model may well document what has been going on in YM. Perhaps originally, it was a tone language that subsequently moved through the pitch accent stage to the stress stage. This seems to be much more likely in areas of language contact, and certainly YM is in frequent contact with Spanish. I would argue then that modern YM is somewhere between stages two and

three with properties of both pitch accent and stress languages. The dominant pattern seems to be final stress but there may be some lexical items that have non-final long vowels stressed.

3.0 Instrumental Analysis of the Adult

I have conducted a number of instrumental acoustic analyses on both a child and adult speaker of YM. In a number of forms I compared the vowel length of long and short vowels, as shown in Figure 7 (*chak/chaak*; *chich/chiich*):

Figure 7



Visually, we can clearly see the difference between the long and short vowels. Statistically, the difference is borne out as we see that the long vowels are significantly longer than the short vowels ($p=.0025$). Adults also showed a significant tendency to lengthen final vowels ($p=.0147$). This analysis emerged from a two factor ANOVA on the effects of phonological long or short status and position on length in milliseconds, shown in Figure 8:

Figure 8

2 Factor ANOVA : Vowel Length & Finality ADULT

Anova table for a 2-factor Analysis of Variance on Y1: MS					
Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Length (A)	1	64576	64576	16.1	.0025
Final/Non (B)	1	34721.3	34721.3	8.7	.0147
AB	1	7448	7448	1.9	.2027
Error	10	40071.5	4007.1		

There were no missing cells found.

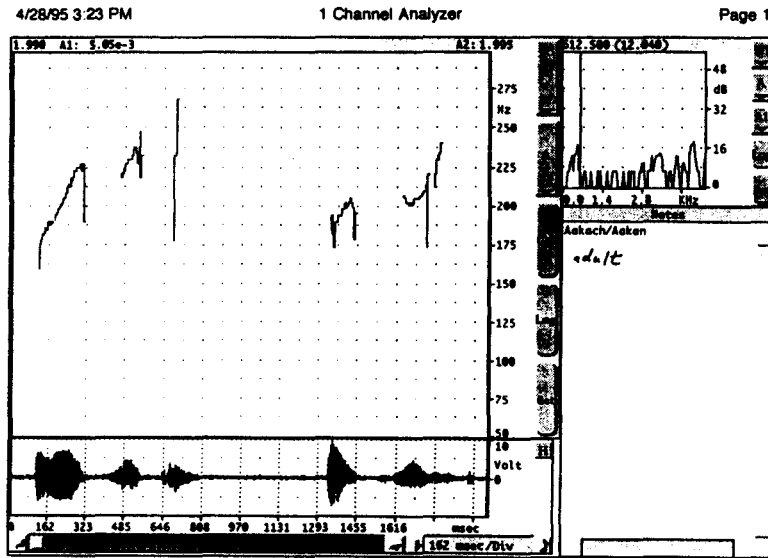
2 Factor ANOVA : Vowel Length & Finality

Anova table for a 2-factor Analysis of Variance on Y1: MS					
Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
LENGTH (A)	1	91320	91320	9.9	.0077
FINAL/NON (B)	1	486.4	486.4	.1	.822
AB	1	1.6	1.6	1.7E-4	.9897
Error	13	119943.4	9226.4		

There were no missing cells found.

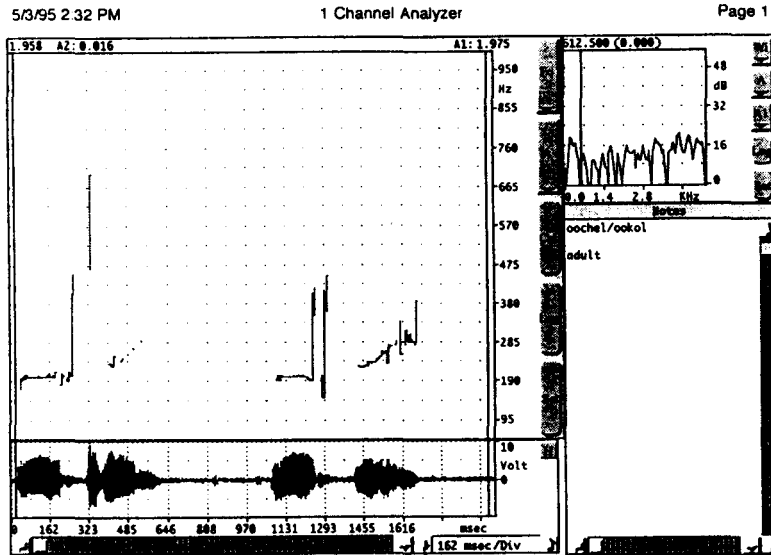
I also did some F_0 contours of adult forms to see if there was any predictable effect on the supposed high tone vowels. Figure 9 shows the pitch contour for the forms *áakach* and *áakan* both of which are said to have a high tone on the first syllable.

Figure 9



If there is any difference, it looks as if the second syllable is higher in pitch. This is in fact the same pattern we see on words that do not have High tone markings, as shown in Figure 10. These are the words *oochel* and *ookol* where we see the same rising pitch.

Figure 10

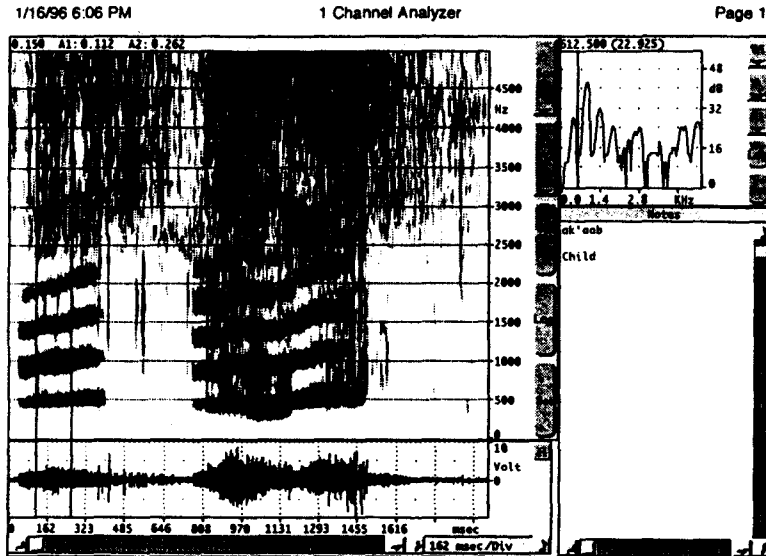


My analysis of the adult forms then, suggests that items which are traditionally marked as having high tone are not phonetically distinct from those vowels which are supposed to have low tones. The phonological distinction of long versus short vowels is, however, borne out phonetically.

4.0 The Child: Instrumental Analysis

I have also conducted an acoustic analysis on a number of the child's words. A complete listing of the words from this session can be found in the appendix. I found that the child appears to have acquired the distinction between long and short vowels, as shown in Figure 11 (*akaab*).

Figure 11



Again a two factor ANOVA indicated that the difference was significant ($p=.0077$). The child did not show the same final lengthening effect that the adult did ($p=.822$). These tendencies can be seen in Figure 12:

Figure 12

Means

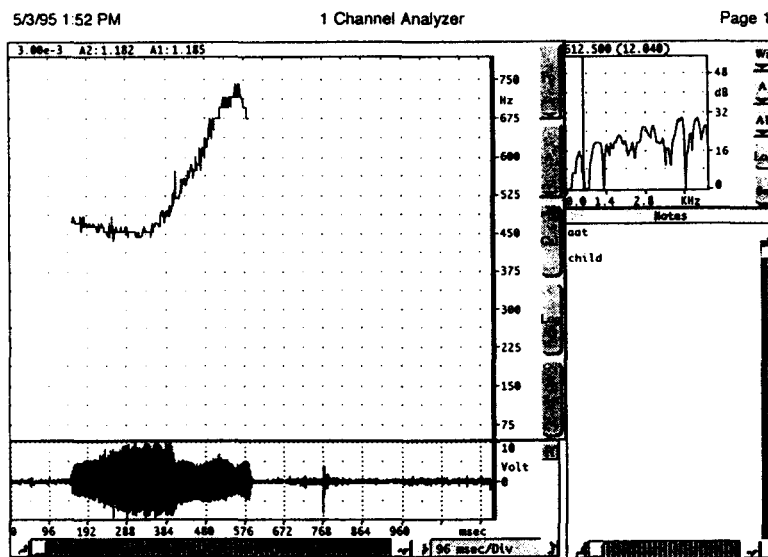
Child Short: 194.9 ms Child Long: 391.6 ms
Ratio (Long/Short) = 2.01

Child Final: 315.1 ms Child Non-final: 204 ms
Difference (Final - Non-final) = 111.1 ms
Ratio (Final/Non-final) = 1.54

Adult Short: 147.7 ms Adult Long: 269.3 ms
Ratio (Long/Short) = 1.8

The child clearly shows a pattern of a rising pitch contour at the ends of words, as shown in Figure 13 (*aar*). Even on a one syllable word we see that the child is increasing the pitch.

Figure 13

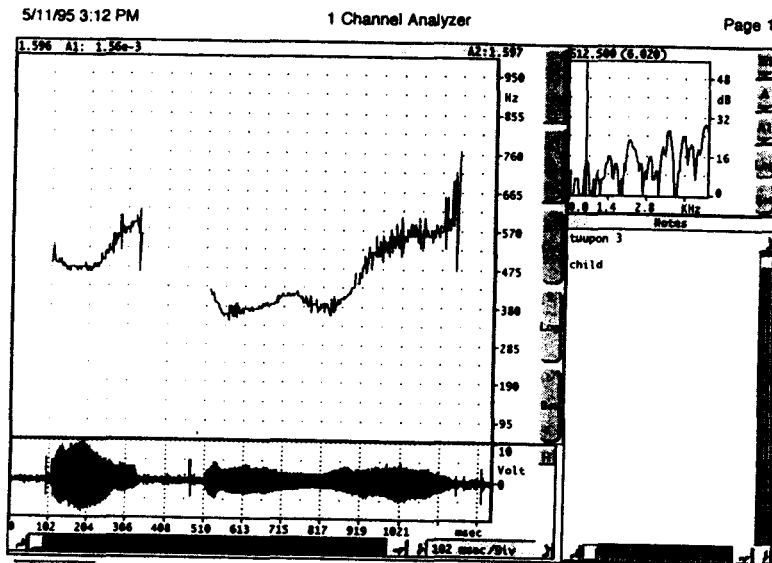


This pattern is also seen on the adult words (e.g. Figure 7 - *chak/chaak*). While it is possible that the adult pitch rise is an artifact of list intonation, this is not the case for the words from the child sample. I would argue that this boost in frequency on the final syllable is evidence of the acquisition of final stress. This can be seen in Figure 13 (*maami*). So, while final lengthening is not significant for the child, an increase in pitch on the final syllable is clear.

That this two-year old is so consistent in her final stress suggests one of two things: (1) it could be evidence against the claim of a universal trochaic foot (Allen & Hawkins, 1980; Archibald, 1995; Fikkert, 1994) or (2) it could be that the child is just reflecting the input and is merely storing individual lexical items and has not yet started to generalize a computational system for stress. It could also be argued, though, that if the language is still a pitch accent one, then the child is just learning the accent placement as part of the lexical entry.

There were only two words in the session that the child produced that had a high tone as part of the adult form (*túumben* & *áak'ab*). We already saw in Figure 10 that the child was not making a distinction in the pitch of the two vowels of *áak'ab*. We see the same in Figure 14 for the word *túumben* (which is realized as *tuupon*).

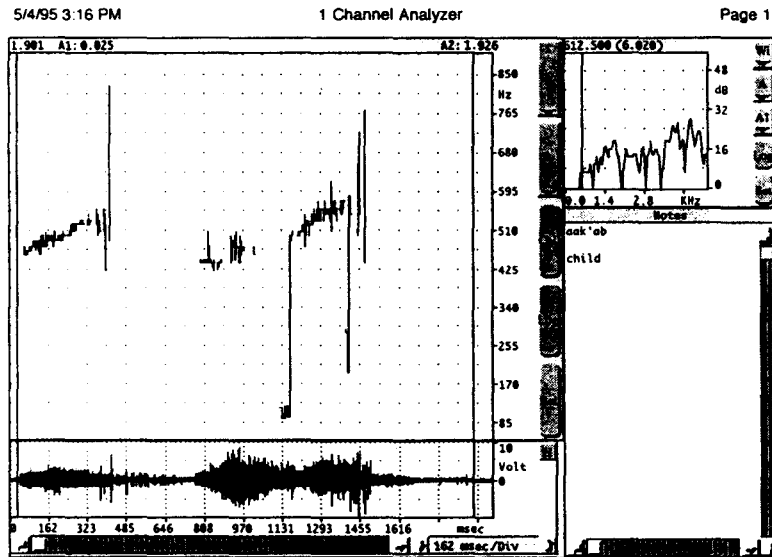
Figure 14



When I did these analyses I was assuming that the adults were making a pitch distinction in the supposed high and low vowels and that the child was not (which would suggest overgeneralization and hence computation and not just lexical storage). Unfortunately, I do not have recordings of an adult saying these words. However, given the lack of pitch distinction on the vowels of words like *áakach* (shown in Figure 9) I would think it likely that the input to the child does not contain a higher pitch on the first syllable. As a result, the evidence of overgeneralization is weakened.

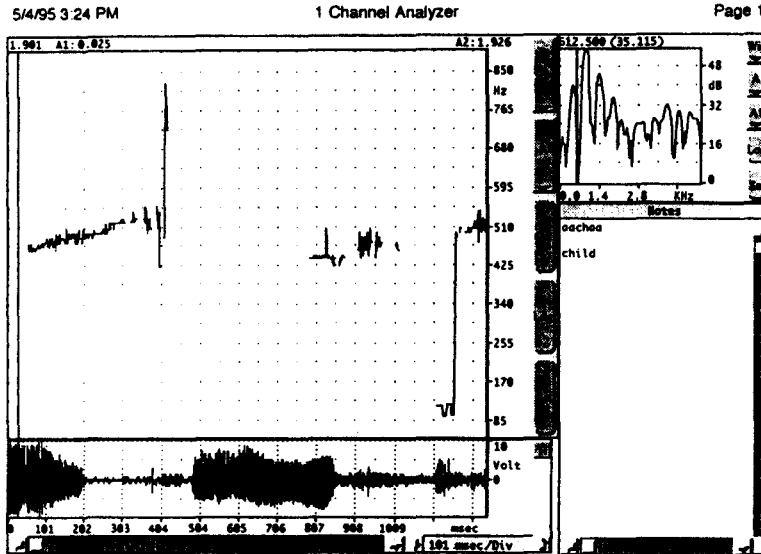
The child (like the adult) does not seem to be treating vowels that are supposedly high tone any differently from vowels that are low tone. In Figure 15 you see the F_0 contour of the word *áakab* (with a high tone).

Figure 15



Note that the two vowels are at almost exactly the same pitch (about 510 Hz), and we see the pitch rise on the final vowel. Compare this with Figure 16 which shows the F_0 contour for the word *aachaa* which does not have any high tones. Again, both vowels are at about 500 Hz with a bit of a rise on the second one.

Figure 16



4.1 A Possible Explanation

One thing that occurs to me by way of possible explanation of the iambic pattern seen in child speech has to do with Hayes' (1995) Iambic/Trochaic Law. Hayes suggests that humans have a built-in perceptual mechanism that sometimes imposes an iambic structure on the input and sometimes a trochaic structure. Seemingly, when humans hear alternating patterns of prominence we tend to impose a head-initial (or trochaic) structure as shown in Figure 17. But when we hear alternating patterns of duration, we tend to impose an iambic structure:

Figure 17

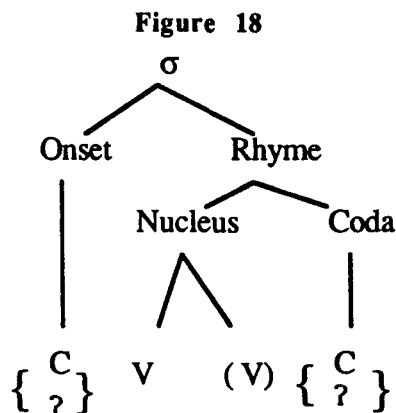
á ā á ā á ā á ā → ā (á ā) (á ā) (á ā) (á ā) (á ā)
a aa a aa a aa a → (a aa) (a aa) (a aa) a

The fact that the input contains alternating long and short vowels with the only significant pitch rise at the end of a word, might well lead the child to impose an iambic structure on the data. As I

argued in my (1995) paper, I think it highly likely that these non-linguistic perceptual abilities are crucial in the child's setting up a metrical system.

5.0 A Quick Comment on Syllable Structure

I'd just like to say a couple of things quickly about the syllable structure of YM. The basic structure is shown in Figure 18:



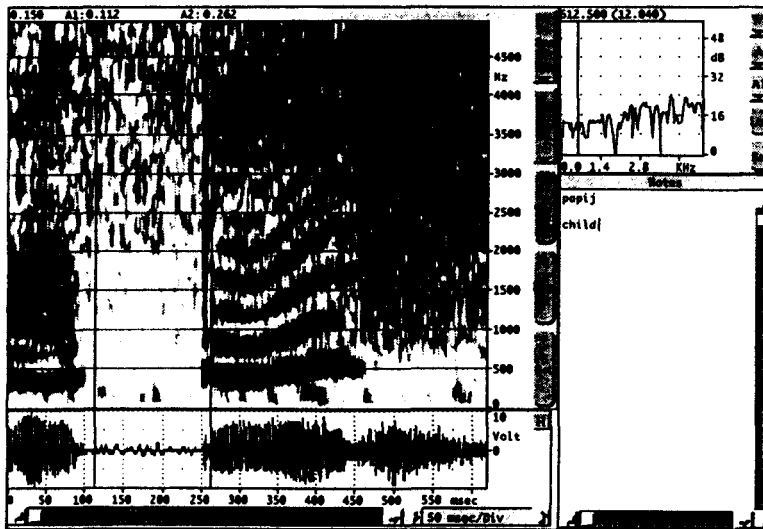
The child allows both branching rhymes and branching nuclei which is consistent with Fikkert's (1994) claims but we have no evidence as to whether the branching rhyme parameter was reset before the branching nucleus parameter. The child seems to have acquired the YM constraint which determines that word final syllables must be CVC. This can be seen in Figure 19 which is the spectrogram for the word *paapii*.

Figure 19

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1 Channel Analyzer

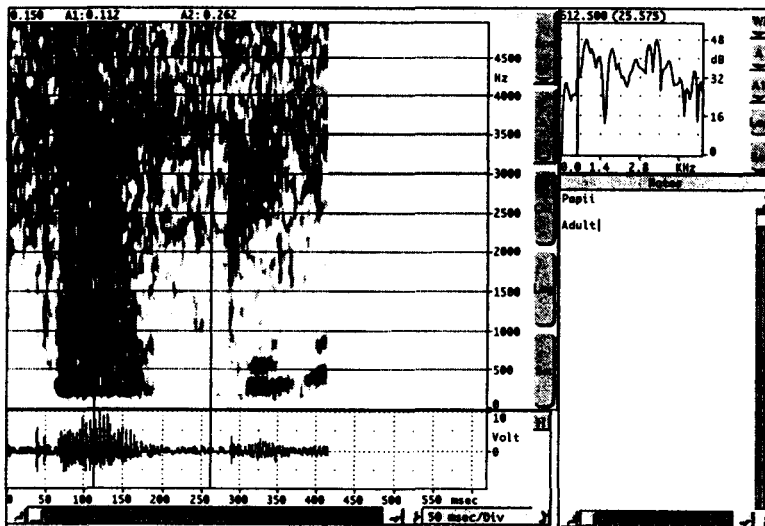
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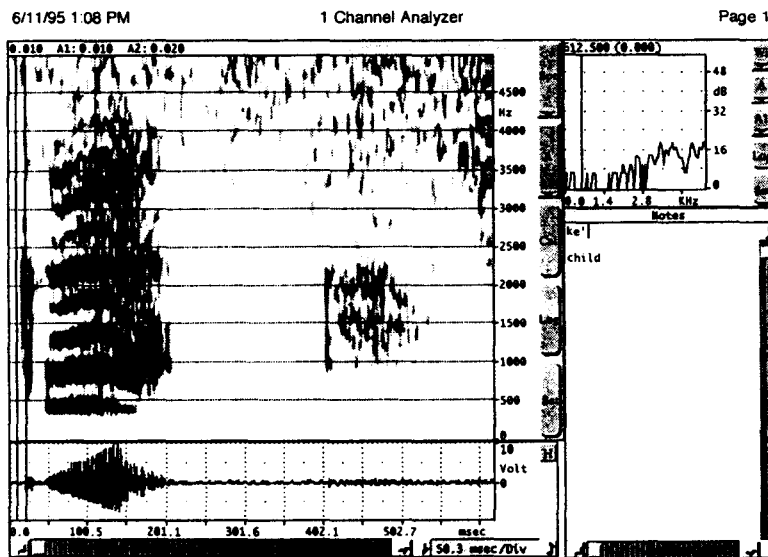
1 Channel Analyzer

Page 1



In the adult versions of this word that I heard, there was no evidence of a consonant at the end (an exception to the CVC constraint). However, the child was clearly producing a voiceless palatal fricative at the end of this word. Figure 20 also shows some data that suggest the child is epenthetically inserting a glottal stop to fulfill the CVC constraint.

Figure 20



You see a spectrogram of the word *ke'* which shows the markedly shortened (or clipped) vowel at the end of the word. The mean short vowel length for this child was 194 ms; the length of this vowel is about 160 ms. The abrupt onsets that we see in the waveforms of vowel-initial words would seem to suggest that the child (like the adult) has initial glottal stops.

The fact that word-final syllables must be closed (with final stress) combined with the fact that non-final stresses (if they, in fact, exist) can only occur on long vowels, suggests that stress can only go on heavy (bimoraic) syllables. This would seem to fit in with a stress analysis of adult YM rather than a tone or a pitch accent analysis in which high tone could only fall on long vowels.

6.0 Conclusion

In this paper, I have argued that:

- (1) Yucatecan Maya is best thought of as a stress accent language (perhaps with some aspects of a pitch accent language). This is a relatively recent historical development, and (following Salmons) probably the result of the high contact with Spanish.
- (2) The adults have phonemic vowel length but the status of phonemic tone is questionable.
- (3) The child has acquired the long/short vowel distinction and does not seem to be distinguishing pitch phonemically.
- (4) The child shows evidence of productive final stress, arguing against a universal trochaic bias in early child language.
- (5) The child appears to be able to insert epenthetic glottal stops in both onset and word-final positions.
- (6) The child allows both branching rhymes and branching nuclei.

While there are still many unresolved questions, I look forward to trying to sort out some of the intricacies of Yucatecan Maya by collecting further child and adult data.

Acknowledgments

I would like to acknowledge the following people for helping me to get this paper to this preliminary state: Barbara Pfeiler for her hospitality and generosity while I was in Merida, Maria Mercedes Cruz Bojorquez for help with the Maya data, Rada Radakrishna for freely lending me his Maya sources, and Michael Dobrovolsky for helping me with the acoustic software.

Curses

To the bozo, DF, whose criminal activity in my home caused me to return early and bring my fieldwork to an early end.

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Appendix A: Yucatecan Maya Bibliography

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**Appendix B:
Data**

**San Andrés X-Bac, Valladolid, Yucatan
4 February 1995**

<u>Child Form</u>	<u>Adult Target</u>	<u>English Gloss</u>
1: hook'	hook'	knot
2: Maamfi	maamii	mommy
3: Taki'	saki'	Valladolid
4: Ch'a'aj	ch'a'ahi	I grab
5: Beya'	beya'	like this
6: Yaan	yaan	have
7: Taki'	saki'	Valladolid
8: Paapii	paapii	daddy
9: Anti'i	yan ti'	yes, it has
10: Beya'	beya'	like this
11: Tatej	sateh	I lost (it)
12: Tatej	sateh	I lost (it)
13: Chuy	chuuy	to sew
14: T'ook'	nook'	clothes
15: Ook' At'	nook' Adela	Adela's clothes
16: Cha'an	cha'an	see
17: Cha'an	cha'an	see
18: Taki'	saki'	Valladolid
19: Cha'an	cha'an	see
20: Cheen	cha'an	see
21: taki'	saki'	Valladolid
22: Paapfi	Paapii	daddy
23: Paapij	Paapii	daddy
24: Paapij	Paapii	daddy
25: Taki'	saki'	Valladolid
26: Manaj	manaj	
27: Maami	maamii	mommy
28: Tuupon	túumben (H)	new thing
29: Tumben	túumben (H)	new thing
30: Tuupen	túumben (H)	new thing
31: Taki'	saki'	Valladolid

Child Form	Adult Target	English Gloss
32: Taki'	saki'	Valladolid
33: Oyoch	nohoch	big thing
34: Oyoch	nohoch	big thing
35: Papij -- Paapfij	Paapii	daddy
36: Chuku'um	suku'un	big brother
37: Ook' At'	nook' Adela	Adela's clothes
38: Ook' At'	nook' Adela	Adela's clothes
39: Ook' At'	nook' Adela	Adela's clothes
40: Maami	maamii	mummy
41: Ook' Aachaa	nook' Benita	Benita's clothes
42: Peek'	peek'	dog
43: Peek'	peek'	dog
44: Peek'	peek'	dog
45: Poyech	flores (Sp)	flowers
46: Potech -- poyech	flores (Sp)	flowers
47: Peek'	peek'	dog
48: Mami	maamii	mummy
49: Mami	maamii	mummy
50: Chuuy	chuuy	to sew
51: Chuuy	chuuy	to sew
52: Oee	woje	
53: Pata'ach	pak'ach	to make tortillas
54: Jaana	Liana	
55: Jaana	Liana	
56: Jana	Liana	
57: Aak'aam	áak'ab (H)	of the night
58: Watech ak'aan	ts'o'ok in wa'alik ti'	I told you already,
	teech, aak'ab	of the night
59: Ak'aan	áak'ab (H)	of the night
60: Papfi	paapii	
61: Baak	baak	bone
62: Tuku'um	suku'un	big brother
63: Mami	maamii	mommy
64: Jum pek	Hm, p'EEK	I don't want
65: Aachaa	Benita	
66: Aachaa	Benita	

Child Form	Adult Target	English Gloss
67: Jacháa	Benita	
68: Liá	Lilia	
69: Aacha	Benita	
70: Ke'	ki'	nice thing
71: Ke'	ki	nice thing
72: Ke'	ki	nice thing

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SHIFTING OBJECTS AND PROCRASTINATING SUBJECTS*

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&

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0. Introduction

We claim that the Minimalist framework of Chomsky (1993) predicts VSO to be the unmarked word order in a language which has both verb raising and Object Shift (in the sense of Holmberg (1986)). This paper has two sections: In section 1, we will show that object shift entails a subject positions lower than the specifier of AgrS. Thus, in a language with verb raising to AgrS, VSO order would be derived trivially. In section 2, we will show how this works in Irish, a language with both overt object shift and VSO matrix ordering.

The basic clause structure we assume is (1) after Chomsky (1993):

- (1) [AGRSP AgrS [TP T [AGROP AgrO [vp subj. [V obj.]]]]]

1. Object Shift and Subject Positions

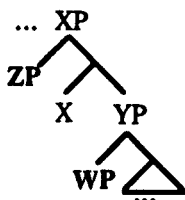
There has been much attention paid to the phenomenon of object shift in the Germanic languages within the framework adopted here¹. In particular, the raising of an object across the (trace of) the subject in its base position, the specifier of VP, would appear to be in violation of some version of Relativized Minimality (Rizzi 1990). The solution proposed by Chomsky (1993) is that Minimality is expressed as an Economy condition on movement. This condition holds that the target of movement must be the closest possible landing site. The notion of closest, however, is mediated by a notion of *Equidistance* whereby more than one position may count as the closest position. In (2), ZP (the specifier of the Head X) and WP (the specifier of the complement of X) must be taken to be equidistant at least from elements c-commanded by x. Chomsky (1993) attempts to derive this from X-bar theoretic relations, specifically from the specifier-head relations. He suggests that after adjunction of Y° to X°, ZP and WP are both in a specifier head relationship to the chain [Y°-tY°]. There are empirical reasons to believe that the link between overt verb-raising and Equidistance is too strong; we refer the reader to Bobaljik (1994) and Watanabe (1993)

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¹ In addition to remarks in Chomsky (1993) and Bobaljik & Jonas (forthcoming) and the works cited therein

for discussion and suggestions. Without further comment on how these relations are derived, we will simply assume these two positions (ZP and WP) are equidistant, provided the head Y° adjoins to the head X° .

(2)



The effect of this is that NP movement may (although need not) "skip" at most one specifier position, but only if the target is the specifier of the next higher phrase. For the case of object shift, this entails that the object may skip the subject in the specifier of VP without violating Relativized Minimality *qua* Shortest Movement if and only if it raises to specifier of AgrOP. On the assumption that movement is further constrained by some version of the Strict Cycle Condition, "Object Shift" will have to precede raising of the subject. After the object has raised to the specifier of AgrO, the subject will then have to skip this raised object. Examining the structure in (3), we see that the subject cannot raise directly to specifier of AgrSP, as this position is not equidistant to the specifier of AgrOP, the closest landing site for the subject..

(3) [AGRSP AgrS [TP T [AGROP AgrO [vp subj. [V obj.]]]]]

Even with the effects of Equidistance, the subject may only skip the filled specifier of AgrO if it raises at least to the next higher specifier, i.e. the specifier of TP. Even if the specifier of TP were not available², the specifiers of AgrSP and AgrOP would never stand in the relevant relation of ZP-WP in (2) (in other words, the relation of the specifier of and the specifier of the complement of X). The two are thus never equidistant from, for example, the base position of the subject.³

² We are using 'not available' here in the sense of Chomsky (1993), who uses the lack of a TP specifier position to explain why subjects raise to the specifier of AgrS in English.

³ The specifier of TP is not necessary if object shift is not overt. Presumably, specifiers are generated during the course of a derivation as they are targeted for movement or by virtue of material being base-generated in them. Thus, if Spec, AgrO is not filled, it is not present and does not count as the closest position. There is no contradiction here: only filled specifiers count for determining which specifier must count as the closest position, hence the subject may raise as far as it pleases if there are no intervening filled specifiers, while *Equidistance* is defined

In an interesting way, then, overt NP object shift can be taken as a diagnostic for the overt licensing of the specifier of TP as a subject position in a given language. As will be seen below, Irish has overt raising of (at least some) objects to specifier of AgrOP, hence Irish must license the specifier of TP at Spell-Out as an A-position to (or through) which the subject may raise.

Now, we have determined that when a language has overt object shift, the subject's first landing site is TP. Still, we have to ask why, in VSO language like Irish, by hypothesis, the subject does not (and cannot) raise further to the specifier of AgrS. The answer is not complex. Recall that an assumption of the Minimalist Program (Chomsky 1993), is that overt movement is legitimate only in case that without such movement, morphological features would not be checked and there would be no legitimate interpretation at PF or at LF. This is the Economy principle of Procrastinate (Chomsky 1993). It is a simple move to assume since the subject must move through specifier of TP at least in some clauses in Irish, and since nominative case features are a reflex of T⁴, then further (overt) raising to the specifier of AgrS would be superfluous⁵. Overt raising of the subject further to the specifier of AgrS, as is found in French and English is thus not the null option and will require some extra motivation, such as the proposals in Chomsky (1993)⁶.

structurally in terms of heads, and only two consecutive specifier positions (present or potential) will ever be in the relevant configuration. See Bobaljik & Jonas (forthcomigng).

⁴ This claim is based on the observation that nominative case is linked to the tense of a clause, infinitival clauses -- which presumably lack tense -- do not allow nominative case assignment in languages like English.

⁵ A similar scenario has been proposed for the Germanic languages which allow object shift by Bobaljik & Jonas (forthcoming). Following Diesing (1990 et seq.), it is observed that the Germanic languages which allow overt raising of object NPs to the specifier of AgrO also to have two overt positions in which subjects may occur. Contra Diesing, it is shown that both of these subject positions are external to the VP, i.e. the specifier of TP and the specifier of AgrS. Further, it is definite and specific NPs which raise to the higher position, presumably due to some further morphological requirement that definiteness induces. Indefinites in Icelandic, German and other such languages, like all subjects in Irish, remain in the specifier of TP at s-structure, and are prohibited from moving farther by the principle of Procrastinate.

⁶ For example, these languages could lack the specifier of TP altogether, hence if the subject were to raise, it would have to raise to the specifier of AgrS. Note that the lack of a TP specifier would prevent Overt Object shift of full NPs. See references from the previous footnote, and references cited therein.

2. Object Shift: Evidence from Non-Finite Clauses⁷

Finite clauses in Modern Irish display the basic order (Comp)-Verb-Subject-Object followed by any obliques and adverbs (4)⁸. In particular, the sequence of VSO may not be interrupted by any elements, including adverbials⁹. This order is generally taken to reflect an underlying SVO order (cf. progressive sentences in (5)) with raising of at least the verb to some VP-external functional projection (McCloskey 1983, 1992; Sproat 1985, Guilfoyle 1990, 1993; Bobaljik & Carnie, forthcoming; Duffield 1990a,b, 1991).

- (4) *Leanann an t-ainmní an briathar i nGaeilge*
 follow PRES the subject the verb in Irish
 'The subject follows the verb in Irish.'

- (5) *Tá na teangeolaí ag ól an beorach*
 be.pres the linguist prog drink dvn the beer
 'The linguist is drinking the beer.'

There is strong evidence for object raising in Irish, at least in non-finite clauses. In all dialects an OV order is available. In the northern dialects (Ulster and Connacht), and the standard dialect, the only order of a non-finite transitive clause is SOV¹⁰ (6). When there is an overt object

⁷ This section has benefited significantly from ideas of Guilfoyle (1993). With certain abstractions, such as the labels of the nodes and the position of the subject, we are very much in agreement with her on the main points of section 2.

⁸ We ignore the process known as Narrative Inversion (McCloskey 1992) found only in the Narrative Register, which fronts some constituent to clause-initial position. We also ignore the postponing of object pronouns in tensed clauses. While these add complications to any analysis, neither process contradicts anything said in the text. See McCloskey (1992) for an analysis of the former process.

⁹ A few exceptions such as *cinnte* 'certainly' and *ar ndoigh* 'of course' aside. There is also a limited set of adverbs that appear after the subject and before the object. These adverbs are not inconsistent with the analysis provided here, see McCloskey (forthcoming) for more discussion.

¹⁰ The verb in a non-finite clause is called in traditional grammars a 'Verbal Noun'. Morphologically, it has both nominal and verbal properties, much as gerunds or participles cross-linguistically. We will have nothing to say about it here. See, among others, Guilfoyle (1993, 1990), Duffield (1990a, 1990b, 1991).

NP or pronoun, the non-finite verb is preceded by the transitive particle a^L ¹¹. Note that both the subject and object are marked accusative¹².

- (6) Ba mhaith liom [CP Seán an abairt a^L scríobh] S O V
 COP good with.1.S John.ACC the sentence.ACC TRAN write
 'I want John to write the sentence.'

In the southern dialect (Munster), however, there are two options for transitive clauses with overt objects. In general, the subject is PRO, and the object occurs preverbally with accusative case (7a). A more marked option, found mainly in formal dialects, is for the object to appear postverbally in the genitive case (7b), this option is available only with an overt subject.(which takes accusative case). In either case, the "transitive" particle a is present also.

- (7). Southern: Munster
 a. Ba mhaith liom_i [PRO_i an abairt a^L scríobh] PRO O V
 COP good with.1.S the sentence.ACC TRAN write
 'I want to write the sentence.'
 b. Ba mhaith liom [cp Seán a^L scríobh na habairte] S V O_{gen}
 COP good with.1.S John.ACC TRAN write the sentence.GEN
 'I want John to write the sentence.' [formal]

Given the SOV orderings in (6) and (7), Irish must make use of a structural position to the left of the non-finite verb in which accusative case features are checked. If Irish is underlyingly SVO then this position must be a chained position, one to which the object has shifted¹³. After Duffield (1990), we will assume that this position is the specifier of AgrO (the AgrO head being realized as the particle a^L 'tran' in the above examples)¹⁴. Note that since the subject occurs to the

¹¹ This particle also surfaces as *do* in some dialects and registers.

¹² Full NPs, like those in the examples below, do not show a morphological distinction between nominative and accusative cases, however, pronouns do.

¹³ See Guilfoyle (1993) also Ramchand (1993) for Scots Gaelic. They propose that the derived position is the specifier of AspectP.

¹⁴ It is interesting to note that this characterization of the transitive particle as AgrO allows an account of a puzzling feature of pronouns in non-finite clauses. The standard dialect allows

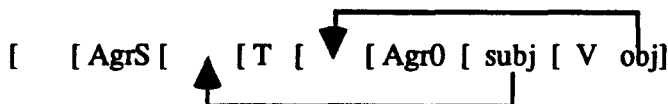
left of these shifted objects, it must, in turn, be higher than AgrOP. In this way, then, we see that Irish has overt object shift. Since Irish has object shift, it must therefore license the specifier of TP as a subject position. Let us assume then that Irish follows the unmarked case and does not have further motivation for NP movement to the specifier of AgrS. If the verb raises to AgrS, then VSO word order is derived as follows¹⁵.

(8)



NP movement is:

(9)



Without further comment, this accounts for the word order in tensed transitive clauses of Modern Irish (10).

paradigms where an overt pronoun and transitive particle can be replaced with the genitive pronoun:

- | | |
|------------------------------------|-----------------------------------|
| i) Ba mhaith le Seán tú a bhualadh | ii) Ba mhaith le Seán do bhualadh |
| cop good with John you tran hit | cop good with John your hit |
| John wants to hit you | John wants to hit you |

Given McCloskey and Hale's (1984) characterization of strong and weak agreement for pro-drop in Irish, these facts follow directly. The AgrO (transitive) morpheme will surface with defective morphology (third person masculine singular possessive pronoun: a^L) when an overt noun or pronoun is present. When a null pronominal object (pronoun) is present, however, the appropriate features of gender and number appear on the AgrO morpheme. See Carnie (1995) for more discussion.

¹⁵ Following McCloskey (1992) we assume that the verb does not raise to Comp.

$$(10) [_{AgrSP} [_{AgrS} '[_{AgrS+T+AgrO+V}]_i [_{TP} subj]_k [_{T'} t_i [_{AgrOP} obj]_m [_{AgrO'} t_i [_{VP} t_k [v' t_i t_m]]]]]]]$$

3. Conclusion

To summarize then, we claim that VSO order follows directly when a language has overt verb raising to the highest inflectional projection and has object shift. Under the Minimalist framework, the specifier of TP must be licensed as a position in which to check nominative case in all languages which have object shift, due to the economy principle of shortest movement. When the subject is in the specifier of TP, and the verb is incorporated into the AgrS head, then VSO order trivially follows. Languages with both object shift and verb movement that show SVO order must require some additional movement to the specifier of AgrS for the subject.¹⁶

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¹⁶ See McCloskey (forthcoming) for speculations that such further movement is forced by EPP considerations, which are lacking in VSO languages like Irish.

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CHUVASH GEMINATION REVISITED

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0. Introduction

This paper is concerned with the patterning and formal description of edge-geminate segments in Chuvash, a Turkic language spoken in the former Chuvash ASSR some 500 miles East of Moscow. I will try to draw together data that shows length alternations, stress, the selection of certain morpheme alternants, and word structure. The analysis is done in the framework of tiered phonology. In order to set the stage for the Chuvash data, I first survey the segmental inventory of Chuvash and then look at the way geminates are represented in current autosegmental work.

1. Inventory

Chuvash has the following underlying (native) consonant and vowel inventory (the symbol ξ represents a voiceless palatal fricative).

(1)	p	t	č		k
		s	š	ξ	x
	m	n			
		l			
		r			
	v/w		y		

There are no native voiced/voiceless contrasts among the obstruents. The obstruents are voiced between vowels and after sonorant consonants when followed by a vowel. In the dialect under consideration here, any consonant can be geminated. Geminate obstruents are always voiceless. Thus we can find contrasts like the following (Krueger 1961).

(2)	pěččën	[pěč:ën]	'alone'
	pěččëk	[pějčëk]	'small'

Contemporary Chuvash, perhaps partly under the influence of massive quantities of Russian loanwords, has reduced the opposition to a simple voice-voiceless one (though as I continue with phonetic research on Chuvash, it is increasingly my view that such consonantal oppositions in Chuvash are fortis/lenis and not voiceless/voiced). So where (2) indicates an earlier contrast, (3) indicates the contemporary (literary) one.

(3)	pěččěn	[pěččěn]	'alone'
	pěček	[pějək]	'small'

However, the contrast remains among the sonorants, as in (4).

(4)	alǎ	'hand'
	allǎ	'fifty'

The underlying vowel inventory is as follows:

(5)	i	ü	ɪ	u
	e	ě	a	ǎ

Of particular importance are the front and back 'reduced' vowels *ě* and *ǎ*. These vowels play a special role in the phonology in that they are weightless in stress assignment, are used epenthetically, and more likely to delete than full vowels not only in rapid speech but in morphological juxtaposition.

2. The Nature of Geminates in Autosegmental Phonology

If a geminate segment shortens, the implication (as long as there is no morphemic evidence to the contrary) for a tiered phonology is that it must be a 'true' geminate of the type illustrated in (6) in a CV framework

(6)	C C
	∖ /
	σ

and undergo a loss of timing unit on the CV tier, as for example, in (7) (as formulated in Hayes 1986: 346—of course either could be deleted):

(7)	C → ∅ /	$\overline{\text{C}}$
		∖ /
		σ

This type of representation is widely accepted in CV phonology and its congeners.

Hayes 1986 divides geminates into 'true' and 'fake' classes. The true geminates adhere to certain restrictions: they display ambiguity (sometimes acting as single elements in a rule like vowel shifting, sometimes as double in terms of their weight), integrity (they are not subject to being split by epenthesis), and inalterability (they resist the application of rules that would normally be expected to apply to one part of them). Fake geminates, which arise from a concatenation of morphemes that end and begin with the same segment, lack integrity and are subject to the various disfigurements noted above.

Chuvash shows alternation involving geminations such as the following:

- | | | | | |
|-----|---------|---------------|-------|--------------------------|
| (8) | a. pulǎ | 'fish' (Nom.) | pulla | 'fish+Dative/Accusative' |
| | b. pulǎ | 'fish' (Nom.) | pulli | '3Person's fish' |

If we assume that these geminates are underlying, they show the patterning of 'fake' geminates in that they are subject to phonological breakup and thus do not conform to the expected patterning of 'true' geminates. They appear to be 'fake', primarily in that they lack integrity. However, these geminates do not arise from the concatenation of morphemes.¹

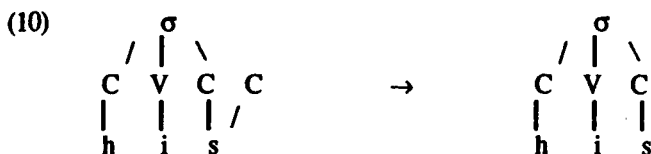
There is, however, a single characteristic that sets these geminates apart from those described in the recent literature: they are edge geminates. They are 'true' in that they are non-concatenative, but they are subject to a form of disintegration that replaces one of their constituent timing units with a vowel, as in the Nominative forms in (8).

Such 'edge effects' have been less dealt with in the literature of tiered phonology than word-internal 'true' geminates. Clements and Keyser (1983) deal with geminate edge effects in Turkish in a CV framework. They relate a number of apparently diverse phenomena—degemination, epenthesis, vowel shortening, final devoicing, and k-deletion—in Turkish to representations that allow for extrasyllabic segments that are linked in various ways to the phoneme tier. The following data is relevant to degemination.

- | | | | | |
|-----|-------------|-------------|-----------------|------------------|
| (9) | <u>Acc.</u> | <u>Nom.</u> | <u>Ablative</u> | |
| | hiss-ı | his | his-ten | 'feeling' |
| | hakk-ı | hak | hak-tan | 'right' |
| | zamm-ı | zam | zam-dan | 'price increase' |

¹ I have no clear evidence that these geminates display ambiguity. Hayes (p.327) also notes that 'a heteromorphemic geminate WILL resist epenthesis, provided it derives from a rule of total assimilation.' There is a possibility that case forms that show such gemination might be derived from assimilation, if we assume that, say, the suffix-initial underlying *n* of the Dative-Accusative assimilates to an underlying final *l* in forms like *pulǎ* (see Dobrovolsky 1984 and/or Kreuger 1961 for data), but assimilation cannot be occurring in the possessive forms. As to epenthesis as a test, we are not dealing with epenthesis in the strict sense of the term here.

Assuming that each language has a 'core syllable component' (p. 60) that defines the range of well-formed syllables peculiar to it, they note that Turkish restricts syllables from ending in geminate Cs. Thus, while the Accusative forms must be taken as underlying, the language-specific restrictions on syllable type automatically disallow Nominative forms like **hiss* and Ablative forms like **hissten*, while syllabifying the Accusative forms in such a way that the underlying geminate is preserved. Their representation is as follows:



Edge degemination is thus defined as the deletion of an extrasyllabic segment from a representation.

Schein and Steriade (1986: 707-708) encounter edge geminates in Latin and deal with them in the Clements/Keyser framework.

'The oblique forms *mell-is*, *fell-is*, indicate that the stem ends in a geminate *ll*. The unsuffixed nominatives are derived as follows: underlying /mell/ is syllabified partially as *mel.l*, since no consonantal geminate can be tautosyllabic in Latin. . . ' (708) [see also ex. 26 and fnnt ref]

The syllabically stray final X of such forms is resyllabified where possible, and deleted in absolute word-final position.²

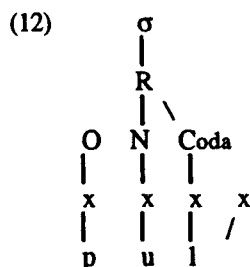
3. Chuvash Geminates as an Edge Effect

First off, Chuvash geminates suggest that the use of a CV tier is inappropriate to their representation. Recall that in Chuvash, the alternation is not CC ~ C, but CC ~ Cʷ. Attempting to capture this with a CV tier results in unmotivated representations, as shown in (11).

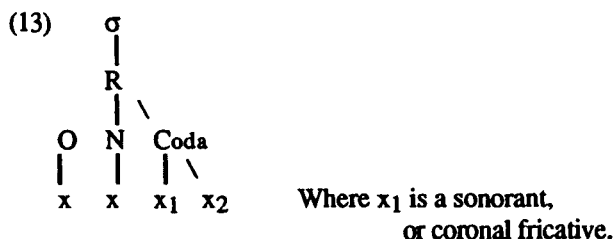
² The situation is lexically complex. Schein and Steriade claim in a footnote on the same page that these clusters 'persist in word-final position until the postlexical stages of the derivation', as evinced by 'by the metrical behavior of forms such as *miles(s)* 'soldier', *ter(r)* 'three times' (Niedermann 1953, 119-120).' I am not in a position here to state whether the same is true for Chuvash.

- (11) a. $\begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{C} \\ | & | & | & / \\ \text{p} & \text{u} & \text{l} & \end{array} \rightarrow \begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{C} \\ | & | & | & | \\ \text{p} & \text{u} & \text{l} & \text{a} \end{array}$ (default to v -segment
unmotivated)
- b. $\begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{V} \\ | & | & | & \\ \text{p} & \text{u} & \text{l} & \text{a} \end{array} \rightarrow \begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{V} \\ | & | & | & \\ \text{p} & \text{u} & \text{l} & \end{array}$ (deletion of v and spread
to V-slot unmotivated)

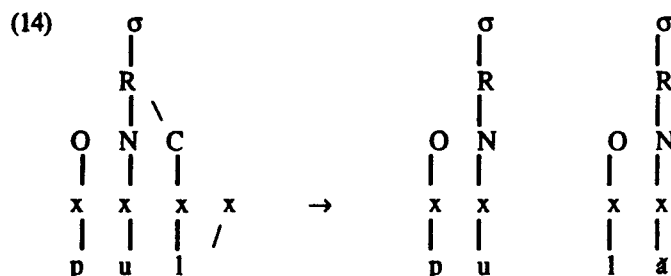
Of course, additional phonological devices or rules that change a C to a V or vice-versa could be invoked to guarantee more expected representations. However, the Chuvash alternations suggest that an x-tier rather than a CV is appropriate, since it is a class-neutral timing slot that manifests the alternation and not a C-slot. Use of an x-tier demands a fuller syllable structure than does a CV approach, since the CV value of the x's is determined by syllable position. The Chuvash UF could be provisionally represented as follows.



Since this configuration is not permitted by the core syllabification rules of the language, it must be adjusted. Chuvash native forms permit a maximum of two x's in a phonetically realised coda, the first of which must be a sonorant or coronal fricative. (In addition, l and r are prohibited in onset position.)



Unlike the Turkish case cited above, where the stray element is deleted from the (post) coda position, Chuvash syllabifies the stray *x* with a minimal (reduced) harmonic vowel, triggering resyllabification of the coda *x*. Better stated, perhaps resyllabification is triggered; given the patterning of the vowel, it may well not be considered syllabic here at all. However, the final reduced vowel is counted metrically at the phoneme tier.



But does Chuvash 'resyllabify'? We are free to assume that syllabification occurs, but the question is really whether this syllabification is relevant to the most general analysis of Chuvash geminate alternants. I will propose below that it is not.

We minimally require a vowel element word finally in such forms to guarantee the correct selection of certain morphophonemic alternants. Critical to this is the third person possessive morpheme (3Poss.). The 3Poss. form in Chuvash is alternating *i* ~ *ɛ*, where (non-harmonizing) -*i* occurs after vowel final stems and (non-harmonic) -*ɛ* occurs after consonant stems. As the following examples show, *ɤ*-final stems pattern like V-final stems for 3Poss. forms. This 'vowel-final' patterning is indicated in the boxed material with the ⇒ pointer. The -*i* alternant apparently replaces a final stem vowel, as shown in (15) for both geminating and non-geminating stems.³

(15)	a. C-Final Stems	b. V-Final Stems	c. <i>ɤ</i> -Final Stems	
	ivāl 'son'	suxa 'plow'	pulā 'fish'	
	ivālām	suxam	pullām	1SPoss.
	ivālu	suxu	pullu	2SPoss.
⇒	ivālɛ	suxi	pulli	3Poss.
	ivālāmār	suxāmār	pullāmār	1Pl.Poss.
	ivālār	suxār	pullār	2Pl.Poss.

³ Some other points about the possessive affixes can be noted here. The 2SPoss. is uniformly -*u*. In the 3Poss., stems ending in Ct show affrication of the *t*, as in the example.

However, things aren't all that simple. The case paradigm suggests that these Cʷ-final stems that show gemination end in a consonant. Why? Because alternations of suffixes like the Dative/Accusative *-na ~ -a* and the Directive *-nAlla ~ -Alla* are conditioned by stem-final elements; the *n*-initial alternant appearing after vowel final stems, and the *-a* alternant after consonant final stems, as in (16), as indicated by the darker boxed material and → pointer. However, in the Locative and Ablative forms, the obstruent-initial alternants appear after consonant final stems, while the alternant *-rA* appears after vowel final stems, as in (15) ⇒.

(16)	a. C-Final Stems	b. Cʷ-Final Stems	c. V-Final Stems		
	ivāl 'son'	pulā 'fish'	suxa 'plow'	Nominative	∅
	→ ivālān	pullān	suxanān	Genitive	-nān
	→ ivālan	pulla	suxana	Dat./Acc.	-nA
⇒	ivālta	pulāra	suxara	Locative	-rA
⇒	ivāltan	pulāran	suxaran	Ablative	-rAn
	ivālpa	pulāpa	suxapa	Instrumental	-pA
	→ ivālalla	pullalla	suxanalla	Directive	-nAlla

So the geminate stems like *pulā* appear at times to be vowel-final, and at other times to be consonant-final.

A better understanding of this phenomena requires an investigation of the full range of geminating stem types, as well as of other stems that end in two consonants. The data in (17a.—g.), extracted from a list of all stems showing geminate alternants shows the range of geminating and non-geminating stems found in Chuvash. These forms were all found in Skvorcov's 40,000 word 1985 Chuvash-Russian dictionary.⁴

(17) Range of Chuvash stems showing gemination

a. C-Final Stems	b. CC-Final Stems	c. V-Final Stems	d. Cʷ-Final Stems
ivāl 'son'	pürt 'house'	suxa 'plow'	pulā 'fish'
ivālām	pürtēm	suxam	pullām 1SPoss.
ivālu	pürtu	suxu	pullu 2SPoss.
ivālē	pürtē	suxi	pulli 3Poss.
ivālāmār	pürtēmār	suxāmār	pullāmār 1Pl.Poss.
ivālār	pürtēr	suxār	pullār 2Pl.Poss.

⁴ Thanks to the heroic efforts of Ruth Wolf.

e. C-Final Stems
(geminating)

šin 'man'
šinnām
šinnu
šinni
šinnāmār
šinnār

f. C-Final Stems
with alternate form

tir ~ tirā 'grain'
aka/akā 'plow'
vut/vutā 'firewood'
pus/pusā 'field'
yüś/yüśē 'swamp'

g. CCv-Final Stems
(non-geminating)

xāmpā 'bubble'
xāmpām
xāmpu
xāmpi
xāmpāmār
xāmpār

but also

tārśā 'poll of ax'
tārśšām
tārśšu
tārśsi

Example (18) sums up the final stem consonant alternations in possessive forms.⁵

(18) Have geminate alternants

... Cv]

May have geminate alternants

... C]
... CCv]

No geminate alternants

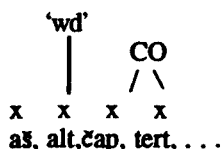
... CC]
... V]

4. Analysis.

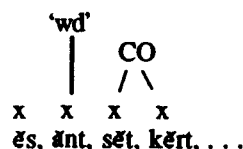
I will propose that all these alternations can be effectively represented by positing a phonological pseudoconstituent, referred to out of convenience as Co, that obligatorily consists of two x-tier elements. When, and how, these elements are filled or not filled by melody tier material accounts for the alternations.

First, consider the phonological representations of the Chuvash monosyllabic word given in (19).

(19)



or



⁵ Benzig 1943 reports a levelling out of the Possessive paradigm away from the geminates to an unvarying (C)VCv stem for one speaker he encountered. He may well have encountered a speaker from Northwest Chuvashia, where gemination is not so strong. He also (1940: 252) reports the apparent addition of the 3Poss. in -ě to forms that already (regularly) end in the 3Poss. in -i: 'In manchen modernen Veröffentlichungen findet man die Possessivendung -i nochmals mit der Possessivendung -ə versehen: *χuzijə* statt *χuzi* < *χuzə* „Wirt“.' Given what has been noted about the UF of stems that end in phonetic [i] / underlying /ij/ following example 22, I suggest that speakers are interpreting the 3Poss. ending here as part of the stem and choosing a 3Poss. morpheme alternant accordingly.

No syllabic constituents are represented here. The syllable as a constituent is irrelevant to the analysis and description of the shape of the Chuvash monosyllabic word, its alternations, to suffix alternations, and to stress in monosyllabic and polysyllabic words. In other words, the syllable is not required for making many phonologically necessary generalizations about Chuvash (see Dobrovolsky 1994; I also discuss here in detail the question of canonical monosyllabic roots that do not end in consonants).

It is my contention that the relevant division of constituents in Chuvash is $N Co$, where Co is a coda-like 'constituent' that is obligatorily composed of 2 x 's in the UFs of all monosyllabic words. But the constituent status of Co is dubious as well; I use it here only out of convenience. What is important about it is that it represents the two TUs ($x x$) to the right of the vocalic element. The second of these TUs is sometimes manifested consonantly, sometimes vocally.

At this point, we must briefly consider Chuvash stress and its relation to full versus reduced vowels.

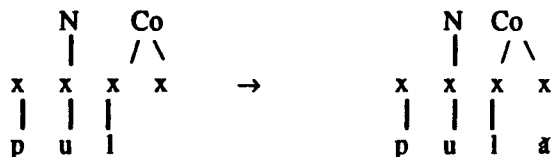
The currently accepted statement of the stress pattern of Chuvash words is: stress the last full vowel of a word; if there are no full vowels (= if a word only consists of reduced vowels), stress the first vowel. I have argued elsewhere (Dobrovolsky 1990) that formalisms based on this statement, such as Halle-Vergnaud 1987, are suspect. Nevertheless, whatever the formalism involved, it is necessary to scan for vowel weight in assigning stress.

As for deletion, Chuvash reduced vowels generally delete when concatenated with a full vowel, an expected event given the difference in weight between the two vowel types as manifested in stress assignment. A reduced vowel unassociated with any x -tier element can be interpreted as having no weight and thus serving simply as a phonetic place holder and easily subject to deletion. (Note though, that even this 'natural' deletion is lexicalized; some full vowels delete in favor of reduced-vowel-initial suffixes; this appears to be primarily associated with the derivational morphology; see also the 2Pl. Possessive forms above.) Representation (17b) provides a 'weightless' vowel, one that (eventually) has phonetic content but that is unrepresented on the x -tier. There are serious problems with this proposal, though. First, it is not clear how or why we can geminate the appropriate consonant since there is no x -tier element to link up with. Second, any stress formalism will need at least one timing element for reduced vowels since some stress is assigned to them.

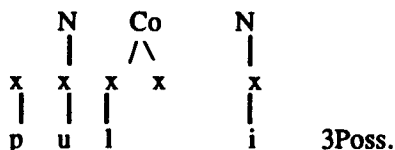
5. Case-by-case analysis.

The following examples present a case-by-case analysis of the geminate alternants using the syllable-free approach outlined above.

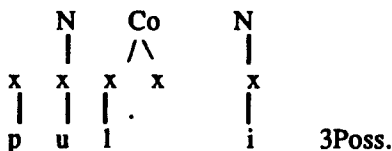
(20) REDUCED VOWEL STEMS IN NOMINATIVE (*pulā*, etc.): no final geminates, so final x filled by minimal vowel



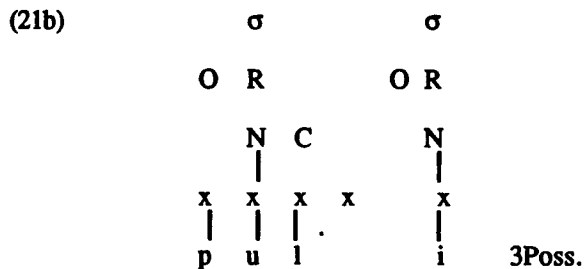
(21) 3P POSSESSIVE FORMS: the appropriate 3Poss. form is selected. The presence of this full vowel blocks appearance of the stem-final reduced vowel at the phoneme tier level.



(21a) The empty x-slot of the Co constituent is filled automatically by spreading,



At this point, syllabification could be invoked. It would be assumed that the second x of the stem final consonant would serve ambisyllabically as the onset of the 'new' second syllable, as in (21b).



Syllabification does not add to an understanding of the low-level phonetic detail. This word is pronounced (carefully) as [pɒtʰiː]. Segmental transcription cannot do full justice to the pronunciation, but the following can be noted. The long consonant shows evidence of consisting of two TU's; the first part of the consonant is somewhat velarized (following the back vowel), and the second part of the consonant is somewhat palatalized (preceding the front vowel of the suffix). There is a smooth transition between the two 'halves' of the consonant. While this suggests that an ambisyllabic model is a correct *syllabic* interpretation of the placement of the TUs, the syllabic model is not needed to account for the phonetic facts, which are equally well accounted for by straightforward models of assimilation that need not rely on a syllabic domain. In any event, a syllabic domain model would be forced to confront the fact that the suffix /i/ is lowered and retracted, showing that it is both resistant to and influenced by vowel harmony; resistant in that it does not blatantly alternate with /ɪ/ and influenced in that it does succumb to some extent to a retracting tendency. Again, though, a syllabic approach adds nothing here—the domain of the conflicting harmonic tendencies appears to be that of the word form.

$$\begin{array}{ccccccc} \text{N} & & \text{N} & & \text{N} & & \text{N} & & \text{N} \\ | & & | & & | & & | & & | \\ \text{x} & \text{x} & \text{x} & \text{x} & \rightarrow & \text{x} & \text{x} & \text{x} \\ | & | & | & | & & | & | & | \\ \text{a} & \text{c} & \text{a} & \text{i} & & \text{a} & \text{c} & \text{i} \end{array}$$

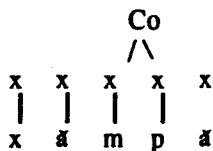
3Poss.

An interesting case of non-deletion of a final full vowel occurs in stem forms, both native and borrowed, that end in phonetic [i]. These forms take a 3Poss. alternant in *-ě*, the consonant-stem 3Poss. suffix, e.g., *šaši* 'mouse', 3Poss. *šašijě*, *noski* 'socks' (from Russian), *noskijě*. I have revised the analysis in Dobrovolsky 1984, and now analyze these forms as having stems that end in a glide that merges with the preceding high vowel (OCP effect on a class tier) in final position, e.g., UF: *šašij*. The glide however, is available for the appropriate selection of the

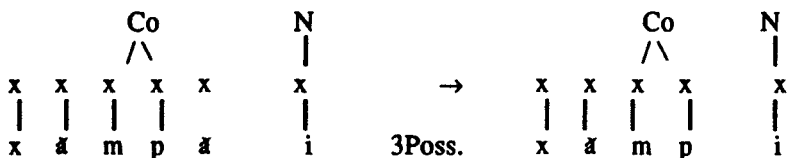
41

3Poss. form. Borrowed words ending in /i/ appear to have been analyzed as native in their underlying phonological structure.

(23) CC \bar{v} -FINAL STEMS, NON-GEMINATING: no spreading possible; the x— \bar{v} is deleted.

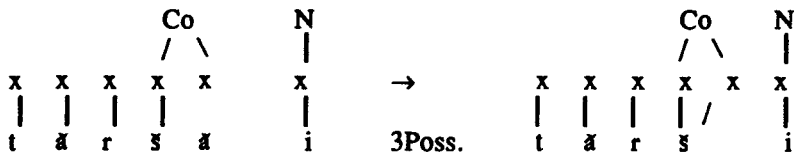


(23a)



These forms are interesting in that without the final reduced vowel, they fulfill the maximal permitted monosyllabic word template. The final reduced vowel, then, is truly extratemplatic here and therefore unassociated. Again, no syllabic representation is required to elucidate the alternation though, as shown above, it can be assumed that a syllabic tier exists and that the final consonant of the stem is either associated to the new syllable or remains ambisyllabic.

(24) CC \bar{v} -FINAL STEMS, GEMINATING: the sonorant C is 'nuclear'

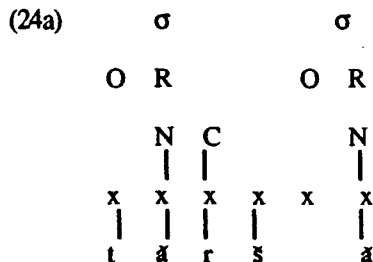


These forms parallel those of the *pulʔ* class (20) in that the final consonant is ultimately associated with two TUs. Thus, postvocalic sonorant C is not part of the pseudoconstituent Co but more closely related to the stem vowel. We shall see immediately below that this varying placement of the postvocalic C is exploited in other ways.

I realize that the representation in (24) appears to violate my fundamental claim that the maximal monosyllabic word template has only 3 TUs in the rhyme. It may well be the case that

the reduced vowel here is what makes this possible. Forms like this are very rare, probably for good reason, in that they do violate the templatic requirements.

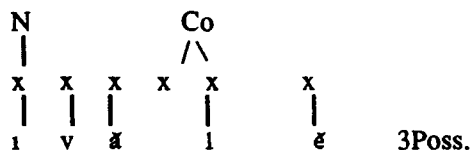
A syllabic approach might appear to help here. One could assume that the underlying long C was ambisyllabic, as in (24a).



The 3Poss. alternant *-i* would then simply replace the (arbitrarily) associated final reduced vowel, as in regular full-vowel final stems (example 22). But this solution is illusory, since the consonant in question is non-geminate in the uninflected form.

I now turn to the interesting class of forms with final consonants in the stem form. Here, we expect only the 3Poss. alternant in *-ɛ*. But if the stem template has two TUs after the vowel, how is this to be represented? I suggest that the final C is edgemost on the template, as represented in (25).

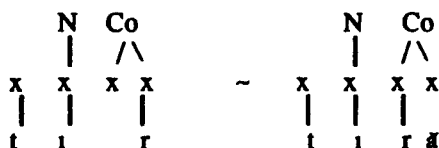
(25) C-FINAL STEMS, NON-GEMINATING: final C is edgemost



The otiose TU automatically deletes, since there are no long vowels in Chuvash.

Recall that there are C-final stems that alternate with C \bar{v} -final stems and show no change in meaning. I suggest that the templatic representation virtually predicts this possibility, and that the final C placement fluctuates in these alternating stems.

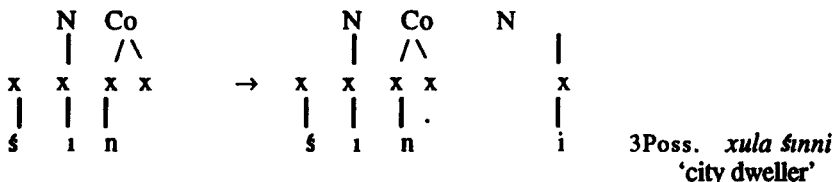
(26) C-FINAL STEMS THAT ALTERNATE WITH C \bar{v} -FINAL STEMS: final C is edgemost ~ inmost



In these forms, the consonant final alternation takes the expected 3Poss. alternant in - \bar{e} and the reduced-vowel final alternant takes the 3Poss. alternant in - \bar{i} and geminates as expected.

Finally, we see a class of forms that is C-final but that shows geminate alternants. Here, I assume the inmost placement of the final C but with no final reduced vowel. I can only assume that this is arbitrary.

(27) C-FINAL STEMS, GEMINATING: final C is inmost



Thus we encounter lexical edgemost and inmost placement of final Cs, with the expected results for gemination. Are such representations more ones of convenience? Interestingly, there are some cases that show that both placements can be exploited.

- | | | |
|------|-------|-----------------------------|
| (28) | xər | 'girl' |
| | xər̄ | 'girl+3Poss.' |
| | xər | 'edge' |
| | xərri | 'front side' < xər + 3Poss. |

Even this apparently highly phonologically motivated alternation is subject to further forms of lexicalization beside the types noted in A—C above. This evidence is found in both suffixal non-gemination and in certain compounds.

At least one nominalizing suffix, the occupational suffix - $\bar{s}\bar{e}$ ~ - $\bar{s}\bar{a}$, fails to emerge geminated.

- (29) sutuśă 'trader, business person'
 tipă sutuşi 'grain dealer'

However, the suffix *-śēr* 'without' can be found in geminated forms. In Chuvash, as in Turkic in general, a form of the 3Poss. can be used to make specific nominals from adjectives (see Dobrovolsky 1992 for more discussion of this in Chuvash).

- (xx) śerśēr 'landless' < śer 'land'
 śerśērri 'landless one'

Perhaps not surprisingly, compounding shows some interesting variation. One type of Chuvash compound is made by affixing a homophonous form of the 3Poss. ending to two N's—the same element that may be used to make specific nominals. There are compound pairs one of which uses a geminating alternant and the other does not, as (x) shows.

- (xx) tēpek 'top'
 tēpekē > sāt tēpekē 'top+3Poss.': 'top of a hill, mountaintop'
 tēpek 'top'
 tēpekki > puś tēpekki 'top+3Poss.': 'crown of head'

Note that the first compound is both affixally regular and more transparent than the second. It may be that Chuvash exploits regular affixing to make transparent compounds and the homophonous 3Poss. affixing to make more opaque ones, but more needs to be done before this can be stated with any certainty.

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THE 'WHATS' AND 'WHYS' OF THE GLOTTALIC THEORY

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Introduction

The focus of the present paper is the relatively new hotbed of controversy within Indo-European studies known as the 'Glottalic Theory'. This theory proposes a completely revised look for the Proto-Indo-European obstruent system which has consequently received polaric responses ranging from total respect to caustic rejection, both extremes being based at least in part on grounds of typology. This paper will look first at the traditional reconstructions to find out what prompted the proposed changes. Next the term 'glottalic' will be addressed in §2. Once it has been made clear what exactly is meant by 'glottalic', §3 will examine arguments against the new theory and §4 and will look at responses to those arguments. Finally, §5 reviews those works which have applied the new theory to some of the 'old' laws of Indo-European such as Grimm's Law, Grassmann's Law and Lachmann's Law among others.

1. On What Grounds?: problems with the traditional view

This section addresses the question of why changes for the traditional system were initially proposed. The first issue looked at is that often referred to as the '/b/-gap'. Next the status of the traditionally held voiced aspirate series is examined in light of markedness theory and implicational universals. Thirdly motivation for root structure constraints is called into question for the traditional obstruent system. The final issue addressed and that most central to the Glottalic Theory is the question of typological plausibility.

1.1 '/b/ - Gap'

Gamkrelidze (1976) among others argues that the relative absence of the phoneme /b/ in Indo-European is troublesome. This is due in part to cross-linguistic tendencies which illustrate a preference for the labial position to be filled in the voiced plosive series. According to Maddieson (1984), of the 221 languages listed with at least one voiced plosive, 212 of those contain labial segments. Considering, for the sake of simplicity, only the three segments /b, d, g/, the following are the findings from Maddieson:

(1)	<u>segments</u>	<u># of languages¹</u>
	/b, d, g/	- 192
	/b, d/	- 16
	/b, g/	- 4
	/b/	- 7
	/d, g/	- 2
	/d/	- 4
	/g/	- 3

From the above information alone, it becomes clear that the labial position is the unmarked member of a voiced plosive series. Furthermore, when looking at voiced implosives, only 2 of the 31 systems listed in Maddieson with this series have a gap in the labial position. Again considering only /b, d, g/, the following emerges from the Maddieson data:

(2)	<u>segments</u>	<u># of languages²</u>
	/b, d, g/	- 8
	/b, d/	- 19
	/b, g/	- 0
	/b/	- 2
	/d, g/	- 0
	/d/	- 2
	/g/	- 0

Not only is it clear that a labial gap here is marked, it also becomes apparent that a velar gap is not as /g/ in the absence of either of the other two segments does not occur. Alternately in the voiceless series the opposite is the case: labials are marked and velars are less so. This is demonstrated in (3) and later in §2.1.

¹ /d, g/ (Mixe, Wapishana); /d/ (Cashinahua, Diyari, Gadsup, Sentani); /g/ (Mazahua, Rotokas).

² /b/ (Kpelle, Zulu); /d/ (Berta, Kullo)

(3)	<u>segments</u>		<u># of languages³</u>
	/p, t, k/	-	266
	/p, t/	-	5 ⁴
	/p, k/	-	1
	/p/	-	0
	/t, k/	-	27
	/t/	-	1
	/k/	-	0

Although, the traditional view of the PIE voiced obstruents includes the phoneme /b/, its occurrence in lexical reconstructions is quite rare. Lass (1984: 132-133) illustrates the contradiction of this situation: marked elements show lower frequency and are cross-linguistically less common. Upon consideration of the above data, one sees the problem with the traditionally held view: If /b/ is cross-linguistically very strongly attested (96% of the voiced plosive series listed in Maddieson), why is it such a rare segment lexically in PIE? This is one question addressed by the Glottalic Theory.

1.2 Voiced Aspirates

The next problematic area concerns the traditionally held voiced aspirate series (D^h). Early work on Indo-European posited an obstruent system which contained a four-way contrast as follows:

(4)	<u>Series I</u>	<u>Series II</u>	<u>Series III</u>	<u>Series IV</u>
	Early Work:			
	b, d, g	b ^h , d ^h , g ^h	p, t, k	p ^h , t ^h , k ^h
	Later Work:			
	b, d, g	b ^h , d ^h , g ^h	p, t, k	_____

³ /p, k/ (Hawaiian); /t/ (Kewa: /t, c/)

⁴ It should be noted that this number is somewhat misleading in that 3 of the five languages (Tagalog, Tzeltal, and Zuni) are listed with glottal stops and one other (Kirghiz) contains the uvular stop /q/. Only one language (Beembe) is listed as having only labial and alveolar stops in the voiceless series. Therefore just two of the 300 languages listed with voiceless plosives are marked in this series.

Later (c.f. the Laryngeal Theory) it was seen as unwarranted to include series IV (T^h) as will be discussed in §3.4. Without the T^h series, however, the traditional system violated even more typological and markedness constraints.

Regarding the typology of a system including D^h, one would also expect T^h by virtue of implicational universals. (Hock, 1988:621) Markedness theory would require the D series to be more frequent and have more freedom in root position than the more marked D^h. However as demonstrated in §1.3 reconstructions of PIE show the opposite to be the case.

Furthermore, there had arisen a desire for a precise definition of the phonetics of the D^h series. If one considers the VOT continuum, the idea of a voiced aspirate series as an oxymoron begins to become apparent. Aspiration requires an open glottis and voicing a closed glottis. Reconciling the two seems then to be quite dubious if not linguistically impossible.

1.3 Root Structure Constraints

Positing plausible motivation for the root structure constraints of PIE within the traditional view was always problematic. These constraints are shown in (5):

(5)	TVD	DVT	TVT
	DVD ^h	D ^h VD	D ^h VD ^h
	*DVD	*TVD ^h	*D ^h VT

What possible interpretation could there be for such constraints on root structure? All explanations tend to be ad hoc and have little to do with naturalness of language. The combination of two plain voiced segments within a CVC root is quite basic cross-linguistically and its ban in PIE is difficult to understand. A voicing dissimilation rule (in and of itself problematic) cannot explain the situation as other roots are allowed with the same value for voice on both consonants. The phonotactic constraint of T combined with D^h can not be explained on articulatory or markedness grounds.

As alluded to in the previous subsection, the problem of distribution and frequency of occurrence emerges here as well. It is unclear why an extremely marked segment such as D^h should be allowed to occur twice in a root, but the less marked D should not. Furthermore, the latter should have more lexical frequency than the former, but according to Lass (1984:132-133) it does not. Voiced aspirates occur with more frequency lexically as well as in inflectional morphology.

1.4 Typology

The issue of typology is a major focus of the Glottalic Theory. How typologically sound is it to posit a system such as the one in (6), a system which utilizes all of the highly marked constraints mentioned in the previous subsections? This is the question put forth by many supporters of the Glottalic Theory.

(6) D D^h T

Ultimately, justification must be given for positing a system as marked as the one above. The troublesome aspect of this system is not that it is marked in some way, but that it is marked in so many ways. To recap the previous discussions, a system containing two voiced series and only one voiceless is questionable. Secondly, positing a D^h series without a T^h series is dubious. A third consideration is the phonetic plausibility of the D^h series: is it physiologically probable to posit such a sound? What motivation is there for the rather unnatural (for the traditional system!) root structure constraints in PIE? Finally, the low frequency of the phoneme /b/ and the low frequency of the D series in contrast to the D^h series word initially and in affixes forces one to reevaluate the validity of the traditional system. All of these problems together plus the fact that the traditional system is not attested in any known language, make for pretty shaky ground for the system to stand on.

Summary

This section has illustrated that the traditional reconstruction of the PIE obstruent system is severely faulty. Not only is the labial gap in the voiced series disconcerting for markedness theory, the elimination of the T^h series left an even more typologically implausible system than was already apparent from the point of view of markedness. This typological implausibility will be more fully addressed in §4. Furthermore, PIE root structure constraints cannot be satisfactorily explained under the traditional reconstruction.

As demonstrated above and further explicated in §4, a system such as that in (6) cannot be seen as likely in human language. Therefore a new 'glottalic' theory of the PIE obstruent system has been presented. The next section deals with the changes this new theory proposes

2. What IS the Glottalic Theory Anyway?

In the literature, even among those in favor of the Glottalic Theory, there is no clear consensus on what the 'glottalic' in that theory actually means. This section attempts to make sense of the many views and illustrates my own personal preferences within each series. Arguments for (and against) different theories about the phonetic quality of all three series are examined. First the basic idea of the Glottalic Theory is discussed. Next the conflicts concerning

the glottalic value of Series I are presented. The third issue addressed is that of Series II which ultimately affects ideas of the value of Series III. Therefore both series will be discussed in the same section.

2.1 The Basic Changes

Due to the marked quality of Series I, it was seen as expedient to posit a series with a cross-linguistically marked phonetic value. Of course this series must be able to support attested developments in daughter languages. With this in mind it has been argued that this series had a glottalic value, typically viewed more precisely as an ejective series (T'). This assumption is based on the fact that voiceless plosives demonstrate a tendency not to be represented in the labial position. Or rather, when there is a gap in the series, cross-linguistically the labial tends to be the omitted segment as demonstrated in (7), repeated from (3) for convenience.

(7)	<u>segments</u>	<u># of languages</u>
	/p, t, k/	266
	/p, t/	5
	/p, k/	1
	/p/	0
	/t, k/	27
	/t/	1
	/k/	0

Voiceless plosives are, however, *unmarked*. Although the /b/ -gap could be explained with a T series, the marked quality of the series as a whole could not. A relatively marked voiceless plosive which demonstrates the tendencies just discussed is the ejective. The reasoning for positing T' for Series I, then, becomes clear.

Series II would need to be phonetically less marked than the traditional D^h would indicate. Furthermore the change of Series I to a 'glottalic' series left open the possibility of one of the other two series being seen as plain voiced. Because Series III was considered by nearly everyone as plain voiceless (T), it was a rather natural step to see Series II then as plain voiced (D).

Given the above scenario, the newly evaluated PIE obstruent system would be as follows:

(8)	<u>Traditional View</u>		<u>Glottalic Theory</u>
	D	>	T'
	D ^h	>	D
	T	>	T

2.2 Series I

There are at least two opposed views of the glottalic value of this series: proponents of ejectives and proponents of implosives. Gamkrelidze and Ivanov, Hopper, and Vennemann to name a few find the ejective analysis more satisfying. However, Haider believes implosives would better explain the later developments. Still further, Salmons proposes that both ejectives and implosives can be supported.

The argument behind the T' proposal is the glaring gap in labial position. As discussed above, this argument seems to be a rather solid one considering the typological tendencies of ejectives and the characteristics of Series I in PIE. For supporters of the T' series, T' > D is an unproblematic sound change.

Yet, this is also part of the argument for the voiced implosive (D[̃]) proposal.⁵ Proponents of this series reason that the labial gap can be accounted for just as well with an implosive series as with an ejective series. Apparently labial implosives tend to become /m/ cross-linguistically. The high frequency of /m/ in PIE reconstructions lends support for the implosive hypothesis. Furthermore, it is argued that the D[̃] series would better account for developments in daughter languages in which this series became D. For this camp the move from T' > D is problematic, whereas D[̃] > D is not.

A third point of view is that which embraces both ejectives and implosives in arguing for the value of Series I. Salmons regards the PIE series to have included ejective and implosive allophonic variation. It is assumed that this line of reasoning would call for a feature [+glottalic] for PIE Series I and allow for bifurcation of the glottalic value in the individual daughter languages. Salmons sees this bifurcation as resulting in ejectives in Germanic and implosives in the classical IE languages.

'Bifurcation' is the most satisfying of these three arguments. Whatever the actual glottalic value -- ejective or implosive -- retained in each of the daughter languages, allophonic variation makes for tidy explanation of the diachronic facts of IE. Further, allophonic variation between these values is not only attested in languages of the world but also adds elegance to a previously somewhat clumsy theory of the most investigated obstruent system in Historical Linguistics.

2.3 Series II and III

Less clear is the phonetic value of Series II. Hopper defines the series as either breathy-voiced or murmured stops or perhaps voiced fricatives. Gamkrelidze and Ivanov see the series as plain voiced with allophonic aspiration. Vennemann posits unaspirated lenis stops and Salmons suggests a voiceless aspirated series. Other positions hold plain voiced stops, implosives or non-allophonic aspirated voiced stops. Only the first four of these arguments will be dealt with here.

Hopper's view of the series as breathy or murmured is difficult to take seriously given the large number of examples in PIE of labiovelars traditionally reconstructed as aspirated (g^{wh}).

⁵ For lack of a better symbol to represent the voiced implosive series, D[̃] will be used. It is hoped that no confusion is caused by this choice of diacritic.

Although labiovelars are not unusual, aspirated labiovelars are more marked. In fact, Maddieson includes only 14 such segments in his list of 317 inventories. Furthermore, only one example of a breathy *voiced* labiovelar is cited (Igbo). A total of 88 labiovelar segments were found. These can be broken down as in (9):

(9)	<u>Segment</u>	<u>Occurrences</u>
	k ^w	38
	k ^{wh}	14
	k ^{w'}	17
	g ^w	14
	0g ^w	4
	g ^{w-6}	1

The above data suggest strongly that Series II could not have been voiced with any aspiration-like quality. Gamkrelidze and Ivanov's allophonic variation of aspiration is no more convincing than the argument just discussed. Therefore the only arguments left to consider are those involving a plain voiced series or a voiceless aspirated series.

Vennemann's D series works well typologically as Maddieson lists 13 languages with the system T' D T. Although not one of the most attested systems of the world's languages, it is nevertheless clearly a plausible option regarding typology. Sound changes D > D for Germanic are obviously unproblematic. What is not as satisfactory for this proposal are sound changes required to yield the classical languages. This is demonstrated in (10).

(10)	<u>Language</u>	<u>Sound Change</u>
	Germanic	D > D
	Greek	D > T ^h
	Latin	D > θ
	Sanskrit	D > D ^h

Salmons proposal involving a voiceless aspirated series also is somewhat unsatisfactory. Although Greek and Latin can be developed quite neatly with this view, Sanskrit and now Germanic become troublesome. Again, the necessary changes are shown below.

⁶ For lack of the appropriate diacritic for breathy voice, the 'w' mark is used here. It should also be noted that there were no true aspirated voiced labiovelars found. Apologies for any confusion.

(11)	<u>Language</u>	<u>Sound Change</u>
	Greek	T ^h > T ^h
	Latin	T ^h > θ
	Germanic	T ^h > D
	Sanskrit	T ^h > D ^h

The consequence of this indecisive situation is that it becomes difficult to establish the phonetic quality of Series III. If Vennemann is correct and Series II is plain voiced, then Series III is free to either be plain voiceless or voiceless aspirated. Vennemann chooses to see the latter as more preferable. However if Salmons is correct, Series III can only be interpreted as plain voiceless, which is exactly what he determines it to be. To sum up, the following three scenarios are possible for PIE where 'G' stands for an undetermined value of glottalicness:

(12)	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 3</u>
	G D T ^h	G D T	G T ^h T

As is evident in (12), the second stop series of PIE remains a mystery. Further extensive study is necessary before any real determination of the phonetic value of the series can be made. However, (allophonic) aspiration seems more likely in that it allows more natural development of Series III into the daughter languages. In other words, the possibility of (allophonic) aspiration in Series III accounts for T in the classical languages as well as θ in Germanic.

Summary

In this section the core arguments of the Glottalic Theory have been discussed. It is evident that there is growing support for a glottalic value for Series I, yet the precise value is under dispute. Arguments for ejectives versus implosives have been given and both show strong credibility. It has been shown however, that perhaps both sides are correct and that PIE contained ejectives and implosives in allophonic variation. Series II remains problematic as neither of the two most popular arguments can satisfactorily motivate all of the sound changes required to yield the daughter languages. Due to indecision in the second series, it is impossible to say without a doubt what the value of Series III should be.

3. Arguments Against the Glottalic Theory

Responses since the first utterances of the Glottalic Theory have often been quite vehemently opposed to the proposed changes. Unfortunately some of the objections were of a

'less-than-scientific-tenor' (Salmons, 1993:22) and many others seemed to imply assumptions on the part of the 'pro' Glottalic Theory camp which were simply without basis. However, 'anti' Glottalic Theory arguments in a sober and scientific tone are available. Both types are discussed here according to the focus of the argument. It seems the most problematic aspect of the Glottalic Theory to those opposed to it is the issue of typology. However various other objections involving among others the absence of /b/, Series II and resurrecting the original four-way contrast are discussed in the literature and so are mentioned here.

3.1 Typology

The question raised by many against the glottalic theory is the role typology should play in reconstructing a proto-language. Back and Dunkel for instance reject the role of typology altogether. Szemerényi, however uses it indirectly to argue against the theory.

Back argues that typology is of no use to reconstruction because as he claims it is based solely on statistics. Although not the rather unscientific tone alluded to earlier, Back (1979) is quite harsh in his statement that the Glottalic Theory turns 'reconstruction into a game and a matter of taste' (Salmons 1993). He also compares the elimination of the originally held fourth series (T^h) with the elimination of the phoneme /b/. However, as Salmons points out, the Glottalic Theory does not set out to eliminate the phoneme from the inventory of PIE, but rather it attempts to find a satisfactory explanation for its unusual rarity.

Both Back and Szemerényi 'solve' the typological problem of the system by reinstating the formerly eliminated fourth series T^h . This will be discussed in §3.3. However, both agree that the traditional three-way contrast was problematic. The two differ in that Szemerényi concedes that there were typological problems with the system $D \ D^h \ T$.

Dunkel is the harshest critic of the Glottalic Theory. He objects vehemently to the use of typology in reconstruction and criticizes Szemerényi for admitting it into his argumentation. However, as Salmons makes clear, Dunkel defines typology in a markedly different way than those linguists working under the premise of the Glottalic Theory.

Because typological claims are not unwavering universals Dunkel sees them as ineffectual in making claims about proto-languages. Dunkel's main premise it seems is that 'we can never be sure that yesterday was not the last day in the life of the last speaker of a clearly univocalic language', for example, and therefore 'simple humility demands that we admit that no final assertion of the impossibility of any linguistic feature will ever be feasible'. (Dunkel 1981:564)

A second reason Dunkel gives for rejecting 'reconstruction modified to conform to typological opinion' (Dunkel 1981:562) is as follows: The Glottalic Theory uses typology to predict what is probable and what is not. Typology cannot, though, be used to predict anything until all available languages have been studied. 'But once every available human language has been studied, what need will there be of prediction? All "universals" will be descriptive facts.' (Dunkel 1981:565)

3.2 Absence of /b/

All opponents of the Glottalic Theory have had something to say about the lack of /b/ in traditional reconstructions of PIE. Most assume that this phoneme was eliminated altogether, which is not the case. Secondly, many opponents use comparative evidence to argue that a gap in this position is attested in languages of the world.

Szemerényi sees the /b/ - gap as the central issue of the Glottalic Theory. He argues against the glottalic series seeing ejectives as an areal feature incompatible with diachronic evidence from Indo-European. He offers two IE languages with ejectives (Eastern Armenian and Ossetic) but rejects them as evidence for the Glottalic Theory citing the fact that they both lie in the Caucasus and claiming that they therefore must have been influenced by the indigenous languages of the region.⁷ Although Szemerényi acknowledges that /b/ is rare in initial position, he argues for its acceptance as a well-grounded phoneme on the basis of its 'clear existence in medial position' (Salmons 1993: 19). This evidence, he claims completely invalidates the typological argument. This issue will be addressed below in §4.

Dunkel is one of those opponents claiming that the Glottalic Theory assumes the absolute absence of /b/ in the traditional system. He states however that regardless of the rarity or absence of the segment within the theory, 'all this work must be rejected without ado'. (Dunkel 1981: 567) His assumption is that one occurrence of a phoneme in the lexicon is enough to validate its unquestioned position within an inventory: the phoneme /b/ 'did occur often enough; certainly more often than the necessary once'. (Dunkel 1981: 567)

3.3 Series II

Szemerényi's objection to the changes proposed for the voiced aspirates is based on assessing the possibility of articulating such sounds. As mentioned in §1.2, the claim is not that these segments would have been *impossible* to articulate, but rather that they would have been *improbable* given their extremely marked character. The appearance of these segments without voiceless counterparts is also a point of contention for the Glottalic Theory as discussed above. Yet due to evidence of exactly this situation from Kelabit Szemerényi finds the situation in PIE a moot point.

3.4 Szemerényi's 4-way Contrast

Szemerényi is not the only opponent of the Glottalic Theory to propose a return to the four-way contrast of yore. Others like Back also support this move suggesting that the elimination of the fourth series was premature and without solid foundation. However, the extensive work dedicated to the Laryngeal Theory, which was the impetus for erasing the voiceless

⁷ 'Die zwei idg Sprachen sind zweifellos von den kaukasischen beeinflusst worden.' (Szemerényi 1990: 161)

aspirates from the system by reinterpreting T as T + H⁸, has all but eliminated any justifiable opposition to the move and thus voided arguments for returning to the old system.

Summary

As seen in this section, there are varying viewpoints in objecting to the Glottalic Theory. However, the only real objection is that of typology as all other objections but the elimination of the fourth series are ultimately tied in with typology. Whether /b/ is attested or not is not the issue, but rather the matter to be resolved is its status as a more limited phoneme in contrast to the other phonemes in its series and, most strikingly, in contrast to the highly marked series of voiced aspirates. Furthermore, whether it is possible to articulate a voiced aspirate should not be the focus of argumentation. Instead, discussions should concentrate on the more core question of the linguistic plausibility of such a segment. Finally, although not discussed here, the Laryngeal Theory sufficiently resolves the issue of the elimination of the voiceless aspirate series.⁹

4. Responses to Anti-Glottalic Theory Views

Although some of the 'minor' objections to the Glottalic Theory were addressed straight away in the previous section, the question of the role of typology in reconstruction is given further focus here.

In the previous section arguments were given against the Glottalic Theory, many of which were at least in part based on the issue of typology. Some very extreme arguments suggested that typology should be allowed no role in reconstruction. Yet these arguments are based on the faulty assumptions that 1) typology is incomplete and therefore void of defensible facts and 2) the Glottalic Theory is based on extremist views which disallow any marked characteristics to appear in reconstructions. Both of these assumptions are completely unfounded.

Simply because some languages have perished before information about them could be recorded and some still living languages have yet to be studied or even discovered does not preclude the linguistic evidence gathered to date from being used to make inferences about language patterns and tendencies. Dunkel et al. would deny linguistic science this valuable tool in reconstruction. There is a grain of truth in the argument that the non-existence of evidence of a feature, segment, system, etc. cannot be perceived as equal to the impossibility of the existence of that feature, segment or system. In other words that we have not found 'x' does not mean we will never find 'x'. Yet exactly this lack of evidence should prevent its inclusion in reconstructions.

In the entire data-bank comprising Maddieson's (1984) study, there is not a single attestation of a Dh segment, let alone such a series. When taking into consideration, the phonetic

⁸ Here H represents an original PIE laryngeal. This laryngeal, according to the theory, has been retained in some dialects and lost in others: Ger. *mehen*, *sehen* vs. Engl. *to mow*, *to see*. The three different laryngeals proposed for PIE would also account for (e ~ o ~ ø) vowel quality differences within IE verbal paradigms

⁹ The reader is referred to Lindeman (1987) for further discussion of the Laryngeal Theory.

alternative proposed by some, namely breathy voice, the evidence is still unconvincing. Those systems with breathy voiced segments consistently contain voiceless counterparts as is shown in (13) below.

(13)	<u>System</u> ¹⁰	<u>Languages</u>
	T T ^h D D ⁻	5
	T T ^h D D ⁻ T [~] D [~]	1
	T T ^h D D ⁻ T' D'	1
	T T ⁻	1
	T T ^h T ⁻	1

The above chart shows that languages with breathy voiced stops consistently adhere to symmetry constraints along a voiced/voiceless axis: T \supset D, T^h \supset D⁻, T[~] \supset D[~], and T' \supset D'. This is further evidence that Series II was other than aspirated or breathy.

As argued in §2, each of the three series in the traditional framework violates certain cross-linguistic tendencies. Arguments have been made that attested languages also violate these tendencies. The rarity of languages which do violate one or the other of these constraints aside, no one language has to date been found which violates all of the constraints which would have to be assumed for the traditional reconstruction. This is a heavy load to bear for a reconstructed language. Finding proof of a language system which ignores several powerful tendencies would be something completely different from reconstructing such a system.

Furthermore, the fact that the system assumed under the Glottalic Theory is well attested is not the only convincing argument for the theory. Those languages which have this system also display the markedness considerations previously unexplainable by the traditional system: (labial-gap), lexical infrequency and root structure constraints of ejectives and implosives

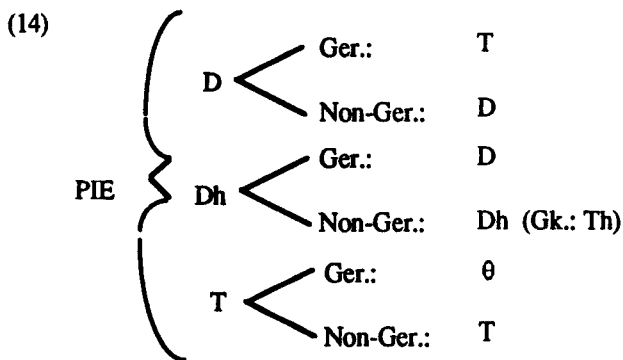
5. Applied Benefits

Given the argumentation above of how the Glottalic Theory would aid the reconstruction on grounds of typology, it would be beneficial to determine whether or not the new theory lends more insight into other troublesome areas of Indo-European study. This section reviews in part the application of the new theory to some traditionally unsatisfactorily explained 'laws' of Indo-European. The first to be addressed is Grimm's Law as seen through Vennemann's Bifurcation Theory. Next, Grassmann's Law for Sanskrit and Greek is offered for consideration à la Salmons. The new theory also has great potential for better explaining Lachmann's Law for Latin as shown by Kortlandt. Finally, §5.4 presents less striking yet worthwhile considerations of a miscellaneous nature.

¹⁰ T⁻ indicates a voiceless stop with breathy release.

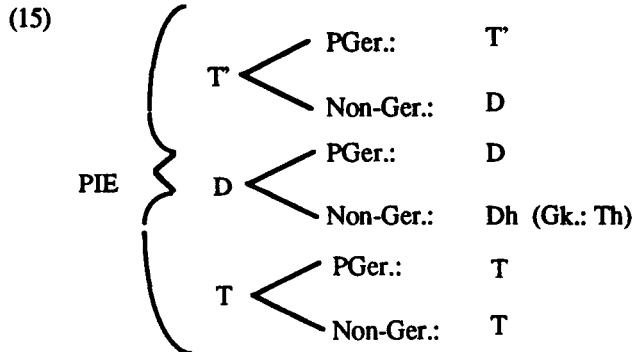
5.1 Grimm's Law

As one of the most intensively studied sound changes in the science of Linguistics, Grimm's Law has been appropriately drawn into the Glottalic Theory as crucial evidence of the theory's validity. This IE 'law' is a description of systematic sound correspondences between Germanic and Non-Germanic IE languages. The sound involved here are the three stop series of PIE, which according to Grimm's Law underwent the following changes:



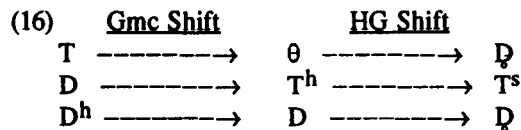
It has long been debated how to justify the assumed sound changes required to yield the developments $D^h > T^h$ (Greek) $> \theta$ (Latin). Desonorization would be a troubling circumstance difficult to explain according to naturalness constraints.

Viewing the sound changes from a Glottalic Theory perspective turns the tables, so to speak, and suggests Germanic and Armenian are the more conservative dialects contra the traditional view of the classical languages being more archaic/conservative. The changes shown in (15) suggest that not only was Germanic (and Armenian) more conservative in morphology and syntax as has long been held, but in phonology as well. The result then would be to see Germanic as more similar to PIE than was earlier believed.

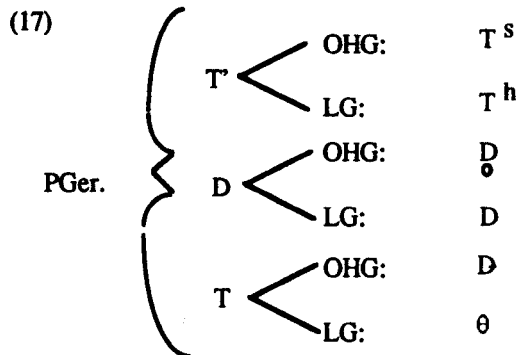


The set of sound changes in (14) would constitute what Grimm referred to as the First Sound Shift of Germanic or the Germanic Shift. It is clear though from (15) that from a Glottalic Theory point of view, Germanic is the IE dialect which did *not* shift.

The Second Sound Shift or the High German Shift of Grimm's Law refers to a split within the Germanic languages. According to Grimm, this shift occurred after the Germanic Shift and only took place in the Old High German (OHG) dialect. The two sound changes would then appear as follows:



The assumed sound change $D > T^h > T^s$ is highly improbable. If both sound changes are seen as dialectal split of Proto-Germanic rather than as a chronological sequencing of changes, the developments in the High German versus Non-High German dialects can be better explained. This is what is proposed in what Vennemann refers to as his Bifurcation Theory. Taking dialectal development from Proto-Germanic and the Glottalic Theory into consideration, one is faced with the following scenario in (17):



According to Vennemann's argument, the sound changes assumed for (17) would be more natural and more easily explainable than those assumed under Grimm's Law. Thus the new look of 'Grimm's Law' is a mirror image of the traditional look regarding which of the IE languages is more similar in phonology to PIE. Furthermore, the Glottalic Theory helps shed light on a traditionally murky area of PIE sound change.

5.2 Grassmann's Law

Another application of the Glottalic Theory is the phenomenon in IE known as Grassman's Law. Traditionally the 'law' held that PIE roots of the shape D^hV D^h underwent a rule of right to left dissimilation at a distance in Greek in Sanskrit yielding DVD^h roots. The motivation for this was thought to be a ban on two aspirates in a root. Preceding the rule for aspirate dissimilation must be a rule devoicing the aspirates in Greek.

(18)	<u>Greek</u>	<u>Sanskrit</u>
Aspirate Devoicing	ThVTh	—
Aspirate Dissimilation	TVTh	DVD ^h

The problem with this situation is one of ordering. If Grassman's Law applied first, the Greek examples would end up DVTh. Yet having the devoicing apply first raises the question of how Grassman's Law could have applied identically in two completely distinct languages.

According to the Glottalic Theory Grassman's Law would be a moot point. If aspiration in Series II is allophonic as is argued by many proponents of the theory, then 'there is no need to posit two independent occurrences of a highly unusual phonological process in different PIE

daughter languages' and 'its restriction to one occurrence per root becomes mundane'. (Salmons 1993: 33)

5.3 Lachmann's Law

This rule of vowel lengthening in Latin can be related to the Glottalic Theory as well. Traditionally the rule states that Latin verbs with a long root vowel (CVT) are derived from PIE roots with CVD form, where C refers to an unspecified consonant. Alternately those verbs with short vowels derive from CVT or CVD^h roots. Defensible motivation for this scenario is difficult to obtain. Devoicing could not be a trigger for lengthening as this does not occur with the devoicing of the aspirates.

However, under the Glottalic Theory the rule is as follows: PIE verb roots of the shape CVT' become CVT and PIE verb roots of the shape CVD/CVT become CVT. If the glottalic series was interpreted in Latin as complex, pre-glottalized segments then vowel lengthening is easily explained.¹¹ Bisegmentalization and voicing of the stop then subsequent deletion of the glottal stop would cause compensatory lengthening of the preceding vowel. This is made more clear in (19).

$$\begin{array}{ccccccc}
 (19) & \text{PIE CVT'} & > & \text{CVT} & > & \text{CV?D} & > & \text{Latin CVT} \\
 & ^*H_2Vk'- & > & a'k- & > & a?g-tos & > & \text{Latin } \acute{a}ctus
 \end{array}$$

Beekes (1995) notes that in this view of the Glottalic Theory, the vowel-lengthening effect when the glottal stop is deleted is the same as that when a laryngeal is deleted in PIE. This would lend support for the hypothesis that one of the laryngeals (probably H₁) in PIE was in fact a glottal stop.

5.4 Miscellaneous

5.4.1 Bartholomae's Law

The two-step process Christened Bartholomae's Law involves progressive voice assimilation and 'aspiration-hop' in Sanskrit when a voiced aspirate is followed by a plain voiceless plosive. To use a well-worn example, *bud^h + ta > buddha*. Although it is unclear whether the Glottalic Theory lends anything to this phenomenon, the changes in the rule would be as follows:

¹¹ See Beekes (1995) for further support of the analysis of the glottalic series as pre-glottalized.

(20)	<u>Traditional View</u>	/bud ^h + ta/	/bud + t ^h a/	<u>Glottalic View</u>
	Voice Assimilation	bud ^h da	ḥuddha	Voice Assimilation
	Aspiration-Hop	budd ^h a	_____	
		_____	buddha	Deglottalization

Although the Glottalic Theory seems to delete one step of Bartholomae's Law, namely aspiration-hop, this step feels intuitively natural given a cluster containing an aspirated segment. The side of the Glottalic Theory which admits both ejectives and implosives in Series I would assume that Sanskrit developed an implosive series which later underwent deglottalization. Therefore neither the old nor the new viewpoint wins out in terms of simplicity.

5.4.2 Danish Stød

As alluded to earlier in the treatment of Lachmann's Law, the pre-glottalized stops of Latin function much the same way as PIE laryngeals regarding vowel lengthening. Danish stød, a vowel lengthening process triggered by a following pre-aspirated stop, might thus be viewed as a related phenomenon. However, more extensive study of the process must be done before any real claims linking stød to the Glottalic Theory can be put forth.

Summary

This section has looked at various 'laws' of Indo-European and shown how they can be far better accounted for under the framework of the Glottalic Theory. The new look turns Grimm's Law on its head and turns the tables on Grassman's Law showing the 'decaying' Germanic and Armenian languages to be the truly conservative IE dialects. Lachmann's Law, it is demonstrated, can be seen as resulting from the loss of a glottal stop which formed part of an original complex pre-glottalic segment. This in turn shows the 'law' to function just as those segments central to the Laryngeal Theory. Bartholomae's Law neither won nor lost anything by applying the Glottalic Theory. However, this may be seen as neutral support for the theory. Finally it was noted that there is the possibility of linking Danish stød to the Glottalic Theory in the same way that the Laryngeal Theory was related.

Conclusion

This paper has presented the deficiencies of the traditional framework to deal with the obstruent system of PIE and of subsequent IE daughter languages. The foundation of the Glottalic Theory was put forth in order to show how the theory is more satisfactory and beneficial in the study of Indo-European and Historical Linguistics in general. Subsequent objections to the Glottalic Theory were presented followed by responses which demonstrated that the objections were either unfounded or moot points. Finally the Glottalic Theory was put to the test in order to see

whether it could better explain certain phonological phenomena throughout IE. Grimm's Law, Grassmann's Law and Lachmann's Law were shown to benefit greatly from the new system and Bartholomae's Law and Danish stød were presented as possible additional evidence of the validity of the Glottalic Theory.

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VENNEMANN'S BIFURCATION THEORY OF THE GERMANIC AND GERMAN CONSONANT SHIFTS

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Introduction

Vennemann presents a plausible alternative to Grimm's succession of Germanic and High German sound shifts. As part of his argumentation, Vennemann gives a systematic revision of the Proto-Germanic obstruent inventory which he reconstructs internally from Germanic data. He also looks beyond the Germanic data to posit a Paleo-Germanic obstruent system. While revising Grimm's traditional theory, Vennemann also reformulates Verner's Shift and how it would apply to his alternative glottalic approach.

1.0 Reconstruction of the Proto-Germanic Obstruent Inventory

1.1 Vennemann's Approach to Internal Reconstruction of Proto-Germanic

Unlike Grimm, Vennemann reconstructs Proto-Germanic (PGmc.) from Germanic (Gmc.) evidence itself. His analysis focuses on two extreme examples of Germanic: Strict High Germanic (Alemannic and Bavarian dialects of OHG) and Strict Low Germanic (Old Icelandic). High Germanic (HGmc.) refers to those languages spoken nearest to the Alps and Low Germanic (LGmc.) to those spoken nearest to the seas (North Sea, Baltic Sea, Black Sea, etc.). All other Germanic languages fall somewhere in between these two extremes as (1) indicates:

- (1) Strict High Germanic <-----> Strict Low Germanic
- | | | | |
|-----------|------------------------|--|---------------|
| Alemannic | Upper German dialects | Low German | Old Icelandic |
| Bavarian | Middle German dialects | Frisian, English,
Gothic,
and other Norse lgs. | |

By comparing cognates of both Strict High Germanic and Strict Low Germanic, Vennemann determined the correspondences of the obstruents of both extremes and then established the obstruent inventories for each as shown below in (2):

(2) True consonant inventories of Strict High Germanic and Strict Low Germanic at time of the oldest records¹:

	Strict High Germanic (9th C)	Strict Low Germanic (13th C)
1. a	p ^f t ^z k ^x	p ^h t ^h k ^h
b	f z x	
c	t	
2.a	þ ð ġ	þ ð ġ
2/3.b		v ð ȝ
3.a	y ȝ h	f þ h
4.	ʃ	s
5.	(r)	z

z = voiceless dentalveolar sibilant

þ, ð, ġ, y, and ȝ = half-voiced consonants

Looking at the correspondences between Strict High Germanic and Strict Low Germanic and the environments in which they occur, Vennemann systematically reconstructed the obstruent inventory of PGmc., the language from which all Gmc. languages are believed to have developed.

1.2 Relating Strict High Germanic and Strict Low Germanic to Reconstruct Proto-Germanic

1.2.1 Position 1

In position 1 of the inventory in (2), the diversity of the Strict High Germanic consonants corresponds to a uniform aspirate series, +T^h 2, in Strict Low Germanic. The diversity in Strict High Germanic is both orderly and predictable. The Strict High Germanic fricatives occur following a vowel but only when the corresponding Strict Low Germanic forms do not have geminate stops. The /t/ in (1.b) was also originally a predictable positional variant of +t/z/ occurring only before +r/ where +t/z/ was excluded for phonetic reasons because dental friction was disfavoured before an alveolar trill (p. 10).³ This orderly and predictable variety in Strict High Germanic can be traced back to a common source according to the principle of reconstruction which states that 'orderly variety points to original uniformity' (p. 10). Since the

¹ All dates are approximate for AD and are based on Baldi (1983: 127, 129).

² In this paper the symbol '+' is used to indicate a reconstructed form.

³ All references are to Vennemann MS unless otherwise stated. It should be noted that this manuscript was later published in

normal development is from affricates to fricatives, the series $+/p^f \ t^{\chi} \ k^{\chi}/$ or $+T^s$ is reconstructed for Strict High Germanic (p. 10). Thus, position 1 has two series, $+T^s$ for Strict High Germanic and $+T^h$ for Strict Low Germanic, for which the common source must be determined. Since the normal direction of development is from stops to affricates, Vennemann reconstructs an ejective series, $+T'$, from which both $+T^s$ and $+T^h$ are derived. This series of voiceless fortis plosives, $+T'$, embodies all of the plosion, voicelessness and tenseness of $+T^s$ and $+T^h$. Ejectives are overwhelmingly voiceless and are produced with the glottalic airstream mechanism (Salmons 1993:2).

1.2.2 Position 2

In position 2, the uniform plosive series of Strict High Germanic corresponds to an orderly variety of plosives and fricatives in Strict Low Germanic. 'Frication is more normal than occlusion' (p.11), thus, a series of plosives must be reconstructed for PGmc. which can account for both the fricatives and stops. Vennemann posits, a series of 'lenis stops lacking full voice' (p.11) from which both the Strict High Germanic and Strict Low Germanic consonants developed. Since this series lacks full voice, it can easily lenite to become the fully voiced Strict Low Germanic fricatives following either vowels or liquids.

1.2.3 Position 3

The diversity of the Strict Low Germanic fricatives corresponds well with the series of fricatives in Strict High Germanic. The voiced Strict Low Germanic fricatives occur systematically following either vowels or liquids which typically constitute voicing environments. Vennemann also adds that $/h/$ has positional velar and postvelar fricative variants and can be traced to a voiceless velar fricative $+/x/$ (p.12). Thus, Vennemann posits a voiceless fortis fricative series, $+p$, since he can account for voicing in Strict Low Germanic.

1.2.4 Positions 4 and 5

The Strict High Germanic postalveolar fricative $/s/$ of position 4 is due to the development of a second voiceless dentalveolar sibilant $/z/$ (p.12). Thus, as a common source of both Strict High Germanic $/s/$ and Strict Low Germanic $/s/$, Vennemann simply posits the fortis fricative, $+/s/$. For position 5, Vennemann traces the common source of LGmc. (Gothic) $/z/$, Runic $/R/$ and HGmc. $/r/$ back to the lenis fricative, $+/z/$.

1.3 The 'New Theory's' PGmc. Inventory

After tracing the origins of the Gmc. obstruents to their PGmc. origin, the PGmc. obstruent inventory takes on the appearance in (3):

(3)	1.	+T	fortis plosives
	2.	+	lenis plosives
	3.	+	fortis fricatives
	4.	+/s/	fortis fricative
	5.	+/z/	lenis fricative

Vennemann indicates that all oppositions between the first three elements in (3) are neutralised after fricatives throughout the history of Gmc. (p.13).

1.4 Lenis vs. fortis

The lenis-fortis opposition proposed by Vennemann replaces the voiced-voiceless distinction of Grimm's traditional theory. The terms lenis and fortis refer to the degree of 'pulmonic' pressure used in articulating the sound, where fortis indicates a heightened subglottal pressure in comparison to lenis (Ladefoged 1971:24).

2.0 Reconstructing Paleo-Germanic

Vennemann looks beyond the Gmc. evidence to reconstruct the stage preceding PGmc. which he calls 'Paleo-Germanic'.

2.1 Beyond Gmc. Evidence

Both +T and +ʈ have plosive counterparts in most other IE languages, cf. for +T OE *tōð*, OS *tand* vs. Lt. *dentem* and Skt. *dántam* and for +ʈ OHG *beran*, *peran* Olcel. *bera* vs. Skt. *bhárāmi*. Vennemann thus maintains both +T and +ʈ in his Paleo-Gmc. obstruent inventory.

The fricative series +p, however, corresponds with plosives rather than fricatives in other IE languages, cf. OE, OHG *faran*, Olcel., OFris. *fara*, but Lt. *peritus*, *portāre*, OInd. *píparti* and *pārāyati*. Since 'frication is more normal than occlusion' (p.13), one can assume that the PGmc. fricatives and non-Gmc. plosives developed from a plosive series. Vennemann states that the voiceless plosives most prone to frication are aspirates. He thus assumes the common source of both the Gmc. fricatives and non-Gmc. IE plosives to be a series of voiceless aspirated plosives, +T^h. The voicelessness of this series is common to both the Gmc. and non-Gmc. IE examples.

The PGmc. sibilants +/s/ and +/z/ can be traced to Paleo-Gmc. +/s/ through Verner's Shift. Thus, the Paleo-Gmc. inventory at which Vennemann arrives is outlined in (4):

(4)	i)	$+T^h$	voiceless aspirate fortis plosives
	ii)	$+T$	voiceless non-aspirate fortis plosives
	iii)	$+D$	lenis plosives
	iv)	$+s/$	fortis fricative

This inventory is not uncommon in the world's languages. Korean is cited as the closest match with the same three plosive grades, although its voiceless non-aspirate fortis plosives do not seem to be ejectives as Vennemann proposes them to be in Germanic.

2.2 Labial Gap

Frequency counts in dictionaries attest to the lexical rarity of $+p/$ in early Gmc. reflexes which have correspondences in other IE languages. The same, however, is not true for the other Paleo-Gmc. bilabials, $+p^h/$ and $+p/$. Vennemann remarks that glottalisation, particularly ejection, 'commonly leaves a labial gap in series of voiceless plosives' (p.14).⁴

3.0 Verner's Shift and 'Rule' Ordering

Since Verner's Shift was proposed to explain exceptions to Grimm's Law, Vennemann reformulates this shift to fit into his new theory.

3.1 Normal Assumption of Order

The rule ordering normally assumed, including by Verner himself, was that the PGmc. consonant shift preceded Verner's Shift which then in turn preceded the accent shift.⁵ The disadvantages of this ordering are that it assumes the resulting series of voiced fricatives to then develop into plosives in HGmc. and that it cannot account for the dental in Low German, Frisian, and Old English (p.16). Bearing in mind 'that occlusion is less normal than frication', Vennemann proposes a viable alternative to this troublesome situation (p.16).

3.2 Vennemann's Ordering and Reformulation of Verner's Shift

Vennemann orders Verner's Shift before the PGmc. consonant shift. Moreover, he reformulates Verner's Shift assuming that only the fortis plosive series, $+T$, is glottalised as well

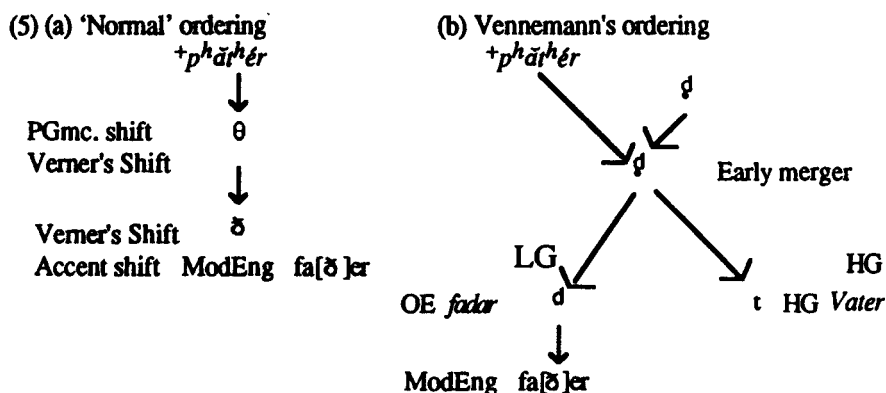
⁴ Vennemann also claims that reconstructing an ejective series may prove very beneficial for a phonetic analysis of the consonant shifts.

⁵ The Gmc. accent shift placed the stress on the first syllable of the root, cf. Skt. *pitṛ* Gk. *patér* Gothic *faðar* OS *fadar* (Baldi, 1983:133). It also eliminated the conditions for Verner's Shift.

as fortis. The revised rule states that 'non-initial non-glottalised obstruents are lenited in sonorant environments except when immediately following the accent' (p.17). This reformulation of Verner's Shift still applies to the Paleo-Gmc. $+s/$ which thus enables the development of the PGmc. $+z/$.

3.3 Contrasting the 'Normal' Ordering Against Vennemann's Ordering and Reformulation

Both orderings can be contrasted using the well-cited 'father' example in (5). The reconstructed form takes on the appearance of $+p^h\tilde{a}t^h\acute{e}r$ (cf. Skt. *pitár* and Gk. *patér*) based on Vennemann's PIE reconstruction (cf. p.29).



The traditional application of Verner's Shift can account for the ModEng. *father* with the development from $t > \theta > \delta$, but it cannot account for the earlier OE *fadar*. Nor could this ordering account for the significant strengthening of $/\theta/$ to $/t/$ in HG *Vater*.

Vennemann's reordering accounts for both the developmental stages and the 'final product' in Modern English. He assumes an early merger of $+T^h$ and $+D$ to simply $+D$ when Verner's Shift was applied. The resulting $/d/$ in (5.b) then underwent normal development according to the subsequent HGmc. and LGmc. sound shifts. In Low Germanic $/d/$ lenited further to become fully voiced as in OE *fadar* and then fricated to become ModEng. *faðer*, i.e. $d > \delta$. The $/t/$ in HG *Vater*, however, is still problematic as $/d/$ strengthens intervocalically where it would be expected to lenite.

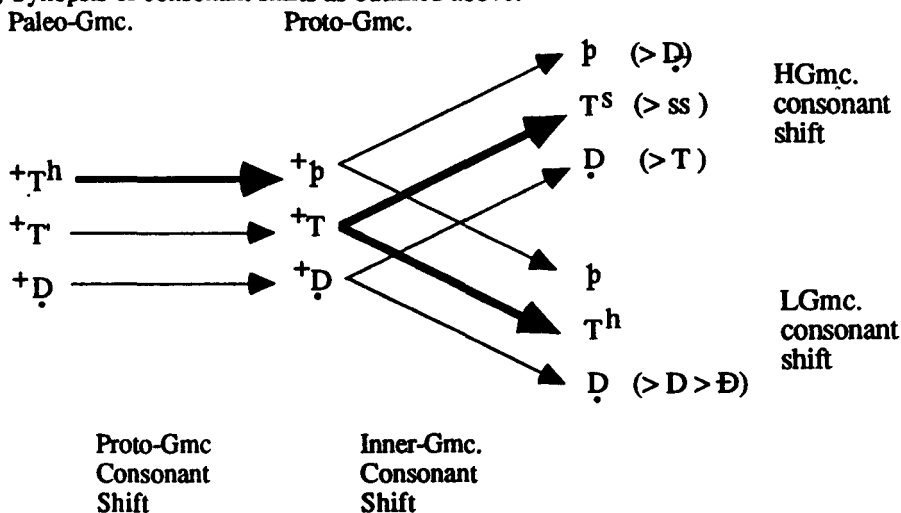
Although Vennemann cannot fully explain the intervocalic strengthening of D to T , this fact should not discount his ability to account for the LGmc. development. The HGmc. strengthening is problematic in general and has yet to be accounted for. The strengthening required

by Vennemann is significantly less drastic than by traditional theories. That Vennemann can account for what he does is a tremendous improvement upon the Grimmian theories.

4.0 Vennemann's Consonant Shifts

The new theory as presented by Vennemann takes on a different appearance from Grimm's traditional theory as shown below in (6):

(6) Synopsis of consonant shifts as outlined above:

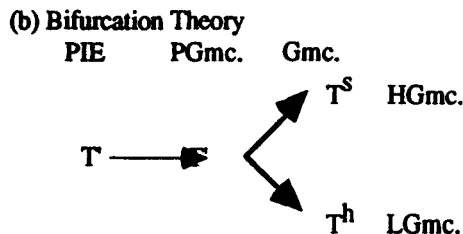


Vennemann's reconstructions of both Paleo-Gmc. and PGmc. are seemingly more phonetically and phonologically plausible than Grimm's earlier reconstruction.

4.1 Vennemann's Bifurcation vs. Grimmian Succession Theories

The bifurcation theory as it applies to the HGmc. and LGmc. split shows that HGmc. affricates did not simply develop from the LGmc. voiceless plosives. Instead, this series evolved in a parallel development with the LGmc. aspirates from a common source, which Vennemann posits as $+T$. This parallel development which constitutes the bifurcation theory is contrasted against the Grimmian succession theory in (7):

(7) (a) The succession theory
 PIE PGmc. HGmc.
 D > T > T^s



The bifurcation theory indicates a more direct development for the HGmc. affricates than Grimm's succession theory. The conservative view of the HGmc. phonological development as proposed by the bifurcation theory is also more in line with the view that OHG is conservative morphologically and lexically.

4.2 Plausibility of Bifurcation with Ejectives

Bifurcation is most plausible if a series of ejectives is postulated. Vennemann gives his subjective impression that 'ejectives sound very much like aspirates or like affricates, depending on their degree of fortisness' (p.18). Based on this impression, he suggests that due to auditory similarity, aspirates or affricates may have been substituted in place of ejectives by new learners of the languages who did not recognise 'the intricate glottal mechanism of ejection' (p.18).

5.0 Conclusion

Vennemann's Gmc. reconstructions are both phonologically and phonetically plausible. His theory assumes only frications and no occlusions. His developments are all short and direct as favoured by Occam's Razor, and his bifurcation theory with ejectives addresses earlier concerns that the conservative OHG had innovative phonology. His reformulation of Verner's Shift is also able to account for the development of the LGmc. exceptions. Simply put, Vennemann's argumentation is convincing and his theory 'makes a lot of sense'.

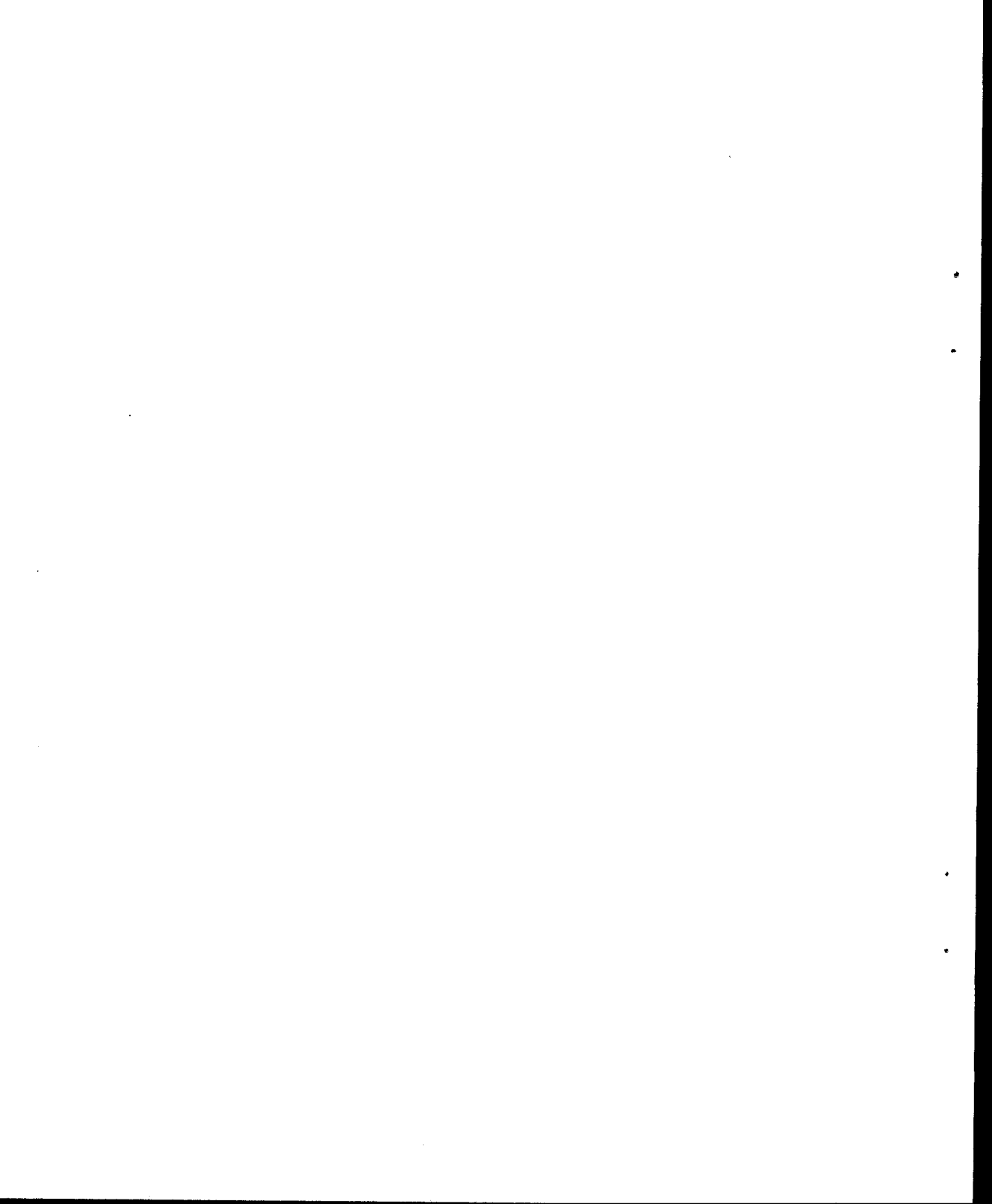
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ONE ASPECT OF CREE SYNTAX
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Introduction

Nonconfiguration languages pose problems for linguistic theory in general and Government-Binding Theory in particular. The theoretical constructs which form the basis of current Government-Binding Theory are crucially dependent on the notion of government. The Projection Principle, Theta Theory, Case Theory and Binding are all based on the fundamental assumption of hierarchical structure and the notion of government. If there is indeed a nonconfigurational language, then we have to add a parameter of configurability in Universal Grammar and develop a separate theoretical framework, which is not dependent on government.

Cree, an Algonquian language, has been classified as a nonconfigurational language due to the properties common to such languages, namely: free word order, systematically discontinuous expressions, and null anaphora. Dahlstrom (1986) observes that the description of Cree syntax cannot be dependent on constituent structural relations and that its syntactic operations take place within the lexicon. In this paper I will agree that Cree indeed appears to be a nonconfigurational language according to the criteria Hale (1983) establishes, but I will argue that it has a rigid hierarchical structure, which controls movement of its constituents. In this sense, Cree is compatible with a configurational structure, and it has many components of grammar which may mask the presence of underlying hierarchical structure.

In this paper I will adopt the adjunct NP framework developed by Jelinek (1984) and Baker (1991) wherein most NPs are generated in adjunct positions and coindexed with pronominal arguments. This theoretical framework allows us to distinguish the components in A'-position from other components in A-position and to determine what makes freedom of word order possible. The goals of this paper are twofold: the first is to analyze the structure of Cree and to argue that Cree is a configurational language, and the second is to apply this Cree structural analysis to the so-called inverse construction in order to determine what kind of operation is involved in the inverse form and in Case and theta role assignment, in general.

This paper is constituted as follows. §1 summarizes the nonconfigurational properties of Cree, based on the criteria Hale (1983) proposes. §2 overviews the verbal morphology, focusing on person and gender features. §3 analyzes Cree structure. In §3.1, I summarize the NP adjunct framework proposed and advanced by Jelinek and Baker. In §3.2, I argue for a hierarchical structure for Cree. In §3.3, I illustrate the Cree clause structure with the adjunct NP framework. §4 examines the so-called inverse form and proposes that the inverse form is an ergative construction. I argue that Cree is an ergative split language; when a thematic hierarchy and a person hierarchy disagree, ergativity appears as an inverse form. When the two hierarchies agree, Cree maintains an accusative structure. §5 formalizes the Case assignment and theta assignment system, and also suggests that NPs must be in the adjunct position in order to account for an apparent violation of Case filter. §6 concludes the discussion.

1. Nonconfigurationality

Hale (1983) describes three properties characteristic of nonconfigurational languages: relative freedom of word order, the pervasive dropping of noun phrase arguments, and the existence of discontinuous expressions. All three of these properties are seen in Cree. Dahlstrom presents the following examples as evidence for free word order.

- (1) e:kosi na:te:we awa iskwe:w o:hi kaskete:watimwa
so fetch this woman this black horse obv
'So then the woman went and got the black horse.'
(Bloomfield 1934,p.74) (VSO)
- (2) nakat:w mahke:si:sah wi:sahke:ca:jk.
leave fox obv Wishahkechahk
'Wishahkechak left Fox behind.'
(Bloomfield 1930,p.36) (VOS)
- (3) awa okini:kiskwe:w ki:we:htahe:w anihih awa:sisah,
this young woman bring home that child obv
'this young woman brought the lad home...'
(Bloomfield 1930,p.10) (SVO)
- (4) owi:ce:wa:kanah miskawe:w awa ne:hiyaw.
his companion obv find this Cree
'That Cree found his companions.'
(Bloomfield 1934,p.34) (OVS)
- (5) ki:tahtawe iskwe:w otawa:simisah wi:ce:we:w, e:h=na:tahkik
presently woman her child obv accompany fetch
mi:nisah
berries
'Once a woman went with her children, to get berries.'
(Bloomfield 1934,p.158) (SOV)
- (6) pe:yak awa iskwe:w nayo:me:w
one this woman take on back
'the woman took one on her back.'
(Bloomfield 1934,p.258) (OSV)

As the above examples show, the subject, verb and object can appear in any of six logically possible orders, although Dahlstrom notes that OSV is the rarest of the six possibilities.

The phenomenon of argument drop is illustrated in (7).

- (7) e:h=kiske:yihtahk e:htapasiyit, pi:htoke:w...
know 3-inan/conj flee obv/conj, enter 3
'When he saw that they had fled, he went inside...'
(Bloomfield 1934,p.94)

Sentence (7) implies reference to both a boy and Blackfoots, but neither is represented by any independent noun phrase within the sentence. Subject NPs and Object NPs are freely omitted in Cree.

The third property of a nonconfigurational language, is its discontinuous expressions. Examples of these are provided in (8).

- (8) a. ki:=sipwe:ht:w[kahkinaw awiyak]
 left all someone
 'Everybody left.'
- b. [kahkinaw awiyak] ki:=sipwe:ht:w
- c. [kahkinaw] ki:=sipwe:ht:w [awiyak]
 (Reinholtz and Russell 1992)

In (8b) we observe that the morpheme *kahkinaw* 'all' and *awiyak* 'someone' together form an NP meaning 'everyone'. In (8c) the word meaning 'all' appears before the verb, while the word meaning 'someone' appears after it. In this example, these two words, while clearly associated with the same argument role, do not form an NP constituent on the surface.

All three properties discussed above seem to indicate that Cree is a nonconfigurational language.

2. Word-Internal Structure

2.1. Verbal Affix Template

We have seen that Cree has nonconfigurational properties such as free word order, argument dropping, and discontinuous expressions. In contrast, the word-internal structure is very configurational. All Cree verbs are inflected to show the person, number and gender features for the subject and the object. Similarly, nouns are inflected for the features of the possessor. These inflections are obligatory and fixed in position.

Based on the analysis of Cree morphology by Wolfart (1973), Dahlstrom (1986a) proposes a flat inflectional template for verbs as shown in (9).

(9) [V ____ [stem] ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8]

Prefix person category *ni-*, *ki-*.

1. obviative /em/
2. theme signs
3. obviative /eyi/
4. mode *-htay-* (preterit), *-hk-* (future imperative)
5. person suffixes
6. mode *-pan* (preterit) *-toke* (dubitative)
7. third person suffixes
8. mode *-i* subjunctive

The position of a given suffix is predetermined in this template by one prefix position and eight suffix positions. Affixes are also in complementary distribution with other affixes in that position class.

2.2 Person Affix

Although we are not going to analyze all the verbal affixes in this section, we focus on the person prefix, which identifies the subject of the verb, as shown in (10).

- (10) *ni...nipa:...n* I sleep
 ki...nipa:...n you sleep
 nipa:...w He or she sleeps (Ellis)

The number and gender features of the subject are marked in the prefix position consistently, although the subject person features also appear in the suffix position. The first person is indicated by *ni-*, the second person by *ki-*, and the third person by a null marking.

Almost the same person prefix can be found in the possession paradigms.

- (11) *ni-maskisin* 'my shoe'
 ki-maskisin 'your shoe'
 o-maskisin 'his shoe'

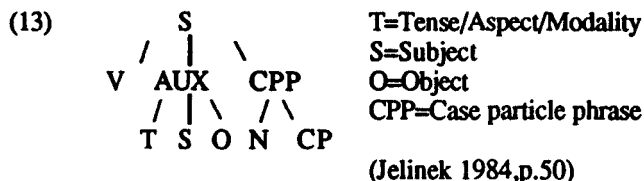
Objects are expressed in the suffix position. When the verb is transitive, positions 2, 5 and 7 usually have object markings as shown in (12).

- a– in suffix position 2 is called a theme suffix, indicating the subject–object relationship. –w– in position 5 indicates that the object has a third person referent, and –ak– in position 7 indicates that the third person object is plural. Thus, the verb’s affix system shows a clear distinction between the subject and the object.

3.1 Adjunct NPs

Following Jelinek (1984), a widely-accepted analysis of the properties of 'nonconfigurational' languages holds that the theta requirements of the verb are satisfied by pronominal arguments (Baker 1990) or agreement morphemes (Jelinek 1984). Jelinek argues that any overt NPs in the sentence are adjuncts in A'-position, which must be licensed by being coindexed with agreement morphemes. The theta requirement of the verb is satisfied by the agreement morphemes in AUX, and not by the NPs in the adjunct position. Nonconfigurational languages are usually rich in agreement, and the presence of NPs is optional. Jelinek assumes that

this is the indication that only the pronominal-agreement morphology is obligatory because it is the agreement morphology which receives the verb's theta roles. Based on this assumption, Jelinek proposes that Waripiri sentences have the following underlying structure.



(Jelinek 1984,p.50)

In this configuration the Case Particle phrases are coindexed with clitics in AUX, which are the real argument of the verb. The aux constituent includes clitics which are in Nominative, Accusative and Dative case. The theta roles are also assigned to agreement morphemes instead of syntactic argument positions.

Baker (1991) proposes a closely related but different structure. His argument is formalized in the Morphological Visibility Condition (MVC).

(14) The Morphological Visibility Condition (MVC):

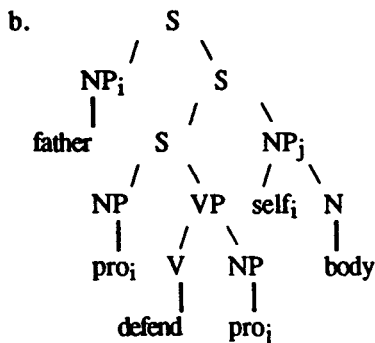
A phrase X is visible for theta role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:

- (i) an agreement relationship or
- (ii) a movement relationship

According to the MVC, while there must be a relationship between each theta role of a verb and a morpheme on that verb, this relationship is not direct. Rather it is mediated by an NP or an argument of some other category. Thus the verb's theta role must be assigned to a phrase by the Theta Criterion, and that phrase must be coindexed with a morpheme on the verb by the MVC.

Having advanced the above condition, he postulates *pro* as an argument, which plays almost the same role as the agreement morphemes Jelinek posits or the morpheme defined in the MVC. His proposal is illustrated in (15).

- (15) a. tl g-e ^cinit-kin uwik wiriNe-rk -nin.
 father-erg self-poss body defend-pres-3sS/3sO
 'The father defends himself.'



In his model the theta assignment is met syntactically rather than morphologically. The adjunct NP *father* is coindexed to *pro_i* and assigned a theta role through the link. Without the link the NP has no part in the sentence. If there is no adjunct NP, solely the *pro* assumes the theta role.

3.2 Hierarchical Structure

Before we apply the adjunct NP framework to a Cree sentence, we have to find out whether or not Cree has a hierarchical structure, that is, whether it has a VP node or not. Jelinek analyzes Warlpiri as a flat language, as shown in (13). Laughren follows Jelinek's adjunct NP argument for Warlpiri, but suggests a structure in which the subject and the object are hierarchically distinguished. Baker (1991) and Speas (1990) argue for the hierarchical structure of Mohawk and Navaho respectively, while Van Valin argues against it for Lakhota, a Siouan language. As Van Valin (1987) says, whether or not a language has a hierarchical structure is a serious question for the Government Binding (GB) theory, because the subject-object asymmetries – such as Accusative and Nominative Case distinction, and the external and internal theta role distinction – cannot be made without it.

There are two tests which identify hierarchical sentence structure. The first one is the binding. According to Binding Principle C, which states that referential expressions must be free everywhere, full NPs cannot be c-commanded by co-referential NPs. Binding Principle C accounts for the subject-object asymmetries found in sentences like (17) in English.

- (17) a. *He_i saw Peter's_j's_i father*
 b. *Peter's_i father saw him_{i/j}.*

English has a VP node, which makes it possible for the subject to asymmetrically c-command the object and its possessor. Therefore, the coreference of the subject and possessor would be

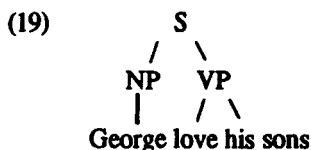
ungrammatical in (17a) because lexical NP *Peter* is c-commanded by the pronoun *he*. Coreference of these two NPs would violate Condition C. In contrast, *Peter* in (17b) is embedded in the subject NP, and the pronoun in the object position does not c-command it. Therefore (17b) is grammatical, even when Peter is coindexed with the pronoun 'him'.

Thus, binding theory is a useful test of the sentence structure. As for Cree, however, few detailed analyses seem to have been done in this area. Reinholtz and Russell (1992) and Dahlstrom (1986a) simply state that Cree has no subject-object asymmetries, but do not provide data based on the binding theory. James (1984), on the other hand, seems to assume that the subject is outside the VP in analyzing the Subjacency Condition in Moose Cree, but does not provide any evidence for her assumption. My own attempt to elicit data from a native Cree speaker has not yielded fruitful results either, yet I can present two pieces of evidence involving binding: the Binding Principle C and weak crossover effects.

The first piece of evidence involves the Binding Principle C, which requires that a lexical NP not be c-commanded by a coreferential pronoun.

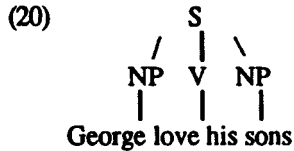
- (18) *nikiske:yima:w* *George e:=sa:kih-a:t* *o-kosis-a*
 know TA1-3 [direct] love 3-obv/conj [direct] his sons obv
 'I know George loves his sons.' (Dahlstrom 1986 p.72)

The example in (18) is grammatical. For our current purpose we will focus on the lower clause. *George* can be coindexed with *his* of *his son*. The verbal suffix *a:t*, which is the direct form theme affix, indicates that the subject is proximate and the object is obviative, i.e., George is unmarked as proximate, while *his son* is obviative in this case, indicated by the obviative marker *a..* The grammaticality is predicted if we assume the hierarchical structure shown in (19).¹



The lexical NP *George* appears higher than the object *his sons*. If we assume a flat structure as in (20), then *George* and *his son* are mutually c-commanding, which would lead to a violation of the Binding Principle C.

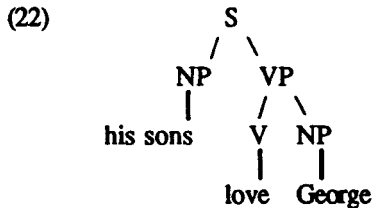
¹ The internal structure of INFL will be discussed in section 4.



In Cree the possessed noun is always obviative and the direct form theme affix requires the proximate noun to be the subject and the obviative noun to be the object. Thus, the following sentence is ungrammatical.

- (21) *nikiske:yima:w George e:=sa:kiha:t okosis
 know TA1-3 [direct] love 3-obv/conj [direct] his sons
 'I know his sons love George.'

His sons in (21) is now proximate, nully marked. The direct theme suffix forces *his sons* to appear in the subject position, while *George* is in the object position. The ungrammaticality of this example is only predictable if we assume the hierarchical structure shown in (22):



The rule that the possessed noun is always marked obviative seems to be the Cree strategy for avoiding the violation of the Binding Principle C. Cree avoids Binding Principle violations, not because Cree has a flat structure, but because Cree restricts interpretation so that the possessive noun is in the object position where it would not give rise to Binding Principle violation.

The second piece of evidence concerns the weak crossover phenomenon. Reinhart (1983) proposes that the following condition, applying at S-structure, defines when bound variable anaphora is possible:

- (23) Quantified NPs and Wh-traces can have anaphoric relations
only with pronouns which they c-command. (Reinhart 1983)

(23) accounts for differences between subjects and objects in configurational languages such as English.

- (24) a. Who *t* kissed his wife?
b. *Who did his wife kiss *t* ?

A pronoun within the object can be interpreted with a questioned object, but a pronoun within the subject cannot.

Dahlstrom (1986b) claims that Cree does not have weak crossover effects and attributes it to the flat structure of Cree sentences. She presents the following sentences to support her claim.

- (25) a. namo:ya awiyak wanikiskisitotawe:w otawa:simisa
no one forget 3-obv(theme) his child obv
'No one [prox] forget his [prox] children [obv].'
b. namo:ya awiyak wanikiskisitota:k otawa:simisa
no one forget obv-3(theme) his child obv
'His [prox] children [obv] forget no one [prox].'

The quantified NP *no one* precedes the possessive pronoun *his* in (25a), while in (25b) it does not, yet both sentences are grammatical. Based on the data, she concludes that Cree has a flat, symmetrical clause structure and a corresponding lack of subject-object asymmetries in bound variable anaphora.

However, the problem with her analysis is the change of the theme suffix from 3-obv to obv-3. The theme suffix used in (25a) is a direct form and indicates that the subject is the proximate third person, while the object is the obviative third person. The theme suffix used in (25b) is called an inverse form and indicates that the subject is now the obviative and the object is the proximate. If we do not change the theme suffix, but change the subject and the object of (25a), then the sentence becomes ungrammatical.

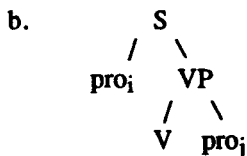
- (26) *namo:ya awiyak wanikiskisitawe:w otawa:simis
 no one forget 3-obv(theme) his child
 'His [obv] children [prox] forget no one [obv].'

This is precisely because the pronoun is higher than the quantified NP *no one* and c-commands it. Thus, we can see the same weak crossover effect in Cree as in English because Cree has a hierarchical structure, not a flat structure as Dahlstrom claims.

3.3. Cree structure

Now armed with the NP adjunct assumption proposed by Jelinek and Baker as discussed in §3.1, and with the hierarchical structure postulated in §3.2, we will examine some Cree examples. The functional categories are not included in order to keep illustration simple. The suffix glossed as 'direct' is a theme suffix.

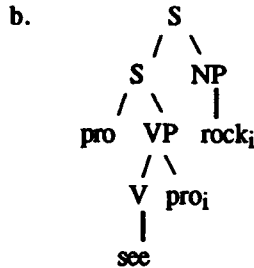
- (29) a. ni-wa:pam-a- -w -ak
 I-see direct -3 -3 animate pl
 'I see them.'



(29) has no lexical NPs to be linked to the *pro* subject and object.

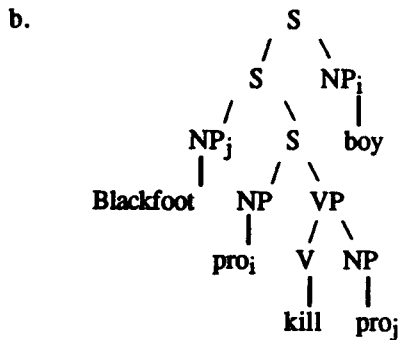
The following example has one NP, which is coindexed with *pro_i* in the object position through the third person suffix.

- (30) a. ni-wa:pam -a-w asiniy
 I-see -direct-3 rock
 'I see the rock.'



The following example has two third persons, one marked by a null proximate marker and the other by an obviative marker. The verbal suffix *a:t* is the direct form marker. The tree structure in (31) does not include *three* and *this*, because these elements need separate analysis.

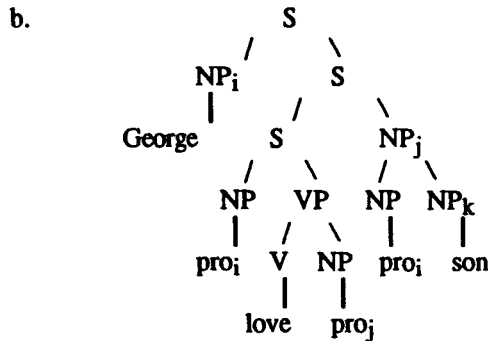
- (31) a. aya:hciyiniw-ah nisto e:h=nipah-a:t awa na:pe:sis
 Blackfoot obv three kill 3-obv/conj[direct] this.boy
 'This boy had killed three Blackfoot.'
 [Bloomfield 1934, p.98]



In this configuration, the subject pro_i is coindexed with *boy*, while the object pro_j is coindexed with *Blackfoot*.

A more complex structure is illustrated in (32). We will examine only the subordinate clause here.

- (32) a. *nikiske:yima:w* *George e:=sa:kih-a:t* *o-kosis-a*
 know TA1-3 [direct] G. love 3-obv/conj [direct] his son obv
 'I know George loves his sons.' (Dahlstrom 1986 p.72)



(32b) has two adjunct NPs, *George* and *his son*, which are coindexed with the subject *pro_i* and the object *pro_j* respectively. *pro_i* in *NP_j* is a modifier of *NP_k* and is coindexed with its antecedent *George*. It is not directly linked to *pro_i* in the subject position.

4. Direct Form and Inverse Form

This section presents an analysis of the direct forms and the inverse forms of Transitive Animate verbs. Dahlstrom (1986a) and Wolfart (1991) both report that the inverse forms have provoked much controversy in Algonquian linguistics: the inverse is analyzed as passive by one group and as active by another group. I argue in this section that the inverse form is active, but involves ergative construction.² Assuming the Ergative Parameter presented by Murasugi (1992), I will claim that the inverse form is one manifestation of ergative construction; a transitive agent bears abstract ergative case, and a patient bears abstract absolutive case. I will also argue that Cree is a split ergative language which switches to the ergative structure when a conflict arises between a thematic hierarchy and a person hierarchy.

§4.1 summarizes morphology of direct forms and inverse forms in Cree. §4.2 presents a thematic hierarchy and a person hierarchy, adapting DeLancey's (1980) insight, and argues that split ergative construction, which has two manifestations, namely split ergative case marking and inverse construction, is a mechanism used to avoid a conflict between these two hierarchies. §4.3 examines the structure of the ergative construction, assuming Murasugi's (1992) ergative hypothesis. Finally, §4.4 analyzes Cree inverse forms.

² This approach is suggested by E. Ritter (p.c.).

4.1 Overview of Inverse Morphology

(33) shows the sample paradigms of the direct and the inverse in independent forms. Stems of the verb are omitted from the sample paradigms in order that we may focus on the inflectional suffixes.

(33) Transitive Animate (A=Agent, P=Patient)

Direct forms		Inverse forms	
A - P		A - p	
1 - 3	ni - a:-w	3 - 1	ni - ik
2 - 3	ki - a:-w	3 - 2	ki - ik
1 - 3p	ni - a:-w-ak	3p- 1	ni - ik-w-ak
2 - 1	ki - i-n	1 - 2	ki - iti-n
2p- 1	ki - i-na:wa:w	1 - 2p	ki - iti-na:wa:w
3 - obv	- e:-w	obv-3	- ik
3p- obv	- e:-w-ak	obv-3p	- ik-w-ak

In the direct forms, the subject is assigned the agent role of the verb and the object is assigned the patient or the theme role. As noted in §2.2, the subject (agent) person is marked by a prefix: *ni-* for the first person, *ki-* for the second person and null marking for the third person. The position 2 suffix in the affix template shown in (9) is a theme sign, indicating the subject-object relationship. The position 2 suffix *-a:-* indicates that the non-third person is the subject and the third person is the object. The suffix *-i-*, which appears in examples 2-1 and 2p-1 above, indicates the second person subject and first person object relation. The suffix *-e:-* in examples 3-obv and 3p-obv denotes the third person subject and the obviative person object. When both arguments are non-third person, the suffixes indicating number of non-third persons are all position 5 suffixes. When one argument is third person, the position 5 suffix *-w* is the third person marker and the position 7 suffix *-ak* is the third person plural marker.

The following are a few examples.

stem wa?pam 'see' in independent indicative

- (34) ni-wa:pam-a'-w
 2 5
 direct-3
 'I see him.'

(35) ni-wa-pam-a--w-ak
 2 5 7
 direct-3 -3 animate pl
 'I see them.'

(36) wa-pam-e- -w
 2 5
 direct -3
 'He[prox] sees him[obv].'

As mentioned in §3.1, in a direct form, a proximate third person always appears in the subject position and an obviative person in the object position.

Now let us examine the inverse forms. In these, the person prefix appearing in the subject position now indicates the patient. The theme suffix *-iti-* in position 2 denotes the first person agent-second person patient. Another theme suffix *-ikw-* indicates the third person agent-non-third patient, or the obviative person agent-proximate third person patient. The position 5 and 7 suffixes are similar to those in the direct forms. Two examples are shown in (37).

(37) a. /ni-wa-pam-kw-w/ 2 5 I-see-inverse-3	ni-wa-pam-ik	'he sees me'
b. /ni-wa-pam-kw-w-ak/ 2 5 7 1-see-inverse-3-3pl	niwa-pamikwak	'they see me'

Comparison of the direct forms with the inverse forms in (33) shows that they are quite symmetrical: they differ in only one element, the theme suffix. The person prefixes and the position 5 and 7 suffixes are almost the same, although the prefixes no longer indicate the agent in the inverse forms.

4.2 Thematic Hierarchy and Person Hierarchy

DeLancey (1981) argues that the inverse configuration occurs when a natural viewpoint and a natural starting-point conflict. According to him, languages require a speaker to specify the viewpoint he is taking when reporting an event. If 1st person or 2nd person is a participant in the event being reported, the most natural viewpoint for the sentence is his own. Next, DeLancey defines the natural starting-point as an NP which is positioned at the first place of Attention

Flow. According to him, Attention Flow determines the linear order of NPs. An unmarked Attention Flow in a transitive sentence is from agent to patient. Thus, the starting point is the agent in a transitive event. In languages where the viewpoint and the starting-point do not agree, the language has two alternatives: split ergative case marking and inverse structure. (38) is an example of split ergative case marking from Kham.

- (38) a. nga: nən-lay nga-poh-ni-ke
 I you-OBJ 1A-hit-2P-PERF
 'I hit you.'
- b. nən nga-lay nə-poh-na-ke
 you I-OBJ 2A-hit-1P-PERF
 'You hit me.'
- c. nən no-lay nə-poh-ke
 you he-OBJ 2A-hit-PERF
 'You hit him.'
- d. no-e nən-lay poh-na-ke-o
 he-ERG you-OBJ hit-2P-PERF-3-A
 'He hit you.'

In all these examples, the leftmost NP is the agent, the natural starting-point. When the leftmost NP is also a natural viewpoint, which is 1st or 2nd person, it is marked for nominative case, as shown in (38a)–(38c). In these cases the natural starting-point and the natural viewpoint agree. If the natural starting-point does not agree with the natural viewpoint, it is marked for ergative case. In (38d), the leftmost NP is 3rd person, and it is not the natural viewpoint, therefore it receives ergative case.

Another mechanism languages may employ in the case of conflict between the natural viewpoint and the natural starting-point is the inverse configuration. In the inverse configuration, a verb is morphologically marked. The following transitive animate paradigms from Powatomi (Hockette 1966) show that the inverse suffix *-uk* or *-un* occurs with 3A-1st/2nd P or 1A-2P configurations.

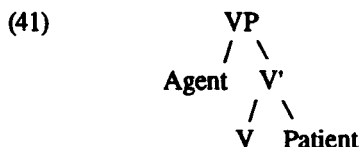
- (39) a. 1A-3P n-V-a d. 1A-2P k-V-un
 b. 2A-3P k-V-a e. 3A-1P n-V-uk
 c. 2A-1P k-V f. 3A-2P k-V-uk

The prefixes are personal agreement-markers k - 2nd, n - 1st, and their distribution exhibits a hierarchy of $2 > 1 > 3$. The inverse structure occurs only when agent-patient configuration violates the person hierarchy, such as in (39d)-(39f).

I follow DeLancey's insight, but would like to restate his analysis with the notion of a thematic hierarchy and a person hierarchy. The thematic hierarchy is shown in (40), which is similar to the one proposed by Carrier-Duncan (1985) and assumed by Larson (1988).

(40) Agent > Patient > Goal > Obliques

We assume that the thematic hierarchy is universal, and that arguments are projected from lexicon to syntax according to this hierarchy. Thus, it determines the relative subordination of arguments in D-structure. In the case of a transitive verb, the arguments are positioned in D-structure, as shown in (41).



The second hierarchy we assume is a person hierarchy, given in (42), where 1st or 2nd person is most prominent.

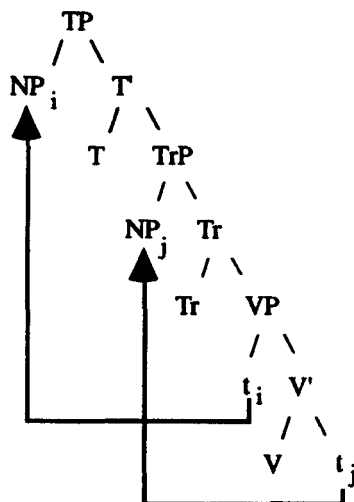
(42) 1, 2 > 3

The person hierarchy is language specific. Some languages have it, while others do not. In some languages with the person hierarchy, there is also a ranking between 1st and 2nd person, and within 3rd person. The person hierarchy constraints apply after arguments are projected according to the thematic hierarchy. When a conflict arises between the thematic and person hierarchies, the languages may employ some mechanism to avoid it. One such mechanism is ergative construction. If ergativity is coded on argument NPs, the result is split ergative case marking. If ergativity is coded directly on the verb as an affix, the result is an inverse configuration. Thus, the split ergative case marking and the inverse configuration are two manifestations of the single operation of switching to ergative construction.

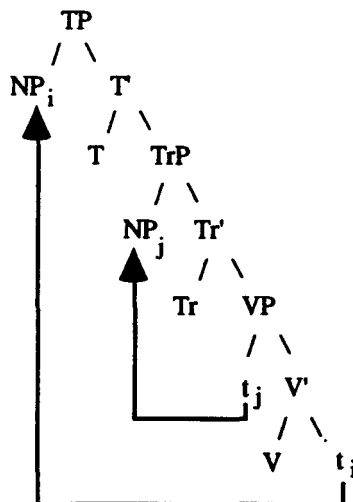
4.3 Ergative Parameter: Crossed Paths and Nested Paths

Murasugi (1992) proposes two functional heads, T(ense) and Tr(ansitivity) above VP. She argues that in an accusative language, the case features of T are strong, requiring NP movement to its Spec at S-structure. In an ergative language, the case features of Tr are strong, forcing S-structure movement to its Spec. Economy Principles (Chomsky 1991) require the shortest movement. Thus, in an accusative language, the subject moves to Spec of T, and in an ergative language, the subject raises to Spec of Tr. These movements produce “crossed paths” and “nested paths”, as shown in (43).

(43) a. Accusative Language



b. Ergative Language



Jelinek (1993) adopts Murasugi's proposal, and demonstrates that a split Case marking language has both 'crossed paths' and 'nested paths' movement. In the accusative construction, the raising of the agent and the patient to T and Tr respectively produces crossed paths; in the ergative construction, the raising of the agent and patient pronouns produces nested paths.

I advance Murasugi and Jelinek's position further, and claim that the inverse configuration also has the 'nested paths' structure. As demonstrated in §4.2, the split ergative case marking and the inverse configuration are two manifestations of the single operation of switching to ergative construction. The split ergative case marking has the strong case features of Tr appear on the argument as an ergative case marker. The inverse configuration marks the features on VP as an

inflectional affix. Both are ergative construction and have the 'nested paths' structure shown in (43b).

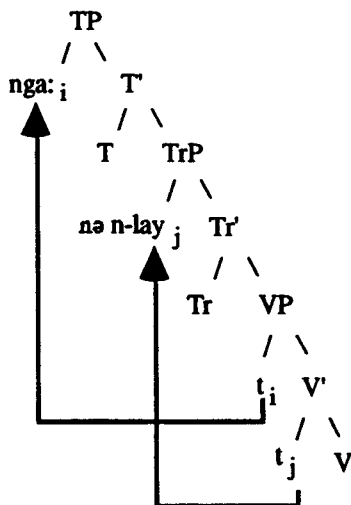
Let us examine the examples in (38), which are repeated as in (45). (45a) is an accusative structure, while (45b) is an ergative structure with the ergative marker on the subject NP.

(45) a. nga: nən-lay nga-poh-ni-ke
 I you-OBJ 1A-hit-2P-PERF
 'I hit you.'

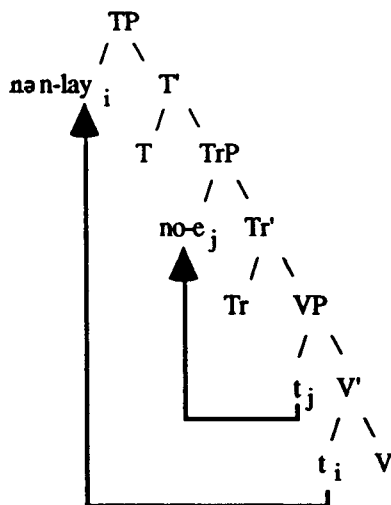
b. no-e nən-lay poh-na-ke-o
 he-ERG you-OBJ hit-2P-PERF-3-A
 'He hit you.'

(46) shows the relevant structures.³

(46) a. Accusative structure



b. Ergative structure



³ I assume that Kham is a head final language.

I assume that Case is assigned by the functional heads, T and Tr, to the NP in the Spec position. In (46a), the agent NP *nga* raises to Spec of TP, and the patient *nən-lay* raises to Spec of TrP. In (46b) the strong case features of Tr force the agent *no-e* to raise to Spec of TrP overtly, receiving ergative case, while the patient *nən-lay* raises covertly.

Let us examine another example which has both inverse configuration and ergative split Case marking. Jyarong (Jin et al. 1958 cited by Delancey) manifests both patterns.

(47) a. *no-ke* *nga* *ke-u-nasno-ng.*
 you-ERG I T-INV-scold-1st
 'You will scold me.'

b. *me-ke* *nga* *u-nasno-ng.*
 he-ERG I INV-scold-1st
 'He will scold me.'

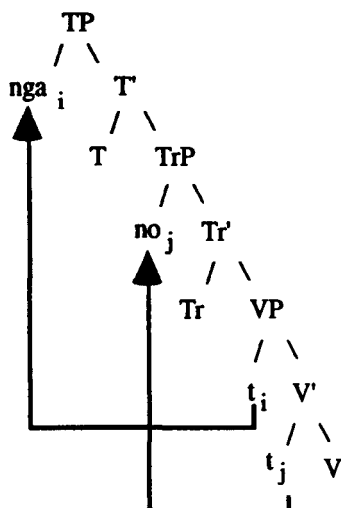
c. *nga* *me* *nasno-ng.*
 I he scold-1st
 'I will scold him.'

d. *nga* *no* *te-a-nasno-n.*
 I ou T-A-scold-2nd
 'I will scold you.'

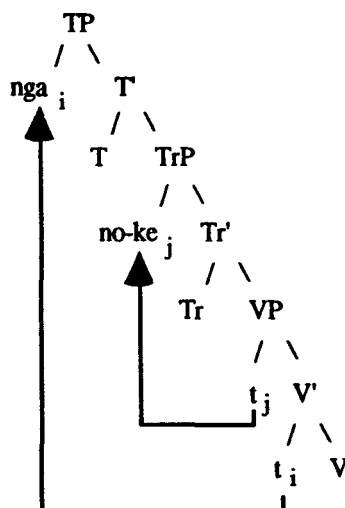
e. *me-ke* *no* *te-u-nasno-n.*
 he-ERG you T-INV-scold-2nd
 'He will scold you.'

The distribution of the inverse prefix *u-* and the ergative marker *-ke* is exactly the same. (47) shows that this language has a person hierarchy of 1>2>3>. When this person hierarchy conflicts with the argument projection governed by the thematic hierarchy, the language switches to ergative structure with the ergative case marker on the subject and an inverse marker on the predicate, as shown in (a), (b) and (e) of (47). The structure in (48a) reflects the accusative construction of (47d), and the structure in (48b) shows the ergative construction of (47a).

(48) a. Accusative structure



b. Ergative structure



In (48a), *nga* and *no* raise overtly. In the ergative structure shown in (48b), the agent *no-ke* moves to the Spec of Tr overtly; the patient *nga* moves to Spec of T covertly. The existence of both split ergative case marking and inverse marking in a single language seems to be redundant, but the exact distribution of the ergative case marker and the inverse marker gives additional support to our proposal that split Case marking and inverse configuration are two manifestations of the single operation.

Finally, I speculate that the reason for switching to ergative structure in the case of a conflict is to restore the person hierarchy at LF. Park (1992) suggests the following principle:

(49) Argument Structure Interpretation (ASI)

Prominence relations on the two dimensions of a predicate's argument structure are interpreted structurally at syntax.

According to the ASI (49), the prominence relations in a predicate's argument structure should be realized in certain syntactic representations such as D-structure, S-structure and LF. If we adopt the ASI, we can state that when a thematic hierarchy and a person hierarchy are symmetrical in terms of prominence relations, both dimensions will be structurally interpreted at D-structure. But if the prominence relations are asymmetrical, only one dimension, which I

assume is the thematic hierarchy in split ergative languages, is realized at D-structure, and the person hierarchy must be realized at S-structure or LF. In the ergative construction, the patient NP raises to Spec of T over the agent NP at LF. The example in (47) shows that the person hierarchy 1>2>3 is violated at D- and S-structure, but that raising the patient argument at LF puts the person hierarchy back into the proper order, as shown in (48b). Thus, this asymmetrical relation of the two hierarchies leads to LF raising of the patient argument to the position higher than the agent argument position, so that the ASI can be satisfied.

4.4 Ergative Structure of Cree Inverse Form

Now let us return to the Cree examples. The transitive animate paradigm in (33) is repeated in (50).

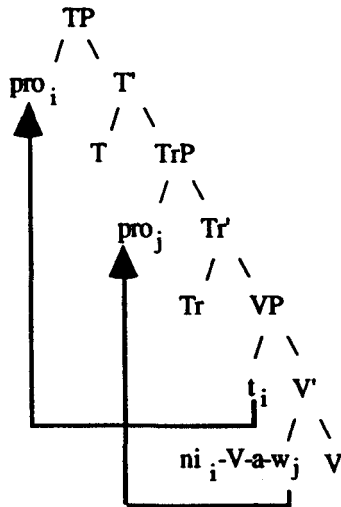
(50) Transitive Animate (A=Agent, P=Patient)

Direct forms		Inverse forms	
A - P		A - p	
1 - 3	ni - a:-w	3 - 1	ni - ik
2 - 3	ki - a:-w	3 - 2	ki - ik
1 - 3p	ni - a:-w-ak	3p- 1	ni - ik-w-ak
2 - 1	ki - i-n	1 - 2	ki - iti-n
2p- 1	ki - i-na:wa:w	1 - 2p	ki - iti-na:wa:w
3 - obv	- e:-w	obv-3	- ik
3p- obv	- e:-w-ak	obv-3p	- ik-w-ak

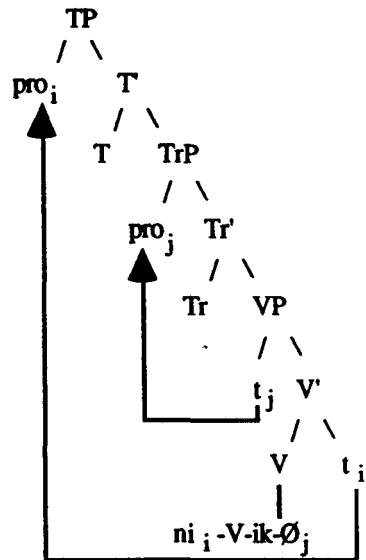
(50) shows that Cree has a person hierarchy of 2>1>3>3obv. When the person hierarchy disagrees with the thematic hierarchy, the inverse forms are used. For example, in the 1A-3P configuration, the agent is 1st person, which is higher than the patient in the person hierarchy. Thus, no conflict arises. On the other hand, the 3A-1P configuration violates the person hierarchy, resulting in inverse structure.

In §3.1 I adopted Baker's NP adjunct approach for Cree. Thus, a lexical NP is an adjunct, which is coindexed to *pro* in argument positions; *pro* is in turn coindexed with a morpheme on the verb. In §4.3 we also adopted Murasugi's framework and claimed that inverse forms are ergative structures. If we incorporate all these frameworks, the structure of the direct forms and of the inverse forms can be represented as shown in (51). (51a) shows the structure of the 1A-3P configuration, and (51b) shows the 3A-1P configuration.

(51) a. Direct forms



b. Inverse forms



In (51a) pro_i and pro_j are assigned an agent role and a patient role respectively by the verb, and projected according to the thematic hierarchy. Only pro_i raises to Spec of T overtly, and occupies the subject position. This subject position of pro_i is reflected by the prefix *ni* on the verb. Tr has the direct theme morpheme *-a-*. In (51b), pro_i and pro_j are assigned a patient role and an agent role respectively. However, since the 3A-1P configuration violates the person hierarchy, the language adopts an ergative structure. It has an ergative Tr node, which shows up as the inverse theme suffix *-ik-* morphologically. As a result, pro_j raises to Spec of Tr overtly. In Cree inverse structure, the patient argument, pro_i , raises to Spec of T covertly. The prefix *ni-* again indicates the subject position of pro_j .

5. Case Assignment and Theta Assignment

Based on the analysis of the direct forms and the inverse forms we are now able to formalize theta assignment and Case assignment as follows: (i) Theta roles are projected according to the thematic hierarchy, and assigned to *pros* VP internally; (ii) Case is assigned to *pros* by the functional category T and Tr, when *pros* raise to the Spec of T and Tr; (iii) if the thematic hierarchy agrees with the person hierarchy, Tr has the direct theme, which carries weak Case feature. As the result, the agent *pro* raises to Spec of T, while the patient *pro* raises to Spec of Tr.

If a conflict arises between the thematic and person hierarchies, Tr is marked by the inverse theme. The strong Case feature of the inverse theme forces the agent *pro* to raise to Spec of Tr, and the patient *pro* to Spec of T; (iv) full NPs are not assigned theta role, only receiving theta role indirectly via coindexation with *pro*. The NPs are also without Case. This explains why NPs appear only in the adjunct position. NPs cannot appear in the argument position because they are not assigned Case, which is a violation of Case Filter.

6. Conclusion

I have presented a rather different analysis of Cree from the one Dahlstrom has given. I have argued that Cree is actually a very configurational language, although it appears to be otherwise due to adjunct NPs. Cree has a hierarchical structure, is subject to the Binding theory, and shows the weak crossover effects. The inverse construction provides the evidence that Cree is an ergative split language which switches to the ergative structure when a conflict arises between a thematic hierarchy and a person hierarchy. The inverse form is one manifestation of ergative construction; a transitive agent bears abstract ergative case, and a patient bears abstract absolutive case. Case and theta role are assigned to *pros*, which are coindexed with full NPs in the adjunct position. Finally I have suggested that NPs are not licensed to appear in the argument position due to the lack of Case.

Cree is compatible with a configurational structure and specifically with a VP node. This removes some of the motivation for invoking a parameter of configurationality in Universal Grammar to accommodate completely flat, nonconfigurational languages.

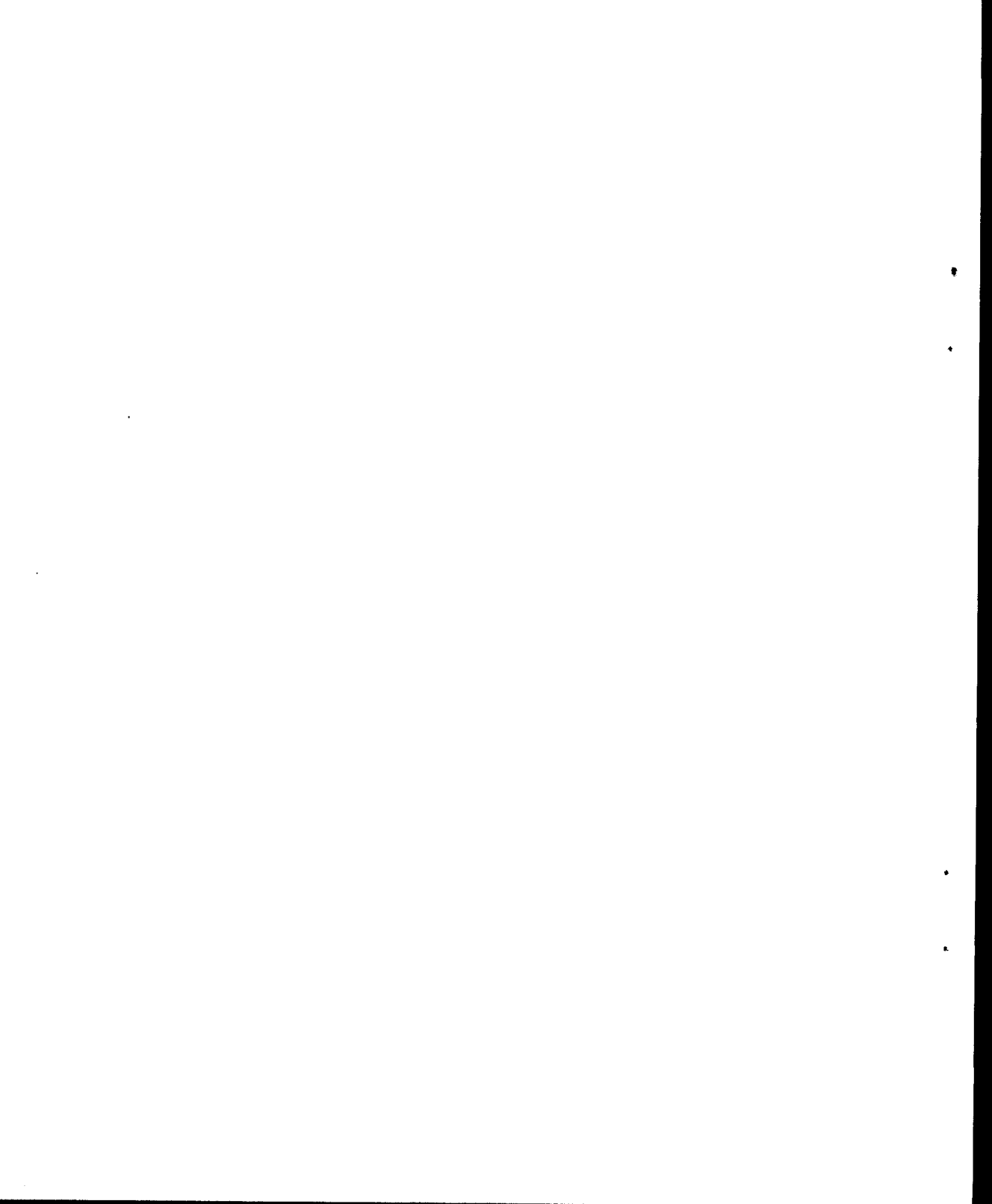
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SOCIOLINGUISTIC ANALYSIS OF 'SERBO-CROATIAN'

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0. Introduction

Nationalism is a phenomenon that has been responsible for a great deal of conflict and bloodshed throughout history, perhaps because national identity is by no means transparent nor easy to define. It is intimately tied to individual perceptions of unity and identity such as history, religion, culture, and language. The relationship between nationalism and these perceptions is also not one way. They both affect and define each other. In fact, sometimes national identity and factors such as language or religion, are treated as being almost synonymous. Such a situation currently exists in the former Yugoslavia.

Serbia and Croatia have had a long history of conflict on many levels. Daniel Solanovi quotes, 'The war in the former Yugoslavia is being fought on several fronts, some of which are more salient than others. Even our dictionaries have become battle fields, where mortar shells have been replaced by the coinage of nouns in the effort of separating us from them.' This 'dictionary front', of course refers to the use of the language, 'Serbo-Croatian'. The common objective analysis is that there is one language, 'Serbo-Croatian', of which there are three main dialects: Štokavian, Kajkavian, and Čakavian (the names are based on the word for 'what' in each dialect). Štokavian also has three dialects: Ekavian, Ijekavian, and Ikavian (the names are based on the phonological variation between e, ije, and i). Ijekavian is the dialect considered to be standard Croatian and Ekavian is the dialect considered to be standard Serbian.

The general attitude of Croats is that Croatian (Štokavian - Ijekavian) and Serbian (Štokavian - Ekavian) are completely autonomous languages and as such, Croats try to emphasize the differences. Serbs, however, are trying to down play those differences, taking the position that there is only one language with several variants.¹ Regardless, Croats appear to be the most vehement concerning the question of language, mainly because of the perception that Serbian had been imposed upon them. Currently, a movement to label all Serbian words and remove them from Croatian use is underway. Radicals may even completely alienate individuals (indeed, even cause bodily harm) for the use of any markedly Serbian terms or styles. More commonly, it is just emphatically discouraged. This is a particularly arbitrary movement, for many of these 'Serbian' words have commonly been used by Croatians and it seems that the labelling of words as 'Serbian' or not is more politically motivated than etymologically. In fact, the movement has required the coinage of new words (using 'Croatian' roots, affixation and compounding) for many meanings that had no word other than the 'Serbian'. The movement has also required the translation of foreign words such as common brand names and technological terms that were

¹ This statement concerning the general attitude of Serbs was made by my informants, neither of whom were Serbian. There is no reason to doubt the truth of the statement; however, since I had no Serbian informant to confirm or deny it, I recognize the possible bias.

borrowed from other languages (Personal Consultation). Ironically, it appears that Croats with language variants similar to Serbs are looked down upon as much as Serbs themselves.

There are, of course, differences in the dialects of Serbs and Croats - mainly in the phonology and lexicon. However, this is hardly clear cut. For one thing, the two variants are completely mutually intelligible, the variation being systematic, and, as with any language, there is a continuum of variation that does not adhere to the political boundaries in the area. As well, the dialects of Ijekavian (Croatian) and Ekavian (Serbian) are more similar to each other than Ijekavian is to Kajkavian or Čakavian despite the fact that the latter three are all considered dialects of Croatian.

Since, obviously, language and politics are so tightly entwined with each other in this area, it is necessary to look at the political history of the area in order to see how various influences have directed the development of the variants in Serbo-Croatian.

1. History of the Balkans

The Slavs came to the Balkans (or alternately known as Illyria) around the seventh century: the Slovenes to the north and the Serbs and Croats to the south. With them they brought 'Paleo-Croatian' a branch of 'Paleo-Slavonic' and there was very little linguistic variation (Franoli 1984).

Croatia at this time was influenced by the Frankish Empire in the North and the Byzantine Empire in the south. It was also at this time that the Croats were converted to Christianity under the Roman Catholics. Because of this, Croats adopted Old Church Slavonic from the Macedonians and modified it into 'Croatian Slavonic', written in Glagolitic. This was used by the church until 1965 when the Vatican decided that it was acceptable to use the vernacular during services. Croatian Slavonic is considered to be the first Croatian literary language (Franoli 1984).

Bulgaria and the Byzantine Empire were constantly fighting over Serbia during this period and, consequently, Serbia changed hands several times. It was around 800 A.D. that the Serbs were won over to the Eastern Orthodox Church.

Around 900 A.D. Croatia shook off its oppressors and emerged as a unit centered in Biograd on the Dalmatian Coast. Serbia, meanwhile, experienced various civil wars between rival factions through out the country - mainly between Montenegro and Hercegovina (in the West) and Račka (in the East). Eventually, around 1100 A.D., power shifted to Račka and Serbia was born. At about the same time, Hungary took over Croatia and its center moved to Zagreb. Croatia remained under Hungarian control for over eight hundred years (with occasional interruption), although it did maintain a great deal of autonomy and internal independence. At this time as well, the vernacular written in Glagolitic came to be used by the government and for local literature.

Between 1100 and 1300 A.D., the Serbian Empire (centered in Skoplje) grew through the development of mining and agriculture, and through the use of the Orthodox Church's influence to build internal stability and quash Latin influences. About the middle of the fourteenth century, the Serbian Empire began to fall to the Ottoman Empire and by the late 1500's, Serbia, Croatia,

Slovenia, and Hungary were under the control of the Turks. The Ottoman Empire, however, allowed a great deal of autonomy and tolerated all the religions and languages in the area.

Croatian, during the sixteenth century, was heavily influenced by Italian because of the renaissance and the Croats' desire for Croatian to be at least as significant. Consequently, the Latin alphabet became widespread throughout Croatia and literature blossomed in all of the dialects. Some writers even consciously mixed dialects in an effort to amalgamate them. Spelling varied greatly, although it was somewhat standardized by the press. Later in the 1600's, there showed a marked convergence towards a standard based on Štokavian - Ikavian.

The area remained, for the most part, under the control of the Ottoman Empire until its decline in the late 1600's, at which point, Hungary, Croatia, and Slovenia were recovered by Austria. Over the next 50 years, areas of Serbia passed back and forth between Austria and Turkey until it finally rested back in Turkish hands. While under Turkish control this time, the Serbs were severely repressed - the Serb Orthodox Church was even taken over by the Greek patriarchate. In 1804, Serbs rose against their oppressors (aided by Russia) and managed to gain territory and assert the independence of the Serbian Church. Unfortunately, because of Napoleon's influence in Europe, by 1815 they were again under Turkish rule; however, they had won autonomy. It was not until this point that vernacular Serbian was seen in literature - until then, Serbs wrote in Russianized Church Slavonic or 'Slaveno-Serbski'.

Meanwhile, because of Napoleon, there was a growing movement towards the union of southern Slavs called the 'Illyrian Movement' and in general, nationalism in all south Slavic states increased dramatically (although the Serbs were against Illyrianism). Independently, Serbs and Croats were trying to standardize the dialects under the Štokavian - Ijekavian dialect. However, even though there were efforts to come to agreement (The Vienna Literary Agreement), because there was very little real contact between Serbs and Croats and because of certain ideological differences, nothing was ever really accomplished. As well, the Serbs shifted to using Ekavian as their standard.

The Illyrians supported borrowing of words into the language in an effort to modernize it for use in education and science and technology. Their borrowing took three forms: 1) adoption of dialect words and the resurrection of obsolete words, 2) borrowing of words from other Slavic languages and loan translation from German, and 3) coinage of new words from native elements by affixation and compounding. Unfortunately, the Illyrian movement eventually fell to Croatian independence and Serbian and Croatian continued to develop independently.

Throughout the 1800's, conflict over control of the area continued between Austria, Hungary, Turkey, and Russia. In 1877, Russia won Serbian independence from Turkey, and in 1882, Serbia was declared a kingdom. Conflicts in the Balkans were complicated by both Serbian and Croatian designs on the rest of the Balkans to create 'Greater Croatia' and 'Greater Serbia'. With this development, it seemed that the idea of a Yugoslav state was lost. However, after the Serbs were successful in defeating Turkey, the Slavs under Austria-Hungary were re-inspired and under new leaders, the Serbs and Croats and other Slavs pulled together against Austria-Hungary.

After the assassination of Archduke Ferdinand and the beginning of World War I, a Slavic unity seemed to be the only hope for Slavs to keep from being overrun, and so in 1917, Yugoslavia was born. It was declared as a constitutional, democratic, and parliamentary monarchy,

with equality for the two alphabets (Latin and Cyrillic) and the three religions (Roman Catholic, Moslem, and Eastern Orthodox). During World War II, Yugoslavia was defeated, and partitioned and occupied between the Axis powers. The Communist Party lead by Tito was instrumental in forcing the Axis Powers out of Yugoslavia and after the war, finding no organized political opposition, Tito formed a new, communist, Yugoslav state completely independent of Russian influence - the Federal People's Republic of Yugoslavia. Freedom of religion was promoted (as well as the division of religion and state) under Tito's government, yet while the Orthodox and Moslem faiths adjusted to the new government, the Roman Catholic Church remained vehemently opposed to communism. Under Tito, Serbo-Croatian was declared the official language and it was required by all citizens. The media retained in the various local standards and languages; however, when Serbo-Croatian was taught in schools, Ekavian, the Serb standard was the one that was taught.

Tito remained leader of Yugoslavia until his death in 1980, at which point Yugoslavia began to disintegrate. Eventually, Serbia tried to take over power in the government and this led to Slovenia's and Croatia's declaration of independence and the war that is (currently) being waged.

2.0 Linguistic Factors

The actual differences between the dialects Ijekavian and Ekavian are mainly limited to orthographic, phonological, and lexical, although there are other minor grammatical and semantic differences (for example, Ekavian has a borrowed Turkish affix).

Orthographic

Serbian is mainly associated with the Cyrillic alphabet, although the Latin alphabet is also quite widespread. Croatian employs the Latin alphabet almost exclusively.

Phonological

There is basically only one phonological distinction² - the regular variance between /ε/ (Ekavian) and /je/. (Likewise the sound varies with /i/ in Ikavian.)

Lexical

Here there are a great many distinctions. Such is to be expected considering the different influences each variant has experienced over the course of time. For example, Turkish heavily influenced the speech of Serbs, and literary Serbian still has many of these borrowings:

<u>Serbian</u> (from Turk.)	<u>Croatian Equivalent</u>	<u>English Gloss</u>
bašta	vrt	'garden'
čorba	juha	'soup'
jorgan	poplun	'a quilt'

² According to my informants, there is also some degree of variation in voicing. However, I could find no reference to it in other sources, nor could they formalize the variation to a satisfactory degree.

However, again, there are no clear dialectal boundaries. Croats that are emphatically nationalistic have used some of these words all their lives. As well, the variant spoken in Bosnia has been described as 'Ijekavian using Ekavian words' (referring to the fact that they use the /ije/ phonological variant and Ekavian lexical variants).

Thus, we are left with the question, 'Are Serbian and Croatian the same language or not?' This, of course, is not easy to answer nor will the answer remain constant throughout various contexts.

From a linguistic standpoint, we must come to the conclusion that they are simply dialects of the same language. There are no more variations between Serbian and Croatian than there are between Canadian English and any other dialect of English, indeed, perhaps even fewer in some cases. Syntactic and morphological constructions remain the same and the languages are mutually intelligible. Even though there are words marked as either 'Serbian' or 'Croatian', everyone is at least aware of the words and know their meanings. Therefore, the vocabulary of each can be said to be part of the lexicon of a speaker even though it may not be utilised.

Dragutin Suboti Ph.D. and Nevill Forbes, M.A., Ph.D. had this to say in the preface of their book 'Serbian Grammar' (1926):

'The title of this book has been chosen for the sake of simplicity. The full name of the language is Serbo-Croatian. It must be emphasized that Croatian, except for slight differences of dialect and vocabulary, is absolutely the same language as Serbian, only written with the Latin alphabet with diacritic signs. Knowledge of both of the Cyrillic and Latin (Croatian) alphabets is indispensable to any student of Serbo-Croatian.'

Politically, however, the variants are quite different. It is human nature to try to define identity with other humans and quite often a basis of that identity is common language. It becomes not only a tool for communication, but a symbol of identity - of a group's autonomy. Such is the case here. Regardless of the linguistic facts presented, on the whole, the speakers of the language perceive the variants as being different languages. If we compare Serbian and Croatian using Bell's seven criteria (1976) for language, we must conclude that they are, indeed, separate languages.

1) Standardization: Both Serbian and Croatian are standardized. Despite the obvious alphabet differences, there are different standardized spellings for the same words. As well, media and literature use both variants.

2) Vitality: Obviously, both variants have a living community of speakers.

3) Historicity: Although Serbian and Croatian have shared very similar histories and, at times, language was a basis for unity, this is not true now. In fact, historical differences are being emphasized (primarily by Croats). For example the influence of Turkish on Serbian because of the years of control by the Ottoman Empire.

4) Autonomy: Croats certainly feel that they speak a different language. The opposite appears to be true however with Serbs.³ Despite this incongruity, it cannot be said that there is agreement.

5) Reduction: Obviously, the conflict has led to animosity between the nationalities, and therefore, they look down on each other in general. However, I do not feel that we can claim that either variant is seen as a sub-variety of the other. If anything, the feeling is that they have nothing to do with each other at all (personal consultation). There is no reduction in the uses of the language - both are used in all levels of society in their colloquial and standard forms. In other words, it appears that it is the nationality, of which the language is a marker, that is stigmatized within each community, not the language itself.

6) Mixture: In neither case do the speakers feel that their language is impure⁴ or is a marginal variety of some other language. As well, Croats at least, believe that their variant has a purity distinct from Serbian in that they perceive Serbian as being 'impure', having more outside influences from other languages than Croatian (personal consultation).

7) Presence of De Facto Norms: Both Croatian and Serbian have a continuum of 'good' and 'poor' speakers. Unsurprisingly, the poorest speakers of Croatian are those with a variant closest to Serbian. However, the perceptions of 'good' and 'bad' are not only restricted to Croatian vs. Serbian; it extends to regional variants and register variants within the dialects of Croatian and Serbian.

So, therefore, according to these criteria, we find that, at least from the perspective of those involved (particularly Croats), Serbian and Croatian can be considered different languages.

Obviously, the question of language in the former Yugoslavia is a complicated one and here, I have only scratched the surface. This has mainly been a discussion of the standard dialects of Serbian and Croatian. The situation becomes more complicated if we look at the other languages in the area such as Slovenian and Macedonian. As well, there are increased movements for autonomy among other groups - Bosnians, for example. Radicals suggest that the variant spoken in Bosnia be proclaimed a language distinct from Serbian and Croatian. Also, because of the limited sources available, it is possible that this discussion is biased in perspective. A more in-depth study into the linguistic attitudes of the various groups in the former Yugoslavia would certainly be called for and would reveal much.

³ This is a conclusion based on two sources: 1) the literature printed in Yugoslavia during its existence and the fact that in all cases, Serbo-Croatian is treated as a single language, and 2) the reports of my informants as to the attitudes of Serbs. I recognize that both of these sources may be biased. However, even if this conclusion was found to be untrue, it would strengthen the argument that according to Bell's criteria, Serbian and Croatian are quite different.

⁴ This does not refer to the fact that Croats have been instituting a 'purity movement' in their language. In fact, the feeling is that the impurities that are being removed are Serbian influences and that they are returning to a more pure form of their language.

One thing is clear, however: this is a pivotal point in the history of the people in this area as well as their language. The result of this conflict could well determine whether the variants present are driven apart enough so that in the future they do indeed become two distinct languages.

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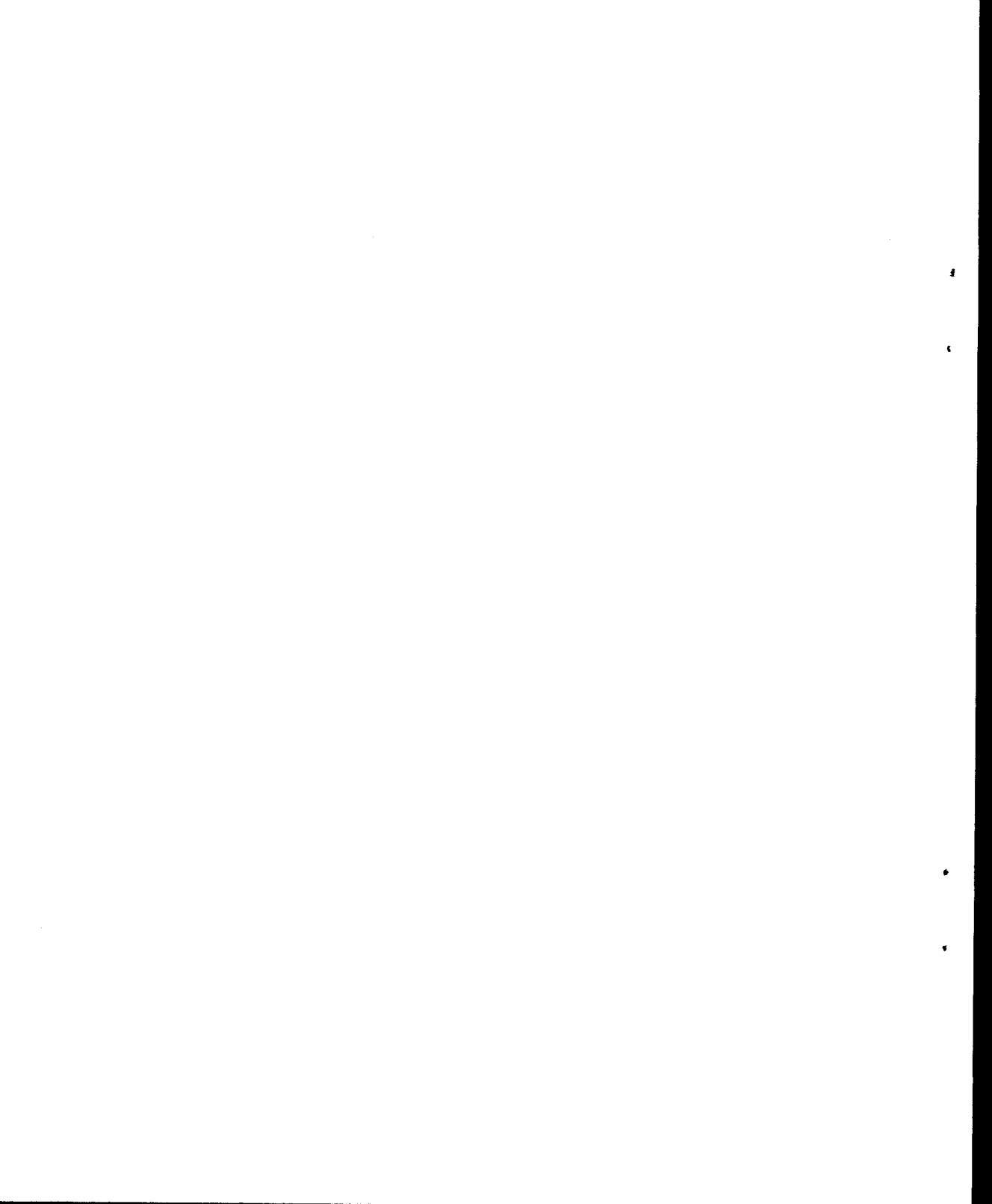
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Personal Consultation: A series of informal interviews with Daniel Solanović, a Croatian, and Jasminka Kazić, a Bosnian Moslem over November and the beginning of December, 1993.

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ODDS 'N ENDS

This section is meant to bring a lighter side to the academic journal. Any anecdotes that you would like to share with us would be warmly welcomed and can be sent to either of the e-mail addresses or the university address given below.

Student Howlers

'A student conducting an interlanguage analysis reports:

"Fransisco didn't have too much problem with morphology."

'A student asked me if he/she had to transcribe the silent letters.'

John Archibald

'Several students had come to my office completely confused about the "phonology stuff" covered in class that day. They didn't understand why a word could be transcribed in different ways depending upon the dialectal variants involved. Being from the U.S. I used several examples to demonstrate the difference between my speech and theirs. Suddenly one student exclaimed "Oh, that's why you talk funny, eh?"'

Julie Bailey

'There was the student who wanted to write a paper on how animal languages were really just like human languages because sheep say "baa" and children say "maa". Followed shortly by the student who thought that the reason the Germans and the Japanese were on the same side in WWII is because both nations speak SOV languages. According to this student, this clearly affects the way one thinks about things. I suggested the student consider reducing the scope of her paper and proposed a review of the Sapir-Whorf hypothesis. This was clearly not what she wanted to do, since she never came back to class.'

Betsy Ritter

'The following quotes submitted by Lorna Rowsell were taken word for word from student exams:

"It would be very difficult to understand a 14C English speaker because they would be speaking a combination of Hebrew and English."

Lorna Rowsell

Q: What typical process in child language acquisition is shown in the following example?

adult 'thick' - child [tʰɪ]

A: Consonant cluster broken down (C-command).

'The Minimal Distance Principle is where the child thinks the subject closest to the object is indeed the subject.'

taken from a student paper

'Wernicke's area is the part of the brain which enables us to speak our thoughts after they have gone through the brain cycle.'

taken from a LING 203 test

'It is correct in saying there are no organs of speech because there aren't. Speech is made with sounds and for making sounds we need organs but not for speech itself. On the other hand, organs are useful for the production of speech because if we had no organs we would not be able to speak. For example, if we had no vocal folds there would be no 'sound' in our voice, it would only be air moving in different ways and places. If we had no lungs we could not move our air and therefore would have no speech.'

from a student paper

'The mouth, tongue, and lips are the organs of speech. Sapir is saying that language was created by the organs of speech sounds. Like for the caveman he learned to pronounce the word au by hitting his thumb with an axe. Because he had the mouth, lips, and tongue. Our organs of speech cannot inevitably not pronounce words. These parts are made to pronounce words (enunciate). The tongue, lips, mouth are not just organs like the liver. These (parts) are used for speech. Liver is not an organ of speech.'

from a student paper

'Dogs, cats, and birds have a form of verbal communication which is in common with human language. These animals, as are humans, are also interchangeable.'

from a student paper

Q: What is the relationship between pidgins and creoles?

A: They have the same song.

from a student exam

'Adults [2nd language learners] are almost like Washoe the shimp in that they must be exposed to the 2nd language and trained to speak the 2nd language on a constant basis.'

from a student paper

'Animal communication is arbitrary (eg. "chirp-chirp" means "get the worms" and "chirp-cheep" means "build a nest".)'

from a student paper

Exams:

- | | | |
|--------------|---|--|
| Paralanguage | - | French and Patois [a pair of languages?] |
| Silbo | - | the parts that go into making up a language |
| | - | terrible spelling of "syllable" |
| | - | a piece of ribbon that goes at the edge of your window |
| Diachronic | | |
| Linguistics | - | languages which do not keep a steady time in their language--speak about past, future and present. |

What a linguist hears (linguistic humour)

The usual:

"How many languages do you speak?"

(I usually respond with, "Well I speak 47 now and I'm learning 12 others." No one has yet called me on this.)

"What kind of job can you get with Linguistics?"

"Linguistics? What's that?"

'Upon telling my mother that my doctoral thesis was in phonology, she thought I said "phrenology" and looked somewhat perplexed until the confusion was cleared up.'

John Archibald:

'A roommate of mine once asked me how to say 'hello' in Swahili. When I asked him why he thought I should know that, he responded, "Well, you're a linguist aren't you!?"'

'While in Germany I met a woman who, upon learning that I was a student of linguistics, stated, "Oh you must speak Latin then." When I replied that that was indeed not the case, she retorted quite disgustedly, "What!? You're a linguist and you don't speak Latin!?"'

Julie Bailey

'One person was so impressed when he/she heard I was a phonologist, he/she declared, "I'll bet you're real musical to know all those languages!"'

Lorna Rowsell

From a famous anthropology book: Do you Speak Chimpanzee? publ. Messrs Routledge (1958):

'The Latin word "Aurora" (dawn) can without difficulty be derived from an earlier "ur-ur", supplemented in two places by A. Now, phonetically "ur-ur" is the remains of a lemur word, and is a sound characteristic of the whole genus. When we seek information about the lives of these lemurs, we learn to our surprise that they indulge in a kind of morning worship. They sit with raised hands, their bodies in the same position as that of the famous Greek praying boy, warming themselves in the sun...It is therefore not unwarrantable to assume that Aurora, the Roman goddess of dawn, has her ultimate origin in the morning exercise of a lemur.'

'Still there is a possibility that certain lip-clicks were derived from the noises made by worms.'

Great Embeddings:

'Do [your congressmen] represent what you understand to be firm, sound middle-of-the road government that refuses to make government a centralized Government capable of governing your lives in every single item, refuses to accede to the doctrine of collectivity or centralization, or is it the kind of philosophy that says, "We want to live in liberty, in freedom"?"

from D Macdonald, Parodies

'The lexicon contains the words (and phrases, sentences, paragraphs, fairy tales, poems, etc.) the language user knows but not those which he "knows".'

Vennemann, T., 'Words and syllables in Natural Generative Grammar.'
Paps. Parasess. Nat. Phonol. Chicago, 1974.

'Many policemen were needed in case they had to protect people in the building who might have been upset at the large number of police officers present and taken some type of action, he added.'

G. Gude (*Canada Globe and Mail*)

Laws of Syntax:

1. Progress in Syntax does not consist of replacing a wrong theory with one that is right. It consists of proposing a theory with subtler flaws.
2. The three axioms of argumentation:
 - a) A beginning student in syntax can choose between competing hypotheses if supplied with enough facts.
 - b) A really good syntactician can make a choice without enough facts.
 - c) The best linguists can operate in perfect ignorance of all syntactic facts.
3. Any complex syntactic problem will have a simple, easy-to-understand wrong answer.
4. a) If the facts do not correspond to the theory, they must be dispensed with.
b) Linguistic science is true. Don't be misled by facts.
5. If a syntactician discovers a publishable fact, it will become central to his or her theoretical framework.
6. a) Never draw attention to a problem in syntax unless you already have an analysis.
b) Point out syntactic problems for which only you have a ready analysis.
7. When you get tired of thinking through the consequences of your hypothesis, write a conclusion.
8. No conclusion is ever reached for the right reasons.

'x and x in Azerbaijani are unlike any English sounds. You sometimes make the first when clearing your throat, the second when imitating a dog's growl.'

Householder, Basic Course in Azerbaijani, p. 9

'Asked by the magistrate why he spoke with an American accent when he was born and raised in South Africa and had never visited the United States, Mr. Matthe replied that he stayed with a white family who were Scottish.'

D. Durden (Salisbury Herald)

'...it does not follow from the definitions just given that if α is the trace of β , then α is a trace, in particular, an NP-trace; i.e., 'trace-of,' as defined, is a relational notion, but 'is a trace' is a monadic predicate, so there is no problem in the conclusion that an element may be trace of β and yet not be a trace but rather be interpreted as PRO.'

Lectures on Binding and Government, p. 329,
Noam Chomsky.

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