24.901   Alternations 2: Sensitivity to Morphological and Lexical Structure

[1] in the examples discussed so far a rule's application is determined by neighboring sounds or its position at the beginning or end of the word or syllable. But in many cases phonological rules are sensitive to the morphological or lexical structure of the word. We survey some common types here.

[2] Rule applies at a boundary between two morphemes

      Tangale (Chadic N. Nigeria) vowel elision

      possessive suffix

tʊ:ʒe	'horse'	tʊ:ʒ-dɔ	'her horse'
taŋa	'cow'	taŋ-wu	'their cow'
laŋɔrɔ	'donkey	laŋɔr-gʊ	'your pl. donkey'
lɪpra	'needle'	lɪpʊr-ʒɪ	'your needle'
wudo	'tooth'	wud-no	'my tooth'

      associative

lawɔ	'child'	law Lakʊ	'Laku's child'
ara	'soup'	ar kɔndɔ	'peanut soup'

      verb

pɔn-ɛ	'know'	pɔn-gɔ	'knew'
pɔn-ɛ	'knows'	pɔn-dɔ	'knows her'
pɔn-gɔ	'knew'	pɔn-ʊd-gɔ	'knew her'

timl-e	'hypnotize'	timul-go	'hypnotized'
		timl-un-go	'hypnotized me'

- Tangale has vowel harmony for [ATR]; suffixes agree with root
- Vowel elision: V -> Ø / ____] [segment] (delete the final vowel of a morpheme
  when followed by another sound)
- Epenthesis: Ø -> u / C _ C C (right-to-left to get minimal change and a valid CVC syllable parse

3. rule applies within a domain delimited by certain affixes
    Italian stress and clitic pronouns

ri'pet-ere	'to repeat'	maci'n-are	'to grind'
ri'pet -i	'you sg. repeat'	'macin-i	'you sg. grind'
ripe't-iamo	'we work'	maci'n-iamo	'we grind'
ri'pete	'repeat!'	'macina	'grind'
ri'pete#lo	'repeat it'	'macina#lo	'grind it'
ri'pete#me	'repeat for me'	'macina#me	'grind (for) me'
ri'pete#me#lo 'repeat it for me'		'macina#me#lo	'grind it for me"

- stress appears in a three-syllable window at the right edge of the word that excludes pronominal (clitic) pronoun suffixes
- stems are divided into those that stress the final syllable (paroxytone) and the prefinal syllable (paroxytone)
- if the stress of the latter class falls outside the three-syllable window, a default penultimate stress is assigned
- pronoun suffixes are more loosely attached to the stem and may appear before the verb in finite (tensed) clauses; inflectional suffixes like the infinitive and subject marking ones are tightly bound to the verb stem
- in some dialects (e.g. Neapolitan) the pronominal suffixes are counted as part of the stress domain

[3] Rule applies in a cycle
- cycle: sensitive to inner structure before outer affixes added
- Spanish depalatalization of "ll" and ñ (Harris 1982)

| bello | 'beautiful' | doncella 'lass' | ella | 'she' |
| beldad | 'beauty' | doncel 'lad' | el | 'he' |

ll -> l in coda of syllable

| doncel | 'lad' |
| doncel-es | pl. | syllable parse is [don.ce.les] |

doña	'lady'	desdeñ-ar	'to disdain'
don	'sir'	desden	'disdain' noun
		desden-es	pl. (cf. desdeñ-es 'you disdain subj.)

- the nasal of the plural desden-es is in the syllable onset and hence the wrong context for depalatalization

2

- the depalatalization is inherited from the singular form by letting the rule of depalatalization apply before the plural suffix is added

  cycle-1   [desdeñ-ar]   [desdeñ]
             des.de.ñar   des.deñ   syllabification
             ------------   des.den   coda depalatalization

  cycle-2   des.den-es   add plural suffix
                            des.de.nes   (re)syllabify

- In this example the cyclic suffixes of the plural are added to an independent word (the singular) while the non-cyclic suffixes are added to the verb stem, which is not an independent word; the same was true of the Italian example with clitic pronouns

[4] syntax and a cycle
- In Chimwini (Bantu, Kisseberth & Abasheikh 1974) vowel length is contrastive

x-te:k-a	'to load'	x-tek-a	'to fetch'
x-ku:l-a	'to extract'	x-kul-a	'to grow'
ku-ba:ram-a	'to talk'	ku-balam-a	'to promise'

- But long vowels are only preserved in a three-syllable window at the right edge of a word

  ku-re:b-a   'to stop'
  ku-re:b-el-a   'to stop for'
  ku-reb-el-an-a   'to stop for one another'

  ǰo:hari   'jewel'   x-sa:meh-a   'to forgive'
  ǰohari-je 'her jewel'   x-sameh-an-a 'to forgive one another'

- When words are combined into sentences two additional vowel length changes occur

  word-final vowel is lengthened

ba	'by'	ba: noka	'by a snake'
kama	'like'	kama: mphaka	'like a cat'
kolko	'than'	kolko: mi	'than me'

  the three-syllable window for long-vowels is actually over a syntactic phrase

  kubiga   'to hit'

kubiga: luti   'to hit with a stick'
kubiga: ngomi   'to strike a drum'

kubiga rasa:si   'to pull the trigger of a gun'
kubiga ŋkheŋgele 'to ring a bell'

- analysis

    Word-final lengthening is word-level rule while pre-antepenultimate shortening is phrasal rule; requires phrase-final shortening (no length contrast here)

    Word level

    [kubiga]   [ngomi]   [rasa:si]   [ku-re:bel-an-a]
    kubiga: ngomi: rasa:si: ku-re:bel-an-a: final lengthening

    Phrase level
[kubiga: ngomi:]   [kubiga: rasa:si:]   [ku-re:bel-an-a:]
    --------------   kubiga rasa:si: ku-rebel-an-a: pre-antepenult shorten
    kubiga: ngomi   kubiga rasa:si   ku-rebel-an-a   phrase-final shortening

    another paradigm

    nu:mba   'house'   sandu:xu   'box'
    numba: nkulu 'a big house'   sanduxu: nzito   'heavy box'

[4] affixal allomorphy
- two (or more) shapes of an affix that cannot be related by a general rule; but the morpheme alternants are distributed according to natural phonological contexts

English a ≈ an
        an apple   a car   a well   a use
        an idiot   a sin   a yard   a horse
    cf. in America   in Canada   in Wellsley   in Europe
- *an* appears before a vowel and *a* is the default (elsewhere) form

Korean subject marker -ka ≈ -i, object marker lɨl ≈ ɨl
        noun   son   cip   sul   kho   tali   pata
        nomin.   son-i   cip-i   sul-i   kho-ka   tali-ka   pata-ka

4

accus.   son-ɨl   cip-ɨl   sul-ɨl   kho-lɨl   tali-lɨl   pata-lɨl

            'hand'   'house'   'wine'   'nose'   'bridge'   'sea'

- -i appears after a consonant and -ka after a vowel
- -ɨl appears after a consonant and -lɨl after a vowel
- choice of affixal shape promotes optimal CV syllable structure: avoid consonant clusters and vowel sequences (hiatus);

[5] Lexical classes: rule applies only to a synchronically arbitrary class of lexical items

   English strong verbs
- default is *-ed* (weak verbs) with phonologically determined variants

    want-ɨd, comput-ɨd, attribut-ɨd

    else: surfac-t, beep-t, drag-d,
- strong verbs (c. 200)
- monosyllabic, Germanic origin
- some suffix –t: sleep, slep-t; leave, lef-t;
- most have root vowel change (ablaut)

    lowering: sit-sat, ring-rang, swim-swam, eat-ate, choose-chose

    backing: dig-dug, win-won, grind-ground, tear-tore

    words move from strong to weak: shit, shat ≈ shitted; fly, flew ≈ flied out (baseball)

[6] Lexical strata: Japanese (Ito & Mester 1995, 2003)
- Japanese vocabulary drawn from four different sources; each has dedicated rules or constraints
- Yamato (native)

    Rendaku (compound voicing)

yu	'hot water'	de-ru	'leave'	hito	'person'	hana	'flower'
toofu	'tofu'	kuti	'mouth'	hito-**b**ito	'people'	sono	'garden'
yu-**d**oofu	'boiled toofu'	de-**g**uti	'exit'			hana-**z**ono	

- Sino-Japanese (cf. English Latinate)

    All items underlyingly one syllable maximal size

Yamato	Sino	Mandarin	
oto	on	yin	'sound'
mitu	san	san	'three'
	gin	yin	'silver'
	dai	da	'big'

   in general S-J items resist redaku

    koo-**s**oku 'high speed'

    kooka **k**eesatu 'national police'

- Mimetic (onomatopoeia)

    Canonical shape of two moras:

    kira-kira 'shining' poko-poko 'hitting'   koro-koro 'rolling' *koro-goro
- Foreign (Western) loans

    fesutibaru 'festival'   furutaimu 'full time'   paati 'party'   webbu 'web'

    kyampasu 'campus'   tento 'tent'   nama-kurimu 'fresh cream'

    cf. nama-gome 'uncooked rice' kome 'rice'
- Phonological constraints

Yamato	*p	*NT	*DD
Sino-Japanese	*p	___	*DD
Mimetic	___	*NT	*DD
Foreign	___	___	___

nihon ≈ nippon	'Japan'	present-future	mi-ru nom-u
yahari ≈ yappari	'after all'	past	mi-ta non-da
			'see' 'drink'

webbu   'web'

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