Student Resource

Writing for Linguistics: Historical Reconstruction

Mastery of linguistics does not only involve the ability to analyze data from any of the world's languages; it also requires learning to write like a linguist: to succinctly describe the data, present an analysis of the patterns in the data, argue for why the analysis is correct, and – at its best – provide an explanation of why the pattern exists and/or how it came about. Linguistic patterns are complicated, so it is important to **always strive for simplicity, accuracy, and clarity in your writing**.

Think of your prose write-up as presenting the problem and taking the reader through your analysis in a step-by-step fashion. You want your reader to understand the data and to be able to follow your thought processes as you present your analysis. This requires you to demonstrate why your analysis is correct, i.e., to argue for your analysis. When writing about historical reconstruction, this primarily means explaining why you chose to reconstruct one proto-sound as opposed to another.

When you write up your analysis be sure your final analysis includes all your cognate sets (don't forget any) and a list of all correspondence sets with their environments. These can be organized by sound types (e.g., all the sets with laterals can be treated together). Be sure to **overtly state the sounds you have reconstructed and the reason you chose that sound as opposed to another**. Provide all the cognate sets that are relevant to a single proto-sound and make sure that your overall analysis correctly applies to every set. **It is critical that your analysis be internally consistent**. For example, don't reconstruct *s for a correspondence set and then reconstruct *ʃ for an identical correspondence set farther down the list.

Make sure to use a * for reconstructed sounds and words. When referring to words in the daughter languages, put them in slashes (/ /) if they are in IPA or italicize them if they are not.

When you write your analysis, focus on the sounds you reconstruct and the words you can assemble them into. Organize your correspondence sets in a logical way with each sound that they reflect. Be sure to include in your write-up:

- An introduction to the problem, stating the goals
- The correspondence sets for each sound, with environments
- Your reconstructed sounds
- A statement about why you chose each sound that you reconstructed
- A statement of the changes that occurred in each of the daughter languages, with both formal phonological rules as well as written-out explanations
- A statement of the type of sound change illustrated (e.g., lenition, assimilation, epenthesis)
- An illustration of the derivation of at least one word, if applicable (it often helps to include this). You start with the proto-word, show the changes applying in the correct order, and the reflexes (the words in each of the daughter languages).
- A list of all reconstructed words
- A list of the changes that each language underwent, with their ordering when applicable
- If you are able to say anything regarding possible subgroupings of languages due to shared innovation, you should mention that at the end

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Here is a Central Tungusic problem with more data than in the "Guide to Historical Reconstruction" document. The analysis is first presented in a step-by-step fashion, then a prose write-up follows.

Proto-Central Tungusic

Examine the consonants in these Central Tungusic languages. Reconstruct the proto-phonemes, and write sound changes for each language. Categorize the types of changes you see (assimilation, etc.).

Nanai	Ulcha	Uilta	Oroch	Gloss
itʃə	itʃə	itə	itʃe	'to see'
tugdə	tugdə	tugdə	tigda	'rain'
dʒili	dili	dili	dili	'head'
dʒo	dʒo	du-	dʒuː	'house'
pokto	pokto	pokto	xokto	'road'
atʃu	atʃu	atu	atʃu	'to take off'
dʒur	dʒul	du-	dʒur	'two'
doːldʒi	doːldi	doːldi	dogdi	'to hear'

Steps 1 and 2 have already been done. Notice that the focus of the problem is on consonants only, so the vowels are not included in the analysis.

Step 3: **List the correspondence sets with their environments**. In this data, some correspondence sets appear in more than one cognate set, with slightly different environments. Both environments are listed for that set.

Nanai		Ulcha		Uilta		Oroch	Environment
tʃ	:	tʃ	:	t	:	tʃ	i _ ə, a _ u
t	:	t	:	t	:	t	# _
g	:	g	:	g	:	g	u _ d
d	:	d	:	d	:	d	g _ a, # _ o
dʒ	:	d	:	d	:	d	# _ i
l	:	l	:	l	:	l	i _ i
dʒ	:	dʒ	:	d	:	dʒ	# _ o/u, # _ u
p	:	p	:	p	:	x	# _ o
r	:	l	:	Ø	:	r	_ #

Notable patterns: There are two parallel sets: tʃ / tʃ / t / tʃ and dʒ / dʒ / d / dʒ, with alveolar stops in Uilta compared to palato-alveolar affricates in the other languages. Given this parallelism, we should reconstruct the same type of sound for these sets.

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Step 4: Reconstruct proto-sounds for each cognate set.

Start with the identity sets, because the simplest analysis is that these descended from the same proto-sound without any changes in any of the daughter languages.

Nanai		Ulcha		Uilta		Oroch	Environment	Proto-Sound
t	:	t	:	t	:	t	# _	*t
g	:	g	:	g	:	g	u _ d	*g
d	:	d	:	d	:	d	g _ a, # _ o	*d
l	:	l	:	l	:	l	i _ I	*l

Now consider sets with related sounds. Since the most complicated cases are the alveolar stops and the palato-alveolar affricates, let's look at those next. To make it easier, we put the parallel sets together.

Nanai		Ulcha		Uilta		Oroch	Environment	Proto-Sound
tʃ	:	tʃ	:	t	:	tʃ	i_ə, a _ u	*tʃ
dʒ	:	dʒ	:	d	:	dʒ	#_ o/u, # _ u	*dʒ
dʒ	:	d	:	d	:	d	# _ i	*d

We already know that we have reconstructed *t **and** *d **for the identity sets above**. Because we want our analysis to be both comprehensive and internally consistent, we need to keep this in mind. If we were to posit *t and *d as the proto-sounds for the first two of these sets, we'd have to explain why a sound change that produced affricates in some words did not apply to others. Especially compare the sets for 'house' and 'to hear.' In both cases, /d/ occurs word-initially before /o/, so we don't want to say that these are reflexes of the same sound. Instead, we reconstruct *tʃ and *dʒ for these sounds. This requires a deaffrication rule in Uilta, which is a type of fortition.

Uilta   *tʃ, *dʒ > t, d respectively   Fortition

Since this occurs in all examples of the data (and both word-initially and between vowels), no environment is provided; it is assumed to have applied everywhere.

Now that we have reconstructed both alveolar stops and palate-alveolar affricates for the proto-language, we look at the third correspondence set above. Since /d/ occurs in three of the daughter languages, we can use "majority rules" to reconstruct *d. It is important to look at the environment in this case, as we already have a *d that produces a /d/ in contemporary Nanai. Why should something different be happening here? The environment reveals a high front vowel, which then triggered one of the most common processes cross-linguistically: palatalization. So this makes good sense.

Nanai   *d > dʒ / _ i   Palatalization

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Now we return to the remaining correspondence sets that we haven't yet addressed:

Nanai		Ulcha		Uilta		Oroch	Environment	Proto-Sound
p	:	p	:	p	:	x	# _ o	*p
r	:	l	:	Ø	:	r	_ #	*r

For the first set, we use "majority rules" to reconstruct *p. The change to a velar fricative in Oroch would seem odd if it weren't for the fact that the following sound is the vowel /o/, which involves raising of the back of the tongue toward the velum together with lip rounding. So the change to the fricative can be seen as a combination of lenition (stop to fricative) and assimilation of the consonant to the back production of the vowel.

Oroch   *p > x / __ o   Lenition, assimilation

With regards to the final set, we note that we reconstructed *l for an earlier set. Thus it makes sense to posit *r, with a merger of *r and *l in Ulcha and loss or /r/ in Uilta. It could be that further data would indicate that specific environments are relevant, but given the limited data set, we have no evidence for this either way, so keep the analysis simple and assume it occurs everywhere.

Ulcha   * r > l   Merger
Uilta   * r > Ø   Deletion

Step V. Determine the shapes of words in the proto-language.
Note: We haven't analyzed the vowels. See if you agree with the sounds reconstructed below.

Nanai	**Ulcha**	**Uilta**	**Oroch**	**Gloss**	**Reconstructed words**
itʃə	itʃə	itə	itʃe	'to see'	*itʃə
tugdə	tugdə	tugdə	tigda	'rain'	*tugdə
dʒili	dili	dili	dili	'head'	*dili
dʒo	dʒo	du-	dʒu:	'house'	*dʒo
pokto	pokto	pokto	xokto	'road'	*pokto
atʃu	atʃu	atu	atʃu	'to take off'	*atʃu
dʒur	dʒul	du-	dʒur	'two'	*dʒur
do:ldʒi	do:ldi	do:ldi	dogdi	'to hear'	*do:ldi

Step VI. List the sound changes that took place in each of the daughter languages.

Nanai:	*d > dʒ / _ i	'head', 'to hear'
Ulcha	* r > l	'two'
Uilta	* r > Ø	'two'
	*tʃ, *dʒ > t, d respectively	'to see', 'to take off', 'house', 'two'
Oroch	*p > x / __ o	'road'

Step VII. Check your work, using derivations.
Do this for every word in the problem; here are the first two.

Proto-word	*itʃə	Proto-word	*dili
Fortition in Uilta	itə	Palatalization in Nanai	dʒili
Attested form	itə	Attested form	dʒili

Prose Write-Up of Central Tungusic Problem

- *Introduction, stating the goals*

This problem asks us to reconstruct the consonants of Proto-Tungusic based on eight cognate sets taken from four modern Tungusic languages.

The data have the following identity sets, which allow us to easily reconstruct a variety of consonants:

Nanai		Ulcha		Uilta		Oroch	Env.	Proto-Sound
t	:	t	:	t	:	t	# _	*t
g	:	g	:	g	:	g	u _ d	*g
d	:	d	:	d	:	d	g _ a, # _ o	*d
l	:	l	:	l	:	l	i _ I	*l

- *Correspondence sets, reconstructions, and reasons for positing the proto-sounds, formal rules, statement of sound changes.*

In these cases, reconstructing the same proto-sound, as is attested in all daughter languages, leads to the simplest overall analysis.

Two of the remaining correspondence sets are relatively straight-forward:

Nanai		Ulcha		Uilta		Oroch	Env.	Proto-Sound
p	:	p	:	p	:	x	# _ o	*p
r	:	l	:	Ø	:	r	_ #	*r

In the first case, we reconstruct *p based on "majority rules" and the fact that the environment where the /x/ occurs in Oroch is __ o. As /o/ is a back rounded vowel, sound change can be seen as lenition and assimilation.

Oroch   *p > x / ___ o   Lenition, assimilation

Regarding the case of the liquids, since we have already reconstructed *l, it makes sense to reconstruct a different sound for this set; in addition, /r/ occurs more than any other sound in the set. We therefore reconstruct *r, and posit merger in Ulcha and loss in Uilta.

Ulcha	*r > l	Merger
Uilta	*r > Ø	Loss (deletion)

Finally, we turn to the more complicated interaction of the alveolars and palato-alverolars attested in the following correspondence sets:

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Nanai		Ulcha		Uilta		Oroch	Env.	Proto-Sound
tʃ	:	tʃ	:	t	:	tʃ	i_ə, a_u	*tʃ
dʒ	:	dʒ	:	d	:	dʒ	#_o/u, #_u	*dʒ
dʒ	:	d	:	d	:	d	#_i	*d

The first two correspondence sets follow the same pattern, so we begin with those. We recall that we have already reconstructed both *t and *d, so if we were to posit either of these for the proto-sounds of these correspondence sets, we would have to explain why their behavior is different here, something that will be difficult, given that both /d/ and /dʒ/ occur in the same environment (word-initially before /o/) in the cognate sets 'house' and 'to hear.' For these reasons, we reconstruct the palato-alveolar affricates for these sets instead, and posit a fortition process in Uilta.

Uilta *tʃ, *dʒ > t, d respectively   Fortition

We turn to the final set. Reconstructing *d makes sense here, both because "majority rules" allows us to posit the simplest overall analysis by attributing the sound change to only one language, and because the change occurs before the vowel /i/, a common trigger of palatalization. Thus the sound change is phonologically natural.

Nanai   *d > dʒ / _ i   Palatalization

- *Derivations*   We can confirm our analysis by providing the three following derivations for words in the alveolar and palato-alveolar correspondence sets.

Proto-word	*itʃə		Proto-word	*dili
Fortition in Uilta	itə		Palatalization in Nanai	dʒili
Attested form	itə		Attested form	dʒili

Proto-word	*tugdə	(for *t and *d sets)
No rules apply	--------	
Attested form	tugdə	

- *Reconstructed proto-forms*   A list of all reconstructed words is provided below.

Gloss	Reconstructions
'to see'	*itʃə
'rain'	*tugdə
'head'	*dili
'house'	*dʒo
'road'	*pokto
'to take off'	*atʃu
'two'	*dʒur
'to hear'	*doːldi

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- *List of changes that each language underwent*

  To summarize, we have identified the following sound changes that occurred in each of the four languages:

Nanai:	*d > dʒ / _ i	'head', 'to hear'
Ulcha	* r > l	'two'
Uilta	* r > Ø	'two'
	*tʃ, *dʒ > t, d respectively	'to see', 'to take off', 'house', 'two'
Oroch	*p > x / __ o	'road'

- *Statement of subgrouping*

  Based on this limited data set, there is insufficient evidence to posit internal subgrouping, as we do not see the same sound change occurring in more than one language.