

## Introduction to CL SS 16 - Homework Assignment 2

- ☐ Must not be handed in individually but **by workgroup** (join a workgroup with two other members of your tutorial group). Each submission must contain the names of all workgroup participants.
- ☐ Identical solutions from different workgroups will not receive credit (so don't copy the solutions from other workgroups and don't allow others to copy your solution).
- ☐ Pls. hand in in the form of a PDF document sent to your tutor by email.

### 1. Morphological parsing

Give a morphological analysis of the following words,

- say of each simplex morpheme whether it is a stem, a base, a root, a prefix, or a derivational or an inflectional suffix,
- give the order of composition, indicating at each level which morpheme is the base
- mark each base for its POS

English: printer; underdetermination; incremental;

German: Versprecher; Ansprechpartner; übergezogener;

Example: unabsehbar

verbal root (=base): seh- combines with derivational prefix ab- to yield complex verbal base abseh-

verbal base abseh- combines with derivational suffix -bar to yield adjective (or adjectival base) absehbar

adjectival base absehbar combines with prefix un- to yield adjective unabsehbar.

### 2. Plurals

Is the English plural formation really completely regular? List the allomorphs of the regular English plural morpheme and give three plural forms that are not formed regularly.

### 3. Words.

Give short definitions (at most 2 lines of text each) for the following terms:

Word form

Grammatical word

Lexeme

### 4. Productivity

Describe briefly the relation between productivity, rule, and blocking in morphology (at most 5 lines of text).

### 5. Forms of derivation

Give 2 German and 2 English examples each for the following types of derivation:

Compounding

Conversion

Clipping

Do not use examples from the lecture slides.

**6. X-language verbal morphology.** X-language is a variant of a language spoken somewhere in Africa. As the following example shows, X-language's verbs are so complex that they can sometimes convey the meaning of an entire sentence on their own.

atalopenda	"he will like me"
atakupenda	"he will like you"
atampenda	"he will like him"
atanipenda	"he will like us"
atawapenda	"he will like them"
lotakupenda	"I will like you"
lotampenda	"I will like him"
lotawapenda	"I will like them"
utalopenda	"you will like me"
utampenda	"you will like him"
nitampenda	"we will like him"
watampenda	"they will like him"
atakusumbau	"he will annoy you"
unamsumbau	"you are annoying him"

atalopiga	"he will beat me"
atakupiga	"he will beat you"
atampiga	"he will beat him"
analopiga	"he is beating me"
anakupiga	"he is beating you"
anampiga	"he is beating him"
amekupiga	"he has beaten you"
amelopiga	"he has beaten me"
amempiga	"he has beaten him"
alilopiga	"he beat me"
alikipiga	"he beat you"
alimpiga	"he beat him"
wamenilipa	"they have paid us"
nilikulipa	"we paid you"

a. Give the X-language morphemes corresponding to the following English morphemes: *I, me, us, you* (as subject), *you* (as object), *he, him, they, them*, *-ed* (past tense), *will* (future), *is+ -ing* (present progressive), *has+ -en* (present perfect), and the verbal roots *like, annoy, beat*, and *pay*.

b. Illustrate how the morphemes combine by giving all inflected forms of the X-language equivalent of the verb *annoy* for past and future in the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> person singular and plural subject and 2<sup>nd</sup> person object, with their translation into English.

**7. Two-level morphology for regular English past tense.** Suppose the grammatical form for the past tense of the English verb gaze is <gaze,+V,+Past> and for the verb walk <walk,+V,+Past>, etc. while the surface forms are *gazed* and *walked*.

a. What would be the **underlying form** (showing morpheme and word boundaries) for these two past tense forms?

b. What could an **FST for the lexical mapping** look like, i.e., an FST that transforms the grammatical form into the underlying form for **all regular English verbs**? Give the FST in the form of a graph, as in the lecture slides for the plural English FST.

c. What could an **FST for the surface mapping** look like, i.e., an FST that transforms the underlying form into the surface form for all regular English verbs? Give the FST in the form of a graph, as in the lecture slides for the plural English FST.

Hint: The regular English past tense is formed by adding *-ed* to the base, unless the base ends in *e*; in the latter case only *-d* is added.