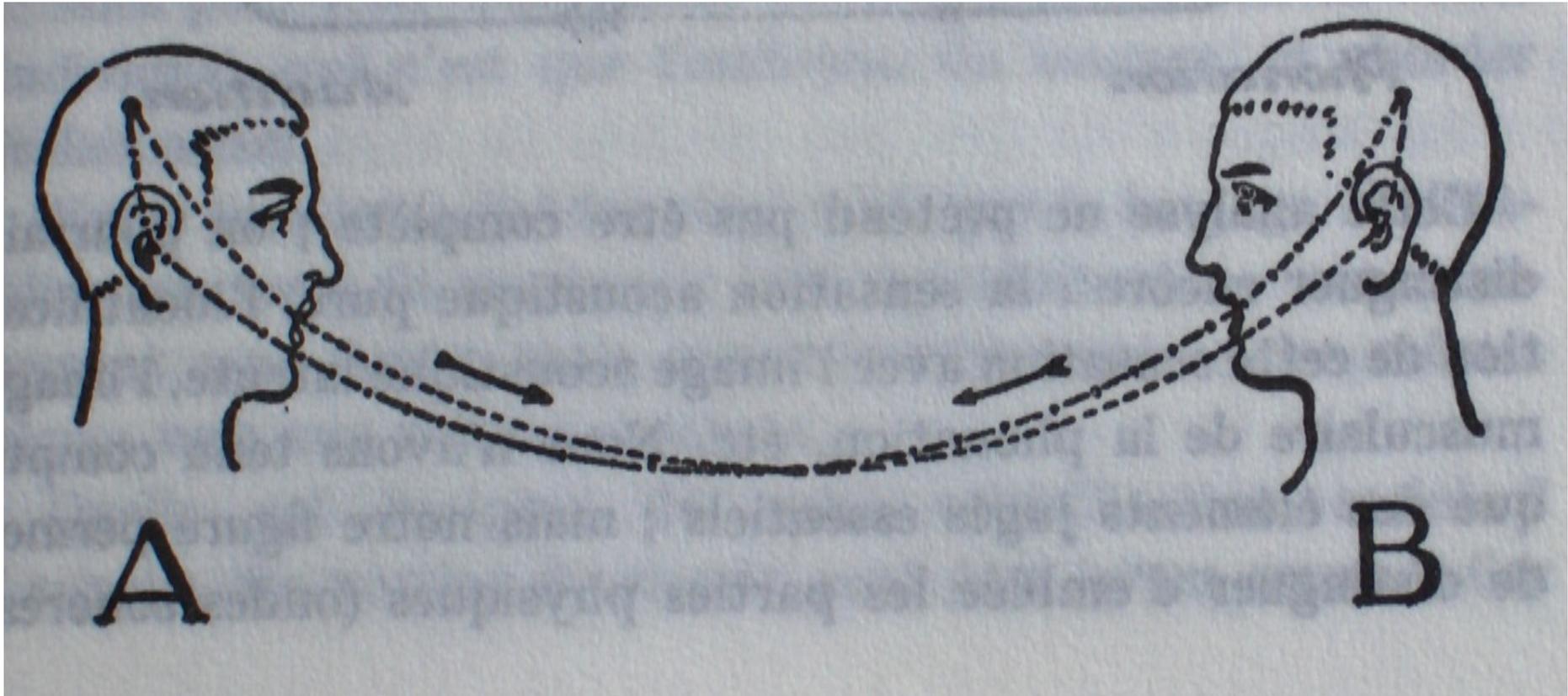


5. Morphology in Relation to Phonology

There will be four variations on this interface theme in this chapter.



tête-à-tête, or: Morphology pronounced and heard
(Ferdinand de Saussure, *Cours de linguistique générale*)

5.1. Morphology before phonology, step-by-step, hand-in-hand

Why have morphology? **Morphology** is responsible for the expression of meanings – in cooperation with **lexicon** and **syntax**, which provide basic building blocks and rules for constructing (certain kinds of) complex meanings, respectively.

For their distinctive expression: remember, linguistic structures are systems of contrasts. Linguistic meanings come in systems, too.

E.g., PLURAL means something different when part of a two-way or of a three-way system of NUMBER contrasts: SG - PL or SG - DU - PL, namely 'more than one' or 'more than two'.

Phonology has a different remit. What **phonology** is responsible for is that these meanings, as expressible and distinguishable courtesy of the lexicon and of morphology and syntax, are (i) (easily) pronounceable and (ii) (easily) perceivable.

It follows from this division of labour that morphology ought to have priority over phonology:

- first morphology (with lexicon and syntax) needs to provide forms-in-constructions expressing meaning;
- then phonology can see to it that they are (easily) pronounceable and perceivable.

Therefore: Morphology should come before phonology in the real-time planning and execution of speech acts.

But it is not quite as simple as that.

When morphological constructions are complex, the phonology doesn't wait until the whole construction is assembled in the morphology and syntax. Rather, phonology operates on constituent parts of constructions as they are assembled step-by-step – beginning with their core (the stem or root) and the affix most closely joined to it and gradually progressing to the whole construction.

Here is an example from English to show how morphological construction and phonology are interlocking.

(i)	nation-s	/ˈneɪ.ʃ(ə)nz/	PL
(ii) a.	nation-al	/ˈnæ.ʃ(ə).nəl/	ADJECTIVALISATION
	b. nation-al-ity	/ˌnæ.ʃ(ə).ˈnæ.lɪ.tɪ/	NOMINALISATION
	c. nation-al-ity-s	/ˌnæ.ʃ(ə).ˈnæ.lɪ.tɪz/	PL

When the plural of a noun like *nation* is formed, the phonology leaves the stem segmentally unaltered (other than, in informal speech, perhaps suppressing the schwa, as in the case of the basic form of the noun, too) and regularly places stress on the first syllable (just as with the basic form of the noun itself: pluralisation doesn't add material here, such as a syllable, that would have to be taken into account in stressing);

the exponent of PLURAL is realised as a voiced [z], coming right after a voiced non-sibilant at the end of the stem (assimilation in manner of articulation).

When a noun like *nation* is turned into an adjective by means of the suffix *-al* (ii.a), the stem vowel needs to be phonologically adjusted to this environment: it is pronounced lax (or short);

the suffix itself, being one of those suffixes that are unstressed, has the reduced vowel [ə].

When this adjective is then turned into a noun through suffix *-ity* (ii.b), the stem vowel remains lax/short, but *-ity* is one of those suffixes that affect word stress: *-ity* words are pronounced with the main stress on the antepenultimate syllable, i.e., the syllable right before the suffix – which is pronounced with a full vowel, like all stressed syllables.

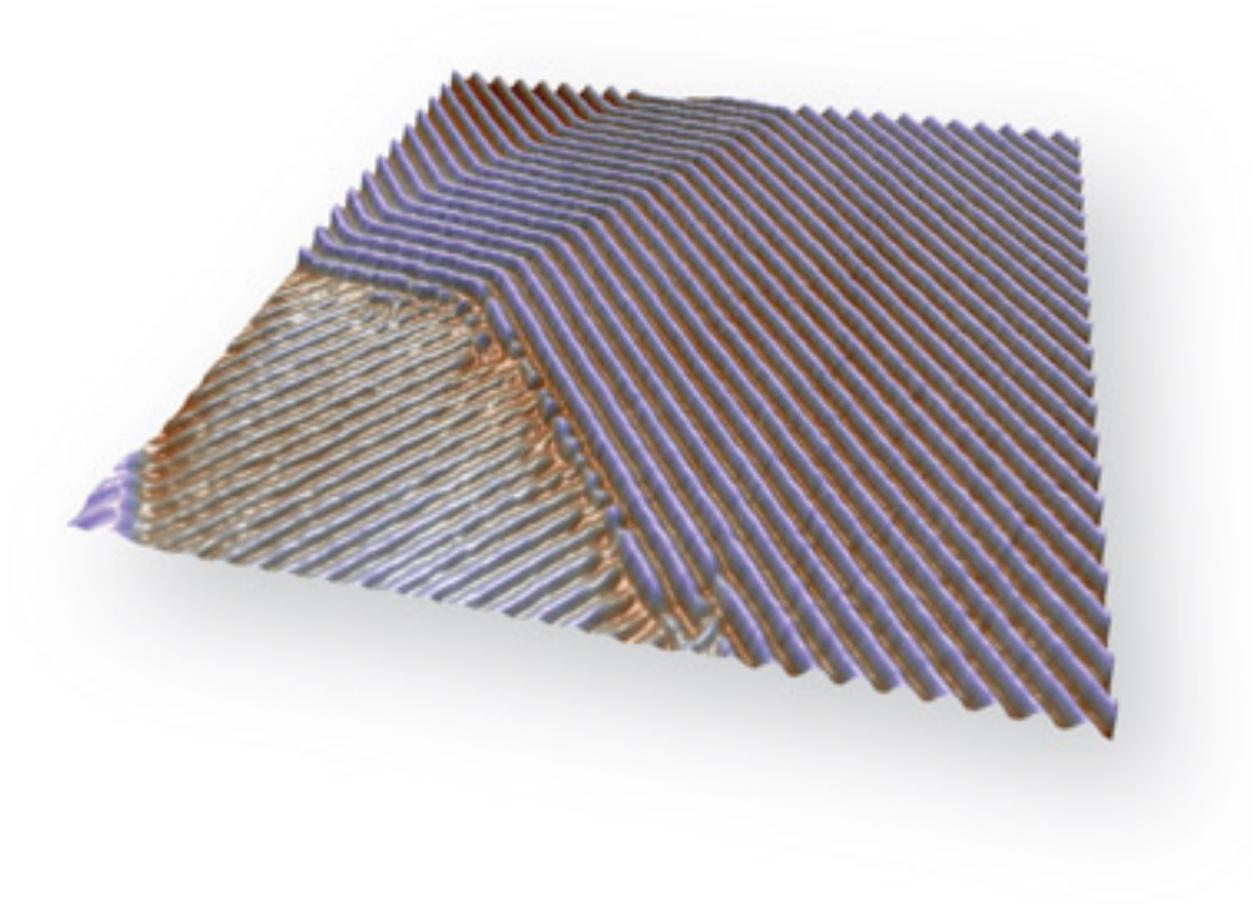
When this multiply derived noun is now itself pluralised (ii.c), what the phonology has achieved at the previous steps remains unaltered: the stem vowel remains lax/short (as effectuated at the step of *-al* suffixation); stress retraction and full vowel (as effectuated at the step of *-ity* suffixation) remain, too.

All that is left for the phonology to ensure at this last step is that the exponent of PLURAL is pronounced appropriately: voiced [z] after a voiced non-sibilant.

The interlocking of morphology and phonology is modelled in the framework of Lexical Morphology/Phonology, with phonological rules associated with levels of constructing words where they apply.

See Kiparsky, Paul. 1982. Lexical morphology and phonology. In Linguistic Society of Korea (ed.), *Linguistics in the morning calm*, 3–91. Seoul: Hanshin.

Consult e.g. Spencer 1991 for a more elaborate introduction to level-ordering. More generally on the relationship between morphology and phonology also Booij 2005 (esp. Ch. 7).



Closed loop AC mode image showing the molecular level ordering of cetyl palmitate adsorbed onto HOPG, 150nm scan.

<http://www.asylumresearch.com/Products/Cypher/Cypher.shtml>

5.2. Morphology twice, to repair damage wrought by phonology

Since the tasks of morphology and phonology are different, there are bound to be tensions and there is a potential for real conflict.

When phonology is going too far, ensuring easy pronounceability at minimal effort for the speaker, the hearer's life may become harder insofar as semantic distinctions aimed at by the morphology are not easily recognised.

One way of resolving such conflicts is to re-apply morphological rules after those of phonology. (There are others, such as curbing potentially damaging phonology.)

The following example from Bavarian, an Upper German dialect of Modern High German, will illustrate.

In the interest of easy pronounceability certain phonological rules, of a kind found in many languages (assimilation, cluster reduction), happen to affect the inflectional exponent $-(e)n$ of adjectives and nouns so severely that no separate segment remains and the inflection merges with the stem: the morpheme boundary is hidden within a single segment and the construction thus becomes opaque.

Where morphology is almost wholly obliterated by reductive phonology, words which are already inflected once are inflected a second time, to render the morphological construction again transparent.



http://www.obermain-musikproduktion.de/www_obermainm/home_1_1_1_f.htm

»Habt's halt wieda streit'n müass'n, ös damischen Weibsbilda!«

»Wer hot g'stritt'n? Koa Wort hon i g'sagt, und g'rad desz'weg'n hot si mi g'schlag'n, weil's d' ma du die heilinga drei Kinni auf d' Kammathür aufi g'schrieb'n hoscht . . .«

(Ludwig Thoma, *Der Wittiber*, 9. Kapitel)

hailig	lexical representation of the adjective for ‘holy’
hailig-n	morphology (inflection: NOM/ACC.PLURAL of weak declension)
hailiŋ	phonology (assimilation of nasal: place of articulation velar)
hailiŋ	phonology (cluster reduction)

as a result, word form no longer segmentable into a stem part and an inflection part: the single segment /ŋ/ combines features of the final segment of the stem, [velar], and of the inflectional exponent, [nasal]

hailiŋ-ɐ	morphology (repeated inflection, with /ɐ/ and /n/ allomorphs of the same exponent, phonologically conditioned: /ɐ/ after nasal, /n/ elsewhere)
----------	--

bʊəb	lexical representation of the noun for ‘boy’
bʊəb-n	morphology (inflection: PLURAL)
bʊəbm	phonology (assimilation of nasal: place of articulation labial)
bʊəm	phonology (cluster reduction)

same result: morphological construction no longer transparent, a single phonological segment, /m/, combines features of the stem-final consonant, [labial], and of the inflectional exponent, [nasal]

bʊəm-ə	morphology (repeated inflection, allomorph /ə/ after nasal)
--------	---

(Stem-final /b/ is assumed for the lexical representation of this noun even though it is not pronounced in the basic form itself: otherwise the assimilation of /n/ to /m/ (labial!) would be unaccounted for; also, in the diminutive form of this noun a labial surfaces, if in the form of a fricative: *Biɐwɐl* ‘Büberl, Bublein’.)

- Rule interaction here:
first morphology,
then phonology,
then (within the same domain/level) morphology again.

For in-depth discussion see: Plank, Frans. 1985. On the reapplication of phonological rules after morphological rules and other resolutions of functional conflicts between morphology and phonology. *Linguistics* 23. 45–82.

5.3. Mor(pho)phonology: Phonology under morphological conditions

In the chapter on **allomorphy** phonology was implicated doubly:

- insofar as allomorphic alternations could be of a phonological (or non-phonological) kind;
- insofar as the conditions for the selection of an allomorph could be phonological (or semantic, morphological, lexical).

For example:

The alternation between /ɪz/, /z/ and /s/ as exponents of PLURAL in English is of a phonological kind (the alternation between these and /ən/ or /Ø/ isn't);

the choice between them is phonologically conditioned.

From the point of view of phonology, phonological rules can be distinguished depending on whether they only make reference to phonological structures and domains or whether they are subject to morphological (or also lexical) conditions.

Examples:

In German, consonants are devoiced in syllable-final position (that is, the opposition voiced – voiceless is neutralised in final position, with voiceless as the only option: e.g., /ta:k/ *Tag* – /'ta:̥.gə/ *Tage*)

– a case of pure phonology.

Vowels of word stems are umlauted (= fronted) when these stems are followed by suffixes for certain morphological categories, with most of the relevant suffixes containing a non-back, non-low vowel

(e.g., *Mops*, *Mops-e* DAT.SG, *Möps-e* PLURAL)

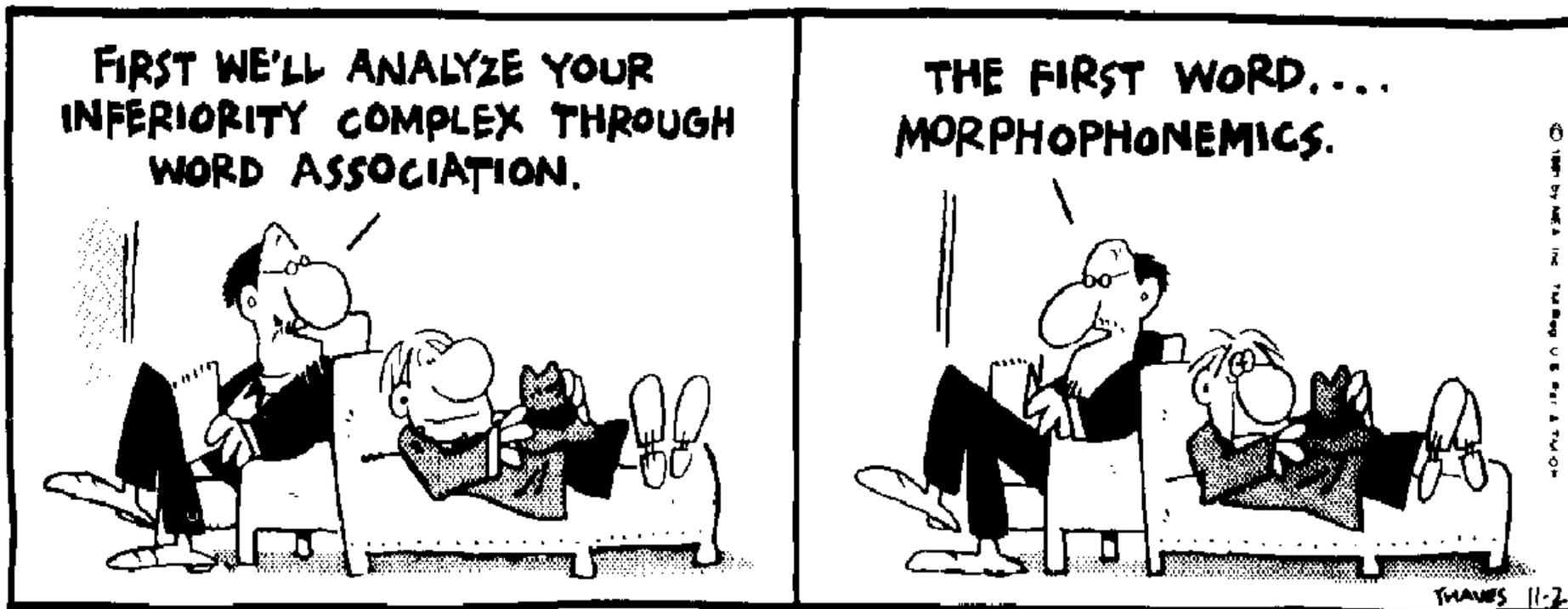
– a case of morphologically conditioned phonology.

Morphologically conditioned phonology is usually referred to as **mor(pho)phonology**.

There has been and continues to be much controversy over what exactly is to be subsumed under mor(pho)phonology and how this intermediate realm is to be dealt with precisely in an overall model of lexicon and grammar.

FRANK AND ERNEST

Bob Thaves



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For present purposes it must suffice to draw attention to the boundary (which is sometimes diffuse) between mor(pho)phonology and allomorphic morphology. Illustration will again come from English.

In English there are word pairs like these:

time – temp-oral,

flower – flor-al,

moon – men-strual,

rule – regul-ar,

lion – leon-ine,

peace – pac-ifist,

satisfy – satisfac-tion (vs. clarify – clarific-ation),

expel – expuls-ion,

deceive – decep-tion,

consume – consump-tion,

describe – descrip-tion,

adhere – adhes-ion,
Aberdeen – Aberdon-ian,
approve – approb-ation,

where the alternations are **specific to individual morphemes** (/taim/ ~ /tɛmp/, etc.), regardless of whether there are partial phonological similarities between the alternants (e.g., /tVm/ in the case of /taim/ ~ /tɛmp/) or the alternants approach prototypical suppletion (= wholly different stems; e.g., /rul/ ~ /regjʊlə(r)/).

This is English morphology. You may want to describe the relationships between the respective alternants in phonological terms; but it would be futile to formulate phonological rules for these purposes: they would be hopelessly ad hoc, designed for just this particular pair. (Well, you never know ...)

Below, by contrast, we list word pairs where the morphology – that is, particular affixes of classes of affixes – creates conditions under which phonological (well, “**mor(pho)phonological**”) rules apply which are **not morpheme-specific**.

However, the line between morpheme-specificity and generality is not always easy to draw. For instance, in some examples given above the vowel alternations do follow more general phonological patterns.

Historical phonology (s.v. Great Vowel Shift, Trisyllabic Shortening, Open Syllable Lengthening) often gives clues to what’s going on and why. Originally what was going on may have been pure phonology.

The following examples are culled from Chomsky & Halle’s *Sound Pattern of English*, with additional exemplification primarily from Marchand’s handbook and Bauer’s textbook of English word formation. The relevant theoretical literature is substantial: further references upon request, or in Phonology or Morphology II.

- vowel laxing (relevant vowel both times stressed)

divine – *divin-ity*, *reptile* – *reptil-ian*, *bile* – *bil-ious*, *derive* – *deriv-ative*, *line* – *lin-ear*,
Christ – *Christ-ian*, *Palestine* – *Palestin-ian*, *bronchitis* – *bronchit-ic*, *mobile* – *mobil-ity*

profane – *profan-ity*, *explain* – *explan-atory*, *sane* – *san-ity*, *grateful* – *grat-itude*, *grade*
 – *grad-ual*, *inane* – *inan-ity*, *chaste* – *chast-ity*, *(megalomania)* – *(megaloman-ic)*

serene – *seren-ity* (*obese* – *obes-ity*), *obscene* – *obscen-ity*, *extreme* – *extrem-ity*, *meter* –
metr-ic, *redeem* – *redemp-tion*, *succeed* – *success-ion*

compare – *comparative*, *pair* – *par-ity*, *hilarious* – *hilar-ity*

appeal – *appell-ative*, *inhere* – *inher-ent*, *appear* – *appar-ent*, *obsolete* – *obsolesc-ence*

profound – *profund-ity*, *abound* – *abund-ant*

cone – *con-ic*, *tone* – *ton-ic*, *noble* – *nobil-ity*, *quote* – *quot-ation*, *verbose* – *verbos-ity*,
osmosis – *osmot-ic*, *ferocious* – *feroc-ity*, *atrocious* – *atroc-ity*

south – *south-ern*, *five* – *fif-th*, *fif-teen*, *wide* – *wid-th*, *deep* – *dep-th* (but, with more
 complex vowel alternations, *long* – *leng-th*, *broad* – *bread-th*, *strong* – *streng-th*), *thief* –
thef-t, *clean* – *clean-ly*, *holy* – *holi-day*

know – *know*ledge

coal – *collier*(y)

sign – *sign*-al

money – *mon*-etary

- vowel tensing (under stress)

*cour*age – *cour*age-ous, *vary*, *vari*-ous – *vari*-ety, *Canada* – *Canad*-ian, *manager* – *manager*-ial, *Abel* – *Abel*-ian, *Newton* – *Newton*-ian, *custody* – *custod*-ian, *demon* – *demon*-ic, *angel* – *angel*-ic

- vowel reductions (with stress reduction)

*den*ote – *den*ot-ation, *provoke* – *provoc*-ation, *explain* – *explan*-ation,
confide – *confid*-ent, *combine* – *combin*-ation, *reside* – *resident*, *resign* – *resign*-ation,
prepare – *prepar*-ation, *cremate* – *cremat*-orium, *compose* – *compos*-ition,
angel – *angel*-ic
maintain – *mainten*-ance
algebra-ic – *algebra*

- vowel deletions (or insertions?)

theater – *theatr-ical*, *tiger* – *tigr-ess*

particle – *particul-ar*, *table* – *tabul-ar*, *able* – *abil-ity*

- velar softening k → s, g → dʒ before non-low, front vowel

electric – *electric-ity*, *music*, *music-al* – *music-ian*, *critic*, *critic-al* – *critic-ize*, *critic-ism*,
medic-al, *medic-ate* – *medic-ine*, *specific* – *specific-ity*

leg-al – *leg-islation*, *alleg-ation* – *allege*, *rigour* – *rig-id*, *analog-ous* – *analog-y*

- spirantisation d, t → s (or ts → s?)

emphat-ic – *emphas-is*, *idiosyncrat-ic* – *idiosyncras-y*, *lunat-ic* – *lunac-y*, *advocate* –
advocac-y, *accountant* – *accountanc-y* (but *difficulty*, *modesty*: cf. *loyal-ty*, *royal-ty*),
analyt-ic – *analys-is*, *ellipt-ic* – *ellips-is*, *metropolit-an* – *metropolis*, *galact-ic* –
galax-y

evade – *evas-ive*, *corrode* – *corros-ive* (also devoiced)

- palatalisation d → ʒ, t → ʃ

persuade – *persuas-ion*, *exclude* – *exclus-ion*, *invade* – *invas-ion*, *comprehend* – *comprehens-ion*

permit – *permiss-ion*, *mutate* – *mutation*, *concoct* – *concoct-ion*, *opt* – *opt-ion*, *torrent* – *torrent-ial*, *part* – *part-ial*, *Egypt* – *Egypt-ian*

- d, t → dʒ, tʃ

residue – *resid-ual*, *quest* – *question*, *right* – *right-eous*, *act* – *act-ual*

- ts → tʃ

substance – *substant-ial*, *finance* – *financ-ial*

- final mn → m except before vowel

autumn – *autumn-al*, *hymn*, *hymn-s* – *hymn-ic*, *solemn* – *solemn-ity*, *damn* – *damn-ation*, *condemn* – *condemn-ation*

(not if vowel is part of inflectional suffix: *He is autumn-ing in Vermont*, *He is damning them*. Or also if derivational but native: *the condemn-er*)

- initial/final kn, gn → n, km, gm → m unless stop is syllabified as final and nasal as initial

know – ac-**k**.**n**owledge, *gnostic* – a-g.**n**ostic, *i-g.norant*, *recog.n-ize*, *pro-g.nosis*
resign – resig.**n**-ation, *sign* – sig.**n**-al, *Charlemagne* – mag.**n**-animous, mag.**n**-ificent,
impugn – pug.**n**-acious
paradigm – paradig.**m**-atic, *phlegm* – phleg.**m**-atic

similar: skl → sl, unless s.kVl

muscle – mus.**c**ul-ar

like *whistle*, *thistle*, *mistle-toe*, *bristle*, *jostle*, *hustle*

not *just-ly*, *daft-ly*, *list-less*, *ghost-ly*, *soft-ly*

not *piston*, *Liston*

listen, *list-en*, *soft-en*, *oft-en*, *christ-en*, *moist-en*, *fast-en*, *ghast-ly* (AmE)

fricative + stop + sonorant (syllabic): stop deletes, subject to morphological conditions

- v → u

*resolv*e – resolu-tion, *involve* – involu-tion
 (*salv-ation*, *starv-ation*, *innerv-ation*)

- final fricatives voiced before PLURAL

knife – *knive-s* (*chief* – *chief-s*), *house* – *hous-es*, *cloth* – *clothe-s*

- final fricatives voiced before derivational suffixes

elf – *elv-ish*, *thief* – *thieve-dom* — but nowadays voiceless: *wolf* – *wolf-ish*, *deaf* – *deaf-en*

- final fricatives voiced when nouns are verbalised

proof – *prove*, *belief* – *believe*, *calf* – *calve*, *life* – *live*, *sheath* – *sheathe*, *bath* – *bathe*,
use – *use*, *house* – *house*, *grass* – *graze*, *advice* – *advise*
 (but *knife* – *knife*/**knive*)

- vowel laxing, and/or final devoicing, in weak PAST and PARTICIPLE (-t, not -d)

keep – *kep-t*, *sleep* – *slep-t*, *mean* – *mean-t*, *cleave* – *clef-t*, *dream* – *dream-t* (vs. *dream-ed*), *spell* – *spelt* (vs. *spell-ed*), *dwell* – *dwelt*, *leave* – *lef-t*, *meet* – *met*, *bend* – *bent* (**bend-ed*), *go* – *went* (cf. *wended his way*), *put* – *put* (**put-ed*)

- Truncations

-ate: *navigate* – *navig-able*, *nominate* – *nomin-ee*

-ous: *enormous* – *enorm-ity*, *glorious* – *glor-y*, *notorious* – *notori-ety*
(but: *pompous* – *pompos-ity*)

-y: *society* – *societ-al*, *facility* – *facilit-ate*, *liberty* – *libert-arian*,
allergy – *allerg-ic*, *psychiatry* – *psychiatr-ist*

-a: *America* – *Americ-an*

5.4. Prosodic morphology: Morphology working with phonological material

For all kinds of morphological purposes reference must sometimes be made to units which are not properly of a morphological nature (such as morpheme, affix, word form), but which are phonological or more particularly prosodic. The relevant units – such as feature, segment, syllable, syllable onset/rhyme, foot – play their roles in phonology, independently of morphology or syntax; sometimes, morphology operates in terms of these units.

Some examples.

To first illustrate what is not at issue here, but what is most common: morphology applying to morphologically defined units.

In **Warlpiri** (Pama-Nyungan, Australian) PLURAL is expressed through reduplication. The reduplicand is here identified morphologically: reduplicated is the WORD STEM (or the WORD itself: there are probably no grounds for distinguishing stems and words in this language), whatever its phonological shape (which segments it contains, long or short, where word stress lies, etc.):

SINGULAR	PLURAL	
<i>kurdu</i>	<i>kurdu-kurdu</i>	'child' – 'children'
<i>kamina</i>	<i>kamina-kamina</i>	'girl' – 'girls'
<i>mardukuja</i>	<i>mardukuja-mardukuja</i>	'woman' – 'women'

Doppelung

(Reduplikation, Gemination)

als

eines der wichtigsten Bildungsmittel der Sprache,

beleuchtet

aus Sprachen aller Welttheile

durch

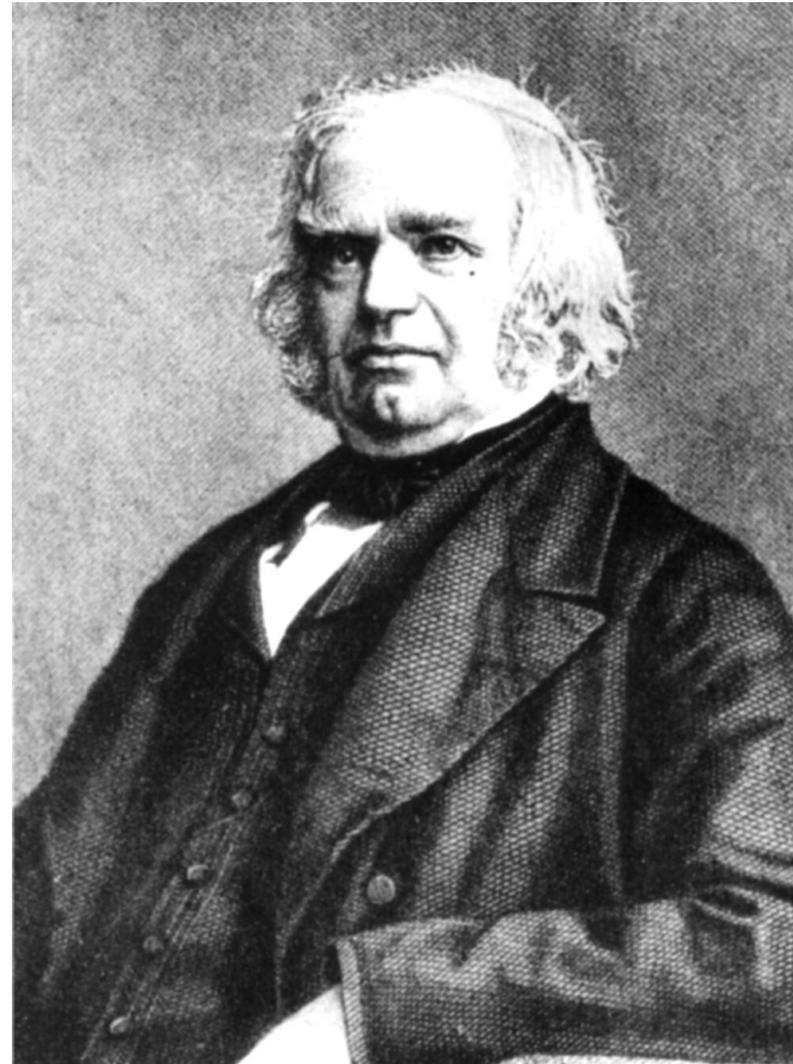
Aug. Friedr. Pott, Dr.

Prof. der Allgemeinen Sprachwiss. an der Univ. zu Halle, der Akademie der Wiss. zu Berlin,
St. Petersburg und Wesh Correspondenten, und mehrerer gel. Gesellschaften Mitglied.

Leingo & Detmold,

im Verlage der Meyer'schen Hofbuchhandlung 1862.

65732-B.



August Friedrich Pott (1808–87)

<http://www.indologie.uni-halle.de/instgesch/pott.htm>

Now, reduplication to form the perfect forms of a subset of verbs in Latin is different. As was seen in greater detail in the Exponence chapter, the reduplicand is here identified phonologically, namely as the template CV-, which is precisely the shape of the prototypical syllable; and this abstract template is realised through the onset consonant of the stem (ignoring extrametrical /s/ in /s/ clusters) followed by the nucleus vowel of the stem of the verb at issue (with /e/ as the default if the stem itself is lacking a vowel, and with some stem vowels also changed to /e/ too).

Thus:	stem	PERFECT
	<i>mord-</i> ‘bite’	CV- <i>mord-</i> : <i>mo-<u>mord-</u></i>

More examples above.

German (Germanic, Indo-European): Participle II with circumfix *ge- ... -t/-n* – or without *ge-*?

Examples:

<i>lachen</i>	<i>gelacht</i>	
<i>teilen</i>	<i>geteilt</i>	
<i>bringen</i>	<i>gebracht</i>	
<i>fahren</i>	<i>gefahren</i>	
<i>gehen</i>	<i>gegangen</i>	
<i>singen</i>	<i>gesungen</i>	
<i>essen</i>	<i>gegessen</i>	
<i>backen</i>	<i>gebackt / gebacken</i>	
<i>auslachen</i>	<i>ausgelacht</i>	
<i>spazierengehen</i>	<i>spazierengegangen</i>	
<i>dreiteilen</i>	<i>dreigeteilt</i>	
<i>vierteilen</i>	<i>viergeteilt</i>	
	<i>gevierteilt</i>	
<i>übersetzen</i>	<i>ü.bergesetzt</i>	(as in <i>Der Fährmann setzt über</i>)

<i>übersetzen</i>	<i>über.SETZT</i>	(as in <i>Er übersetzt Gedichte</i> ; * <i>ge-übersetzt</i>)
<i>besingen</i>	<i>besungen</i>	(* <i>ge-besungen</i>)
<i>verteilen</i>	<i>verteilt</i>	(* <i>ge-verteilt</i>)
<i>transportieren</i>	<i>transportiert</i>	(* <i>ge-transportiert</i>)
<i>trompeten</i>	<i>trompetet</i>	(* <i>ge-trompetet</i>)
<i>sinnieren</i>	<i>sinniert</i>	(* <i>ge-sinniert</i>)

Thus, some Participle II forms have a prefix part *ge-*, others lack *ge-*:

Is this difference random or rule-governed?

The alternation between the suffix parts *-t* and *-en* is lexically conditioned:
weak vs. strong verbs.

Your answer?

Rule-governed: It depends on stress whether or not there is a *ge-* present.

Only verbs with stressed initial syllable – and all such verbs – take *ge-*; verbs whose initial syllable is unstressed don't take *ge-*.

Thus, we have a phonological condition on a morphological alternation. The alternation itself is non-phonological: there are no plausible (mor-) phonological rules changing /ge/ to /Ø/ or the other way round.

(The only exception I am aware of: *gebeneDEIT*; or is it: *Du bist beneDEIT unter den Frauen und beneDEIT ist die Frucht Deines Leibes*, *Jesus* 'Blessed art thou among women, and blessed is the fruit of thy womb, Jesus'?)

Which raises the question of what stress itself depends on.

For German, stress (= prosodic prominence) is assigned to word parts which are not identified (exclusively) through their phonological properties, but through their role in constructing word meanings.

sin.NIE.ren, trans.por.TIE.ren:

with *-ier* verbs are derived from nouns (*Sinn, Transport*);
the syllable containing (the vowel of) this suffix *-ier* attracts main stress.
In such words the sound sequence /i:r/ has clearly a different status from that it has, e.g., in *Tier* 'animal', where no plausible meaning can be associated with /i:r/.

bäc.ke.REI, bac.ke.REI:

with *-ei* nouns are derived from nouns (*Bäcker*) or verbs (*backen*);
the syllable containing this suffix *-ei* attracts main stress.

In such words the diphthong /ai/ has clearly a different status from that it has, e.g., in *SAL.bei, PA.pa.gei, NAC.ke.dei, AL.ler.lei*, which are words stressed according to normal German stress rules (last syllable extrametrical; parsing from right to left; moraic trochee) and where /ai/ on its own has no meaning;

stress-attracting *-ei* does have meaning – in fact two meanings:

'place where a baker pursues his profession', 'constant pursuit of the activity of baking'.

BÄC.ker.(?)ei

Meaning: 'egg which has something to do with bakers'

Here we have another kind of meaning-contributing /ai/, which is itself a word (or word stem); accordingly, owing to the German(ic) compound stress rule, main stress regularly falls on the first word (or word stem) combined with it in a compound, *Bäcker-Ei*.



Bäcker-Eier

<http://www.brunnerbaecker.de/uploads/pics/zutaten.jpg>

These differences, by the way, also matter for purposes of syllabification:

-ei a suffix

Bäcker-ei b̥äc.ke.REI

maximisation of the onset of the final syllable,
with stem-final /r/ re-syllabified

Ei a word (or word stem)

Bäcker-ei BÄC.ker.(?)ei

stem-final /r/ not syllabified with final syllable;
glottal stop insertion before onset-less stressed syllable

verteilen, besingen etc.:

with *ver-*, *be-* etc. verbs are derived from verbs (*teilen, singen*); stress falls on the semantic core of these constructions, the basic verb (or verb stem).

In these verbs the sound sequences /fɛʁ/ and /be/ have a clearly different status as, e.g., in *Vers* and *Benzin*, where no plausible meaning can be associated with /fɛʁ/ and /be/.

The conjecture that properties of word constructions which are not purely phonological play a role for word stress in German is supported by the observation of contrasts such as that between *UMgefahren* vs. *(*ge)umFAHren*.

The former has *ge-* because *UM* has the status of a word in its own right (the whole construction is therefore a compound and stressed according to the compound stress rule), and the verb proper only begins after it, with *FAHren* itself having initial stress.

The latter lacks *ge-* because *um-* is here a verbal prefix inseparably connected with the verb (stem), and such complex verbs have main stress on the stem syllable (*umFAHren*); a *ge-* here would be as deviant as in cases of non-initial stress such as *tromPEten* (**getromPEtet*, **geumFAHren*).

(Another difference here: separability; cf. *Fritz fuhr den Radler UM* vs. *Fritz umFUHR den Radler*.)

Conclusion:

The (non-phonological) alternation of prefix *ge-* vs. no prefix for Participles II in German is phonologically conditioned, with *ge-* limited to initially-stressed verbs; the relevant phonological condition in turn is (partly) morphologically defined.

Further conjecture:

Feet often are the crucial unit in phonologically circumscribed morphology. Is foot structure an ulterior (phonological) motivation for *ge-* vs. \emptyset ?

☞ *ge-* attaches to a (stressed) trochaic foot.
(Trochees are at a premium in German.)

German (Germanic, Indo-European):

Short(ened) words with suffix *-i*,

to create an informal, in-group vocabulary alongside the regular vocabulary

At issue here aren't abbreviations where /i/ (or certain other full vowels) isn't a suffix but part of the abbreviated word itself – as in:

Abitur

Abi

Kriminalroman

Krimi

Universität

Uni

Zivi

Zivildienstleistende(r)

Akkumulator

Akku

Demonstration

Demo

Diskothek

Disko

Information

Info

Lokomotive

Lok (with no vowel after the first surviving, **Loko*)

Dissertation

Diss (with no vowel after the first surviving, **Disse*)

Schupo

Schutzpolizist (a more complex case of abbreviation)

Auszubildender

Azubi (a yet more complex case of abbreviation)

Short or, more typically, shortened words where a suffix *-i* is added:

<i>Student</i>	<i>Stud-i</i>	
<i>spontan</i>	<i>Spont-i</i>	
<i>Mutter</i>	<i>Mutt-i</i>	
<i>Vater</i>	<i>Vat(t)-i</i>	
<i>doof</i>	<i>Doof-i</i>	(unshortened!)
<i>schlaff</i>	<i>Schlaff-i</i>	(unshortened!)
<i>Gruft</i>	<i>Gruft-i</i>	(unshortened!)
<i>Maus</i>	<i>Maus-i</i>	(unshortened!)
<i>(Se)Bastian</i>	<i>Bast-i</i>	(/i/ part of the original stem?)
<i>Gabriele</i>	<i>Gab-i</i>	
<i>Andreas</i>	<i>And-i</i>	
<i>Wolfgang</i>	<i>Wolf-i</i>	
<i>Klinsmann</i>	<i>Klins-i</i>	
<i>Kulenkampff</i>	<i>Kul-i</i>	
<i>Dagmar</i>	<i>Dag(g)-i</i>	
<i>Ostdeutscher</i>	<i>Oss-i</i>	
<i>Westdeutscher</i>	<i>Wess-i</i>	

<i>Oskar</i>	<i>Oss-i</i>
<i>Birgit</i>	<i>Bigg-i</i>
<i>Cornelia, Konrad</i>	<i>Konn-i</i>
<i>Tusnelda</i>	<i>Tuss-i</i>
<i>Trabant</i>	<i>Trab(b)-i</i>
<i>Ulrich</i>	<i>Ul(l)-i</i>
<i>Robert</i>	<i>Rob(b)-i</i>
<i>Thomas</i>	<i>Tomm-i</i>
<i>Siegfried</i>	<i>Sieg-i / Sigg-i</i>

<i>Manfred</i>	<i>Mann-i</i>	[* <i>Manf-i</i> – why not?]
<i>deprimiert</i>	<i>Depr-i</i>	[?, allegedly also <i>Dep-i</i>]
<i>Kugelschreiber</i>	<i>Kul-i</i>	[?, why not * <i>Kug-i</i> ?]

Question:

Precisely how is the basic form shortened?

What is retained and what is left out?

Answer: The shortening is phonologically circumscribed.

Only so much is retained as maximally fits into one syllable.

(Remember the basic syllabification principles of Onset Maximisation and Sonority Sequencing!)

Thus: *Stu.dent* usual syllabification

Stud. first syllable maximised, rest left out

Ga.bri.ele usual syllabification

Gab. first syllable maximised, rest left out

**Gabr.* impermissible syllable coda if syllable were to be extended yet further

Tus.nel.da usual syllabification

**Tusn.* impermissible syllable coda if syllable were to be extended yet further

Gruft. usual syllabification
Gruft. first syllable maximal, no need to leave anything out

In addition there are certain cluster simplifications, e.g.:

Ost-i > *Ossi*, *Osk-i* > *Ossi*, *Birg-i* > *Biggi*.

The only potentially problematic cases from the list above are *Mann-i*, *Depr-i*, *Kul-i*: **Why problematic?**

With *-i* suffixed to the surviving maximal syllable we get words which form a **trochaic foot** ($\sigma' \sigma$).

Thus, the motivation for the special reductive morphology of such *-i* words is phonological, defined in terms of **(maximal) syllables** and **(trochaic) feet**.



<http://www.brunnerbaecker.de/uploads/pics/zutaten.jpg>

Trabi (foreground)

Ulwa (Misumalpan, Misumalpan-Chibchan):

Construct STATE forms of nouns with *ka* (i.e., 3rd Person Singular Possessor, irrespective of gender), used when the noun is accompanied by a possessor

<i>kii.</i>	<i>kii.-ka</i>	'(his/her) stone'
<i>bas.</i>	<i>bas.-ka</i>	'hair'
<i>sa.na</i>	<i>sa.na.-ka</i>	'game'
<i>sa.paa</i>	<i>sa.paa.-ka</i>	'forehead'
<i>a.mak</i>	<i>a.mak.-ka</i>	'bee'
<i>bas.kar.na</i>	<i>bas.-ka.-kar.na</i>	'comb' (<i>bas-karna</i> 'hair-rake'?)
<i>suu.lu</i>	<i>suu.-ka.-lu</i>	'dog'
<i>si.wa.nak</i>	<i>si.wa.-ka.-nak</i>	'root'
<i>a.naa.laa.ka</i>	<i>a.naa.-ka.-laaka</i>	'chin'
<i>ka.ras.mak</i>	<i>ka.ras.-ka.-mak</i>	'knee'

Question: Where to put the Construct marker *ka*?



The ULWA Language Home Page <http://www.slaxicon.org/files/ulwa/nicsmfinal.gif>

The analogous question where to put the meaningful German word parts such as *ei* or *ge* would be easier to answer, and would require no reference to phonological word structure: *ei* comes after the word (stem), because it is a suffix, *ge* comes before the word (stem), because it is a prefix. (More accurately, *ge* is the prefix part of a circumfix, and it comes before the verb stem: *auf-ge-pass-t/*ge-auf-passt.*)

Some such assumption could also be entertained for *ka* in Ulwa – at least after the first five examples.
But the next examples suggest a different answer.

Unlike a suffix, *ka* is pushing forward, it wants to come as early as possible – as long as some sufficiently weighty word part remains up front. Sufficient weight comes from a single syllable or from two syllables – with their overall weight required to be minimally two moras.

Thus, *ka* comes after

- either $\sigma_{\mu\mu}$
- or $\sigma_{\mu} \sigma_{\mu}$
- or $\sigma_{\mu} \sigma_{\mu\mu}$

A single light syllable (weighing one mora, μ) doesn't suffice.

A short vowel followed by a short consonant is heavy, = weighs two moras ($\mu\mu$).

Thus, the placement of the morphological element *ka* in Ulwa is defined phonologically, in terms of **syllables** and their **weight**.

This is a good opportunity for some meta considerations, with relevance also outside morphology.

- Arguably this was a **description (analysis?)** which accounts for **all** the Ulwa data that were given.
- Since the data we were given are so limited, it would obviously be necessary to look at **further data** and see whether the description holds more generally. (How to get more data? Available descriptions of Ulwa; field research to generate more data.)
- Even if it stands up to further empirical scrutiny, would this guarantee that this valid description is the **best** description (analysis) **possible**? Often (in linguistics and elsewhere) the same set of data can be accounted for by **alternative, competing** descriptions (analyses), and, unless they are notational variants of one another, the question is which alternative is preferable (by the describer/analyst), and is also preferred by the learner/speaker of the language at issue.

- How can alternative descriptions (analyses) differ?
 - they can be **simpler** or more **complex** (e.g., all insects have seven legs, but one of them is invisible even under the microscope);
 - they capture or fail to capture (valid) **generalisations**;
 - they are more or less (im)**plausible**, insofar as they can or cannot be incorporated into **explanations** (= higher-level descriptions; answers to WHY? questions);
 - they are or aren't **compatible** with the descriptions (analyses) of **other**, related states of affairs.

Thus, what is the simplest, most general, most plausible, and most coherent description (analysis) of *ka* placement in Ulwa?

- Construct *ka* comes after the first **foot**, with the relevant foot type being the **iamb** (with syllables grouped into feet from left to right).

Further question concerning the criterion of cohesion:

Does Ulwa also use iambic feet – that is, a particular way of metrically/rhythmically grouping syllables, (weak - STRONG) – for other (all relevant) purposes other than *ka* placement?

For instance, for purposes of word stress.

Find out. (In Nicaragua or on the Ulwa website.)

Homework: **Expletive infixation**

In English, or certain forms of it, expletive words such as *bloody*, *bleedin(g)*, *bastard*, *(god) damn*, *flippin(g)*, *freakin(g)/friggin(g)*, *fuckin(g)*, or even *motherfuckin'*, can be “infixed”.

Here is an example of Eliza Dolittle’s (*My Fair Lady*), before her speech was reformed by Professor Higgins:

Aow, wouldn't it be loverly?

*Aow, so loverly sittin' **abso-bloomin'-lutely** still.*

And here are some further examples, which would probably have been even more offensive to Professor Higgins:

fan-fuckin-tastic

ri-goddam-diculous

un-bloody-likely

irre-fuckin-sponsible

Phila-fuckin-delphia

Illi-fuckin-nois

Hono-goddam(n)-lulu

con-dam(n)-gratulation

tele-bastard-vision

des-fuckin-spotic

Now do it yourself:

Pennsylvania → _____

Nebraska → _____

Wyoming → _____

- Australia* → _____
- Pakistan* → _____
- London* → _____
- kangaroo* → _____
- unbelievable* → _____
- independent* → _____
- unemployment* → _____
- fanatical* → _____
- electronics* → _____

Here are the correct expletive “infixations”:

- Pennsylvania* → *penn.syl.fuckin.VA.nia*
Nebraska → *ne.fuckin.BRAS.ka*
Wyoming → *wy.fuckin.O.ming*
Australia → *aus.bloomin.TRA.lia* (**aust.bloomin.RA.lia*)
Pakistan → *pa.ki.bloody.STAN* (*pa.kis.bloody.TAN?*)
London → *
kangaroo → *kan.ga.blooming.ROO*
unbelievable → *un.be.fuckin.LIE.va.ble*, *un.fuckin.be.LIE.va.ble*
independent → *in.de.bloody.PEN.dent*
unemployment → *un.em.fucking.PLOY.ment*
fanatical → *fa(n).fucking.NA.ti.cal*
electronics → *e.lec.bloody.TRO.nics*

Where exactly inside the host word do infixated expletives go?
Obviously their placement is regulated phonologically.
Be more specific!

Only two references here (and there is a whole lot more, for those keen to pursue this matter!):

- McCawley, James D. 1978. Where you can shove affixes. In Alan Bell & Joan B. Hooper (eds.), *Syllables and segments*. Amsterdam: North Holland.
- McCarthy, John J. 1982. Prosodic structure and expletive infixation. *Language* 58. 574-590.

Homeric infixation

Homer Jay Simpson from *The Simpsons*, a speaker of American English, would say things like this:

vio-ma-lin

oboe-ma-boe

saxo-ma-phone

secre-ma-tary

Missi-ma-ssippi

hippo-ma-potamus

multipli-ma-cation

delica-ma-cy

That is, Homer is infixing *-ma-*. Never mind what this infix is supposed to mean; but he would never infix it like this:

**sa-ma-xophone*

**se-ma-cretary*

**Mis-ma-sissippi*

**hippopo-ma-tamus*

**hippopota-ma-mus*

**de-ma-licacy*

How does Homer find the right place for his infixes?

Reference:

Yu, Alan C. L. 2004. Reduplication in English Homeric infixation. *North-Eastern Linguistic Society* 34. 619-633.



Evolution of Homer

http://en.wikipedia.org/wiki/File:Evolution_of_Homer.jpg