



Student Resource

Procedures for Morphological Analysis

This document provides you with a set of steps to follow when analyzing morphology, especially in languages with which you are unfamiliar. As with any linguistic analysis, it is important to be systematic when approaching a data set and not to rush to a decision before all of the data have been considered. Following these steps will keep you from this common student error.

STEP 1. Inspect the data.

It is important that you familiarize yourself with all the data before proceeding with your analysis. *If you look at only one or two forms and then begin, you might be making a mistake that can be avoided if you are familiar with the whole data set.* Look at each form and its gloss. Notice similarities and formulate hypotheses about where morpheme boundaries might be. Then pick up your pencil and get to work.

STEP 2. Organize the data.

In many cases, this is done for you. The idea is to put together examples that differ in only one meaning.

For example, in Quechua, we have two verb forms:

<i>aywan</i>	's/he goes'
<i>aywaa</i>	'I go'

These forms differ in only one meaning: person of the subject (s/he versus I). If these two are adjacent on the page like this, it is easier to compare them than if they are separated by lots of other data.

If the forms differ by exactly two dimensions, it can be useful to make a table. For example, if we include in our analysis of Quechua the same two forms of a different verb:

	'go'	'eat'
's/he'	<i>aywan</i>	<i>mikun</i>
'I'	<i>aywaa</i>	<i>mikuu</i>

This representation allows us to compare across both rows and columns.

There is actually no single way to organize your data for morphological analysis, as there are many morphological systems and dimensions, and every data set is different. But *putting similar forms together is always helpful.*

STEP 3. Determine the placement of morpheme boundaries.

It's a good idea to do this using a pencil and to have a good eraser on hand! This is the key part of morphological analysis. It involves formulating a hypothesis about the location of a morpheme boundary, and then seeing if your hypothesis holds up as you inspect more data. Sometimes additional data disproves your hypothesis, in which case you just erase what you've got, formulate a better hypothesis, and place the boundary somewhere else.

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STEP 4. Keep a list of what you have figured out so far.

Always make a list of the morphemes you have settled on, and keep this off to the side so that it is easily available as you analyze new data. Remember to update your list as you change your analysis and as you keep learning more.

STEP 5. Work with allomorphy.

Keep track of which morphemes have allomorphs (more than one phonetic form). Once you have completed your division into morphemes, look at your allomorphs. Remember your phonology! Do you have similar patterns of allomorphy across examples? Can you characterize differences between allomorphs in terms of natural classes? Under what *phonological* conditions does one allomorph appear as opposed to another? (The conditioning isn't always phonological, but it usually is). Choose one allomorph as basic and make a clear statement about what environment the derived allomorph appears in.

STEP 6. Write up the problem in prose.

Be sure to include the following:

- The name of the language.
- What types of words you are analyzing (e.g., verbs).
- Typically (although this may depend on the instructions for a given problem), a list of the words with their morpheme boundaries indicated, or a complete list of the individual morphemes and their meanings.
- A statement of which morphemes have allomorphs and the environments in which the allomorphs occur.
- A statement of which allomorph you think is basic and why.
- A statement of the conditions under which the non-basic allomorph occurs.
- If the problem requires it, a rule that accounts for any allomorphy.

As an example, work through the Latin problem below.

Latin Nominative and Genitive Nouns

Terminological Note: In Latin, nouns are marked for **case** (see Chapter 4, Section 4.7). **Nominative** case (glossed NOM) roughly indicates that the noun is functioning as the subject of the clause, while **genitive** (GEN) case indicates that the noun is a possessor (among other things).

Instructions: Divide the following Latin nominative and genitive nouns into morphemes and analyze the allomorphic variation that occurs in the data. Write a rule for the allomorphy.

STEP 1: Inspect the data.

<i>rēks</i>	'king' (NOM)	<i>greks</i>	'flock' (NOM)
<i>stirpis</i>	'root' (GEN)	<i>traps</i>	'beam' (NOM)
<i>gregis</i>	'flock' (GEN)	<i>dukis</i>	'leader' (GEN)
<i>paks</i>	'peace' (NOM)	<i>pakis</i>	'peace' (GEN)
<i>rēgis</i>	'king' (GEN)	<i>trabis</i>	'beam' (GEN)
<i>duks</i>	'leader' (NOM)	<i>stirps</i>	'root' (NOM)

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STEP 2: Organize the data.

Sort by nominative and genitive forms, and put different forms of the same word together:

<u>Nominative</u>	<u>Genitive</u>	
<i>rēks</i>	<i>rēgis</i>	'king'
<i>greks</i>	<i>gregis</i>	'flock'
<i>duks</i>	<i>dukis</i>	'leader'
<i>paks</i>	<i>pakis</i>	'peace'
<i>traps</i>	<i>trabis</i>	'beam'
<i>stirps</i>	<i>stirpis</i>	'root'

STEP 3: Determine placement of morpheme boundaries.

We can see here a regular pattern of inflection, with the nominative consistently surfacing as *-s* and the genitive as *-is*. Thus we can divide the morphemes as follows:

<u>Nominative</u>	<u>Genitive</u>	
<i>rēk-s</i>	<i>rēg-is</i>	'king'
<i>grek-s</i>	<i>greg-is</i>	'flock'
<i>duk-s</i>	<i>duk-is</i>	'leader'
<i>pak-s</i>	<i>pak-is</i>	'peace'
<i>trap-s</i>	<i>trab-is</i>	'beam'
<i>stirp-s</i>	<i>stirp-is</i>	'root'

STEP 4: Keep track of what you've discovered so far.

<i>rēg-</i> , <i>rēk-</i>	'king'
<i>greg-</i> , <i>grek-</i>	'flock'
<i>duk-</i>	'leader'
<i>pak-</i>	'peace'
<i>trab-</i> , <i>trap-</i>	'beam'
<i>stirp-</i>	'root'
<i>-s</i>	NOM
<i>-is</i>	GEN

STEP 5: Work with allomorphy.

There is no allomorphy in the suffixes; the nominative surfaces as *-s* in each form and the genitive consistently appears as *-is*. However, we do find allomorphy in the stems in the following forms:

<i>rēk-s</i>	<i>rēg-is</i>	'king'
<i>grek-s</i>	<i>greg-is</i>	'flock'
<i>trap-s</i>	<i>trab-is</i>	'beam'

In each case we see an alternation between a stem ending with a voiceless form in the nominative and a stem ending with a voiced form in the genitive.

Regarding which is basic, there are two possibilities. We could hypothesize that the forms with the voiceless final consonant are basic. This would require that we write a rule voicing the consonant before a vowel. Thus we could say that *grek-* becomes *greg-* before *-is*. While this analysis would nicely account for these forms, it would be problematic with regard to the *other* forms. Such a rule should apply equally to *duk-*, creating **dug-is*; however, this form is incorrect. Thus this rule would thus over-apply.

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Let us consider the other hypothesis, which is that the forms with the voiced finals are basic, in other words, *greg-* would be a basic form. Then we would need a rule devoicing the final stop before the *-s* suffix. This is a natural rule, as the stop would be assimilating to the voicelessness of the adjacent fricative. Also, as this rule would only target the forms with the voiced consonant in the genitive, it would never incorrectly apply to *dukis*, *pakis*, or *stirpis*. This rule is thus to be preferred.

The devoicing of the final consonant of the stem can be captured by the following rule:

Nominative
Voiced stops → Voiceless / ____ [s]

STEP 6. Write it up in prose.

- *Statement of what you are asked to do and name of language* This problem asks us to analyze nominative and genitive nouns in Latin. We have six words with nominative and genitive forms as follows:

<u>Nominative</u>	<u>Genitive</u>	
<i>rēks</i>	<i>rēgis</i>	'king'
<i>greks</i>	<i>gregis</i>	'flock'
<i>duks</i>	<i>dukis</i>	'leader'
<i>paks</i>	<i>pakis</i>	'peace'
<i>traps</i>	<i>trabis</i>	'beam'
<i>stirps</i>	<i>stirpis</i>	'root'

We observe that the suffixes are consistently *-s* NOM and *-is* GEN, which allows us to divide the morphemes as follows:

- *Analysis of the data, with morpheme boundaries indicated*

<u>Nominative</u>	<u>Genitive</u>	
<i>rēk-s</i>	<i>rēg-is</i>	'king'
<i>grek-s</i>	<i>greg-is</i>	'flock'
<i>duk-s</i>	<i>duk-is</i>	'leader'
<i>pak-s</i>	<i>pak-is</i>	'peace'
<i>trap-s</i>	<i>trab-is</i>	'beam'
<i>stirp-s</i>	<i>stirp-is</i>	'root'

There is allomorphy in some of the stems, specifically:

- *Statement of where allomorphy is found, with examples*

<i>rēk-s</i>	<i>rēg-is</i>	'king'
<i>grek-s</i>	<i>greg-is</i>	'flock'
<i>trap-s</i>	<i>trab-is</i>	'beam'

- *Analysis of allomorphy, with clear argumentation for which form is basic, the environment that conditions the change, and the name of the phonological process* In each case we find a voiceless stop in the nominative form and a voiced stop in the genitive form. If we were to take the voiceless form as basic and provide a rule that voiced it between vowels, that rule would over apply. One would expect *duk* 'leader' to have the genitive form **dug-is*, but the attested form is *duk-is*. Therefore, we will take the forms with the voiced final stops as basic, with a simple assimilation rule that devoices the stop before the voiceless fricative in the nominative suffix *-s*.

- *Rule* Nominative

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Voiced stops → Voiceless / ____ [s]

Conventions for representing morphemes and morphologically analyzed words

- When listing morphemes, use hyphens to indicate the morpheme type:
 - Roots Only put hyphen if it is a **bound root**, i.e., requires an affix
 - Prefixes hyphen follows *un-*
 - Suffixes hyphen precedes *-s*
 - Infixes hyphens on both sides *-ug-*
 - Circumfixes represent as prefix...suffix *an-...-ak*
- When embedding morphologically analyzed words into an English sentence, put them in italics and include hyphens; if it is unclear from context, the gloss can follow the word in square brackets, as in the following example:
 - The root-final stop in the Latin word *reg-is* [king-GEN] does not undergo devoicing, as it is not directly followed by *-s*.
- If you are providing a classic three-line example with transcription, morpheme glosses, and free translation:
 - Align the beginning of each word in the transcription and gloss lines (when typing, you can use tabs between words to help with this, or use tables with the borders set to be transparent). The free translation in the third line is aligned only with the beginning of the example.
 - Put hyphens between morphemes.
 - Make sure that each hyphen in the transcription line has a corresponding hyphen in the gloss line and make sure that every morpheme has a gloss.
 - For grammatical glosses, use the list of abbreviations on pages xviii-xxi; put grammatical glosses in small caps.
 - Put the free translation in single quotation marks.
 - The following example is from Dolakha Newar:

<i>ʃi</i>	<i>pa-sal-ku</i>	<i>ũ-i</i>
1s	shop-LOC	go-1FUT
'I will go to the shop.'		