The phonology and morphology of stress-assignment systems: a view from English and Mapudungun

Benjamin Molineaux
The University of Edinburgh

Oxford General Linguistics Seminar
16 October, 2017
Roadmap

- A whirlwind tour of stress and its role in languages
- A ‘dominant’ stress system: English
- A ‘non-dominant’ stress system: Mapudungun
  - Difficulties in pinpointing stress in such languages
- Beyond the *rhythmic bias* in the study of stress
- A revaluation of *demarcation* in stress systems
- Towards a functional typology of stress, phonology and the morphology
What exactly is stress?

- Stress is primarily a perceptual or mental instantiation of prominence, rather than a uniform physical trait of syllables.
- There is no single tell-tale sign of its location.
- “The definition of stress is one of the perennially debated and unsolved problems of phonetics” (Hayes 1995: 5).
- Acoustic and phonological correlates to the percept of stress must be established, *a posteriori*, on the basis of speaker intuitions.
- It creates syntagmatic contrasts within a domain (Martinet 1954).
- As such, it highlights particular domains (the word, primarily).
- Stress is instantiated on one syllable and does not spread.
- Tones, in contrast, tend to display paradigmatic alternations and may spread.
Who cares about stress?

- **Phonologists!**
- But if *speakers* don’t *use it* for something, it has no linguistic relevance
- **Do speakers care?**
  - In some languages, very much so
    - Germanic → **English**
  - Other languages, of course don’t seem to have stress at all
    - **French**, tone languages of Africa e.g. **Gòkánà**
  - Yet others are somewhere in between
    - They care to a degree, or in different ways
      - **Mapudungun** (Chile/Argentina)
How do languages care about stress?

- **Distinction** (i.e. lexical contrast) A feature of so-called ‘free stress’ languages, where stress creates minimal pairs. A marginal pattern in most languages, often morphological.
  - Spanish: cántara ‘jug’ vs cantara ‘sing SUBJ’ vs cantará ‘sing FUT.3.S’

- **Rhythm** In so-called ‘fixed stress’ languages ‘stress is the linguistic manifestation of rhythmic structure’ (Hayes 1995:1, see also Liberman 1975, Liberman & Prince 1977, etc.)
  - English: *Apalachicola* [ˌæpəˌlæʧɪˈkʌlə]
  - Warao (Venezuela/Guyana): [ˌjapuˌrukiˌtaneˈhase] ‘verily to climb’
How do languages care about stress?

- **Culminativity** Usually associated to the word-level: one main stress per word. Hence, stress defines the prosodic word domain.

  \[
  ( \underline{x} ) ( \underline{x} ) ( \underline{x} ) ( x ) ( x ) ( x ) \\
  ( x . ) ( x . ) ( x ) ( x ) ( x ) ( x . )
  \]

  **a li gator meat** **tastes scrumptious**

- **Demarcation** The signalling of domain edges — usually the word — via stress.

  Diyari (Australia, Poser 1989):
  - 'kana-ni-.mata 'man-LOC-IDEN'
  - 'kana-.wara-ŋgu 'man-PL-LOC'
  - 'kana-.wara-.ŋgundu 'man-PL-ABL'
How are English speakers aware of stress?

- Speakers will generally be most conscious of the role of stress in poetic metre:

  Don’t rescue me! I won’t go back to being a princess
  And prancing round the palace in a silly frilly dress

  Donaldson J. & A. Scheffler (2010) Zog

- Rhyme and alliteration must fall on stressed syllables, this also applies to strong beats in songs and poetry:

  “Henry loves Vanessa” vs. “Henry loves Pamela”
How are English speakers aware of stress?

- **Distinction**: Noun-verb pairs
  - “Avocado **imports** are at an all-time high”
  - “Peru **imports** most of its processed goods”
- Marginal – mostly morphological
- **Spelling acquisition**: – wide alternation in spelling of unstressed vowels – **complement** vs. **compliment**; **palate** vs. **palette**
- **Dialectal variance**: **garage**, **buffet**, **fillet**, **brochure**, (**moustache**), **laboratory**, **urinal**
- **Linguistically**, ‘it would be folly to attempt to analyse English without stress’ (Hyman: 2014: 58)
English stress and the phonology

‘it has become clear that English enjoys a remarkable prosodic organization that plays a role in virtually every aspect of its phonological system’ (Hammond 2006: 411)

- Vowel inventory
  - Stressed (General American):
  - Unstressed (General American):

- Phonotactics:
  - Aspiration of stops: *pen* [pʰɛn] vs. *happen* [hæp(ə)n]
  - Flapping (some dialects)
    - *pedals~petals* ['pɛr(ə)lz]– *Adam~atom* ['ærəm]
    - Not *atomic* [ə'tʰamɪk]
    - Clusters are rare and difficult to acquire in unstressed syllables—
English stress and the morphology

- Stress assignment rules vary depending on **word category** and **derived/underived** status – inflection doesn’t interact with stress
- **Derivational morphology** (mostly borrowed) does interact strongly with stress (**-ation, -ity, -ous, -ic, al**)
  - **-ess** suffix
    - Giant, giantess
    - Baron, baroness
    - Prince, princess
    - Duke, duchess
- **Compounds**: Hierarchical structure of stresses indicates wordhood:
  - *wild cat, wildcat, grand stand, grandstand*
Stress, sound change and English morphology

- The history of stressed vs unstressed syllables is markedly different
  - Unstressed syllables often reduce and disappear
  - Stressed syllables are subject to breaking, chain shifts, tensing, gemination, consonant fortition, etc.

- “The movement of English towards a more analytic type was supported by purely phonological developments, in principle unrelated to the morphology. The fact that Old English was a suffixing language simply put the bulk of its morphological markers in vulnerable positions [i.e. unstressed position].’ (Lass 1992: 105)

- OE: *luf-ian* (INF.) ME: *louen* PDE: *love* [lʌv]
- OE: *luf-od-est* (IND.PAST.2S.) ME *louede* PDE: *loved* [lʌvd]

- English has been argued to be a “dominant accent” language, where change is ‘prominence-dependant’ (van Coetsem, 1997).
Rhythmic bias

- Speakers of a languages with ‘dominant accent’ are on the lookout for stress patterns everywhere
  - They show a **rhythmic bias** in their perception of new languages
  - This is often not in line with the intuitions of native speakers, nor with the acoustic evidence

- Tabain, Fletcher and Butcher (2014) have termed this **stress ghosting** and describe it for English speakers hearing secondary stress in Pitjantjatajra (W. Desert – Australia)

- Secondary stress in Polish and Hungarian also seem to be inconsistently perceived or analysed (Newlin-Łukowicz, 2012; Blaho & Szeredi, 2011)

- This process seems to be the mirror image of **stress deafness** (Dupoux, Peperkamp & Sebastián-Gallés 2010) in non-stress languages
The case of Mapudungun

- Mapudungun (a.k.a. Araucanian, Mapuche, Mapuchedungun): ancestral tongue of the Mapuche
  - ±150,000 spkrs. (Chile/Argentina)
- Considered endangered, due to poor transmission
  - Monolingualism is vanishingly rare
  - Most speakers are elderly and live in traditional, rural communities
- Presumed to be an isolate
- Polysynthetic, agglutinating and headmarking
Descriptions of stress in Mapudungun

- The main source for most typological accounts of Mapudungun stress is a three-page article on the entire segmental and suprasegmental system: *Echeverría & Contreras, 1965*
- No reference given to the sources of the data: methods, nº of speakers, provenance, competence, etc. (cf. de Lacy, 2014)
- “General rule: A phonological word has main stress on the second syllable and, if applicable, secondary stress on the fourth and sixth syllables” (E&C: 134)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td><em>wu.'le</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘tomorrow’</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td><em>tri.'pan.to</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘year’</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td><em>e.'lu.-mu.-,j-u</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘you give us (both)’</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td><em>e.'lu.-a-,e.-n-ew</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>give-FUT-INV-1-3</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td><em>ki.'mu.-fa.,lu.-wu-,la-j</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>’s/he will give me x’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>know-SIM-RFX-NEG-IND.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>’s/he (her himself) pretended not to know’</td>
<td></td>
</tr>
</tbody>
</table>
Descriptions of stress in Mapudungun

- Under the name *Araucanian*, and the analysis of E&C, Mapudungun is often discussed in stress typologies:
  - Hyman (1977); Kager (1993, 2005); Hung (1993); Kenstowicz (1994); Hayes (1995); Revithiadou (1999); Gordon (2002, 2011); Hyde (2002, 2016); McGarrity (2003); Tesar (2004); Hermans (2011); Goedemans et al. (2014); Martínez-Paricio & Kager (2015) ...to name but a few

- The analysis tends to be that of a ‘perfect grid’, sometimes interpreted as a **quantity insensitive iambic pattern**

- Hyde 2002:

  a. *Nengone*  
  \[
  \begin{array}{cccc}
  x & x & x & x \\
  \sigma & \sigma & \sigma & \sigma & \sigma & \sigma
  \end{array}
  \]

  b. *Araucanian*  
  \[
  \begin{array}{cccc}
  (x)(x)(x) \\
  \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma
  \end{array}
  \]

  c. *Maranungku*  
  \[
  \begin{array}{cccc}
  x & x & x & x \\
  \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma
  \end{array}
  \]

  d. *Suruwaha*  
  \[
  \begin{array}{cccc}
  x & x & x & x \\
  \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma & \sigma
  \end{array}
  \]
Descriptions of stress in Mapudungun

However…

Mapudungun-specific literature presents stress as final if the syllable is closed, otherwise, as penultimate (cf. Lenz 1895-1897; Augusta 1903; Suárez 1959; Echeverría 1964; Salas 1976, 1992; Zúñiga 2006; Smeets 2008; Sadowsky et al. 2013)

<table>
<thead>
<tr>
<th>Right-edge stress (from Salas 1976 &amp; 1992):</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. wa.ŋi.’len (H)</td>
</tr>
<tr>
<td>‘star’</td>
</tr>
<tr>
<td>c. ma.’wi.θa (LL)</td>
</tr>
<tr>
<td>‘woodland’</td>
</tr>
</tbody>
</table>

This rather looks like a right-aligned moraic trochee…
The typologists vs. the tradition

- Language-specific and typological approaches differ in all parameters (e.g. Salas 1992 vs. Hyde 2016)!

<table>
<thead>
<tr>
<th></th>
<th>Typologist</th>
<th>Tradition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot</td>
<td>Iamb</td>
<td>Trochee</td>
</tr>
<tr>
<td>Quantity</td>
<td>Insensitive</td>
<td>Sensitive</td>
</tr>
<tr>
<td>Direction</td>
<td>Left-to-right</td>
<td>Right-to-left</td>
</tr>
<tr>
<td>End Rule</td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td>Iterativity</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
A new look at Mapudungun prominence

- Gathered near Cholchol, in Chile’s Araucanía Region
- Seven native speakers interviewed – all late Spanish bilinguals
- Words recorded in context and isolation
- Native intuitions elicited
What does it sound like?

- Acoustic analysis of stress cues (in monomorphemes):
  - duration, intensity and pitch maxima were analysed
  - only F0 significantly related to stress (Molineaux 2014)
How is it assigned? Simplex words

- Based on native intuition (matches pitch peaks)

**Mono-, di- and trisyllabic nouns:**

<table>
<thead>
<tr>
<th>a.</th>
<th>'fiŋ</th>
<th>‘seed’</th>
<th>b.</th>
<th>'ko</th>
<th>‘water’</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.</td>
<td>ɲa.'mɨn</td>
<td>‘foot’</td>
<td>d.</td>
<td>ɬaf.'ken</td>
<td>‘sea’</td>
</tr>
<tr>
<td>e.</td>
<td>wa.ɲi.'len</td>
<td>‘star’</td>
<td>f.</td>
<td>ma.'wi.θa</td>
<td>‘woodland’</td>
</tr>
<tr>
<td>g.</td>
<td>aʧuŋ.'pen</td>
<td>‘floating ash’</td>
<td>h.</td>
<td>a.'nuŋ.ka</td>
<td>‘plant’</td>
</tr>
</tbody>
</table>

- Final closed syllables are stressed, elsewhere, the penult is stressed
- No evidence for secondary stress
- A single, right-aligned moraic trochee? ([μμ]); ([μμ] μ); ([μ] μ)
- However: Vowel-final disyllables alternate stress position (i, j)

| i.  | 'ma.pu ~ ma.'pu | ‘land’       | j.  | 'piw.ke ~ piw.'ke | ‘heart’       |
How is it assigned? Complex verbs I

- Complex words may have two stresses
- Stress falls on:
  - word-final (ω) moraic trochee ([μμ]); ([μμ] μ); ([μ] μ)
  - stem-final (s) syllable (here, root-final)

### No Clash:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>walk-AMB-FUT-IND.3</td>
</tr>
<tr>
<td>b.</td>
<td>throw-REST-HAB-NEG-IND-2-S</td>
</tr>
<tr>
<td>c.</td>
<td>run-TRLOC-PROG-IND.3</td>
</tr>
<tr>
<td>d.</td>
<td>exit-HAB-NEG-IND-2-S</td>
</tr>
</tbody>
</table>

- No clear word-level stress hierarchy (no culminativity)
How is it assigned? Complex verbs II

Clash:

- In most cases, root stress is demoted, and only the ω-final trochee is stressed (a, b)
- ‘Extended’ roots (i.e stems, as in c, d), take stress, while the ω-final stress is lost
- Extended roots have a valency-changing suffix such as:
  - βe ‘PASS’; -ŋma ‘APPL’; -(l)el ‘APPL’; -(i)m ‘CAUSE’; (i)l ‘CAUSE’

Clash:

<table>
<thead>
<tr>
<th>a.</th>
<th>[[a.mu.]_s -'la-j-m-i]_ω</th>
<th>b.</th>
<th>[[le.li.]_s -'fi-j.-m-i]_ω</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>go-NEG-IND-2-S</td>
<td></td>
<td>look-DIR-3SP-IND-2-S</td>
</tr>
<tr>
<td>c.</td>
<td>[[e.lu-ŋ.'ma.]_s-fi-j.-m-i]_ω</td>
<td>d.</td>
<td>[[la.'ŋ-im.]_s-fj]_ω</td>
</tr>
<tr>
<td></td>
<td>give-APPL-3SP-IND-2-S</td>
<td></td>
<td>die-CAUSE-3SP-IND.3</td>
</tr>
</tbody>
</table>
How is it assigned? Compounds

- Stress is on the final syllable of the first root, and on the final moraic trochee of the second

<table>
<thead>
<tr>
<th>No clash:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. `[ʧa.ˈfo.]_D-[ku.ˈtran]_H</td>
<td>b. `[ʧa.ˈŋuʌ]_H-[na.ˈmʊŋ]_D</td>
</tr>
<tr>
<td><code>cough-disease</code> (a cold)</td>
<td><code>finger-foot</code> (toe)</td>
</tr>
</tbody>
</table>

- In clash, the head of the compound retains stress

- Head (H) and dependant (D) roots bracketed

<table>
<thead>
<tr>
<th>Clash:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. `[ku.θi.]_D-[ˈfo.ro]_H</td>
<td>b. `[fo.ˈro]_H-[ʧall-wa]_D</td>
</tr>
<tr>
<td><code>mortar-bone</code> (spine)</td>
<td><code>bone-fish</code> (fishbone)</td>
</tr>
<tr>
<td>c. `[we.nu.]_D-[ˈma.pu]_H</td>
<td>d. `[i.ˈlo]_H-[tre-wa]_D</td>
</tr>
<tr>
<td><code>high-land</code> (heaven)</td>
<td><code>meat-dog</code> (dog meat)</td>
</tr>
</tbody>
</table>
Why so different from E&C?

- Echeverría & Contreras (1965) and the typologists:
  - Focus on the first morpheme, usually a disyllable
  - Initial stress (stem-stress) seems quantity insensitive
  - NO-CLASH means at least one syllable intervenes between stem- and word-stress

- Language-specific literature
  - Focuses on the right-edge, trochaic
  - Allows for a ‘two-syllable stress window’ on left edge of verb
    - Salas (2006); Zúñiga (2006)

- Both analyses overlook the morphology, assuming stress is rhythmic
Mapudungun stress and the phonology

- Stress refers to prosodic units: morae (weight), feet, PRWDS
- NO-CLASH plays a role at the morpheme boundary
  - Possibly a rhythmic constraint
- But,
  - Native speakers have no intuitions as to stress hierarchy in words (culminativity is not definitional at the PRWD-level)
  - No evidence for vocalic reduction/neutralisation in unstressed position (Sadowsky et al. 2013)
  - No stress-based phonotactic asymmetries (Salas 2006; Zúñiga 2006)
  - No attested stress-based processes in Mapudungun’s synchronic or diachronic phonology (Molineaux 2014, 2017)
Mapudungun stress and the morphology

- Barring clash, stress is a reliable cue for the stem edge
  - In clash, it signals compound heads, and valency changes
  - It signals the word’s right edge as coextensive with a foot
- Stress-based demarcation helps disambiguate Mapudungun stems among abundant, highly agglutinating morphology

\[
[[\text{ke.} \ '\text{ʌ}u.]]_s \text{-pu.-tu.-ke.-} 'f_u-n]_\omega
\]

help-TRLOC-REST-HABIT-BI-IND.1S
‘I used to go back there to help’

- Rhythm (clash avoidance) is subordinate to the morphology

\[
\begin{align*}
\text{PrWd}' \\
\text{PrWd}_w & \quad \text{PrWd}_s \\
\text{laf.ken} & \quad \text{‘ma.pu} \\
\end{align*}
\]

‘sea-land’ (costal areas)
Mapudungun stress and the morphology

- Paucity of stress-based phonological asymmetries is advantageous to parsing of agglutinative morphology:

  a. \([\theta u. \, \eta u.-\text{ke.-}l\text{a-j.-m-i}]\) ‘speak-HABIT-NEG-IND-2-S’

  b. \([\theta u. \, \eta u.-\text{ke.-}l\text{e-j.-m-i}]\) ‘speak-HABIT-PROG-IND-2-S’

  c. \([\theta u. \, \eta u.-\text{ke.-la.-}j\text{-i-ɲ}]\) ‘speak-HABIT-NEG-IND-1-P’

  d. \([\theta u. \, \eta u.-\text{ke.-le.-}j\text{-i-ɲ}]\) ‘speak-HABIT-PROG-IND-1-P’

- Productive agglutinating morphology means the target morpheme for stress changes dynamically

- Computing enhancement and reductions online could create processing difficulties

  - *[\(\theta u. \, \eta u.-\text{ke.-lə.-}j\text{-i-ɲ}\)] ‘speak-HABIT-??-IND-1-P’
Does Mapudungun really have stress?

- It has some of the main traits of stress systems (Hyman 2006):
  - **OBLIGATORINESS**: “requires that an obligatorily headed metrical constituent be built at the word level”
  - **PRIVATIVITY**: a syllable is either stressed or not stressed
  - **DEMARcation**: marking the edges of words (and morphemes!)

- It also lacks typical features of stress systems:
  - **DISTINCTION**: contrast at the lexical or morphological level
  - **CULMINATIVITY**: only one main stress per word
  - **RHYTHMICITY**: secondary stress alternating throughout words
    - Though clash *is* avoided, which is rhythmic
    - Also, in avoiding clash, a hierarchy of stresses is revealed – a morphological hierarchy
Does Mapudungun really have stress?

- Whatever it is, Mapudungun is **Non-Dominant** (van Coetsem, 1997)
  - it displays no reduction phenomena (change is prominence-independent)
  - there is no strong metrical/rhythmic organisation in the language
- If it isn’t stress, what is the alternative?
  - **Tone?** It lacks the lexically specified nature of tones
  - **Pitch accent?** This category is somewhat ill-defined (Hyman 2009, 2011) taking features from both stress and tone systems, however Mapudungun has none of the tone-like features
- **A different kind of stress** – one that is less deeply entrenched in the phonology and more deeply so in the morphology
How common is this?

- According to Hyman (2014: 59):
  ‘Languages which exploit metrical structure for multiple purposes... will exhibit the kind of “metrical coherence” found in Germanic (Dresher & Lahiri 1991) . . . Languages such as Hungarian or Turkish . . . seem different because their metrical structure has little or no relevance outside the stress system itself. The contrast with English, whose phonology cares so much about stress, is quite striking.’

- This sounds very much like Mapudungun **vis-a-vis** English!

- Are there other languages that behave similarly?
  - What about Hungarian and Turkish?
Turkish stress

- Default stress is claimed to be on a word-final syllable

<table>
<thead>
<tr>
<th>Turkish stress (from Göksel &amp; Kerslake, 2005: 29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. kiˈtap</td>
</tr>
<tr>
<td>b. kitap-ˈlar</td>
</tr>
<tr>
<td>c. kitaplaˈr-ım</td>
</tr>
<tr>
<td>d. kitaplarım-ˈda</td>
</tr>
<tr>
<td>e. kitaplarımda-ˈkî</td>
</tr>
<tr>
<td>f. kitaplarımda-kîlɛr</td>
</tr>
<tr>
<td>g. kitaplarımda-kîlɛr e</td>
</tr>
</tbody>
</table>

- Stress cueing is extremely subtle (F0) (Levi 2005)
  - May be epiphenomenal (boundary tone?) (Vogel et al. in press)
  - Predictability of the pattern may result in a degree of deafness to it (Domahs et al. 2013)
Turkish stress

- The default prominence seems to have a word-demarcative function (Kabak & Vogel 2001)
- Non-final stress is lexically specified, relating to borrowed nouns, pre-stressed or stressed suffixes
  - Cues for these lexical stresses are more robust (Levi 2005; Vogel et al. in press)
- There is no evidence for secondary stress overall
- Neither final nor non-final stress show any broader phonological effects
- No interaction with vowel harmony
Hungarian stress

Hungarian main stress is word-initial and is cued by F0 (Varga 1994)

ˈiskola  ‘school’  ˈforrősodik  ‘grows hot’  ˈszénanáth  ‘hay fever’

- Secondary stress is...
  - a quantity sensitive feature: Szinnyei (1912)
  - a left-to-right syllabic trochee: Kerek (1971); Varga (2002)
  - in alternation with tertiary stress: Hammond (1987)

- No phonetic evidence is found for this ‘impressionistic’ feature (Blaho & Szeredi, 2011 and Vogel et al., in press)

- “this putative rhythmic intensity alternation is phonologically irrelevant as it does not interact in any way with the rest of the phonology” (Siptár & Tökenczy 2000: 22)

- Phonological correlates to all stresses are conspicuously absent (Kálmán & Nádasdy 1994; Blaho & Szeredi 2011)
Stress typology and ‘activation’

- Different languages might have different levels of **phonological activation** for a given feature (Clements 2001)
- This should also be the case for stress (Hyman 2014)
- English seems to have a highly activated stress system, which participates at all levels of the phonology
- Turkish and Hungarian seem to have some stress features (mostly **DEMARCATION** and **OBLIGATORINESS**), but these interact little with the rest of the phonology
- Mapudungun seems to be in the same category
- However, Mapudungun seems to display **morphological activation** of stress to an important degree.
  - It has a sub-lexical demarcative function, as well as signalling headedness of compounds and valency changes in the verb
Morphological typology and stress function

- Agglutinating languages typically display non-allomorphic and often sub-syllabic morphemes mapped to single meanings.
- In order to maintain the transparency of morphological paradigms, these languages actively avoid positional asymmetries.
- In fusional languages, allomorphy is more common, subordinating the morphology to phonological well-formedness criteria.
- van Coetsem (1997) claims dominant accent systems tend to follow a path towards analytical structures and fusion.
- Non-dominant accent systems – especially where there is morphological activation – will more easily retain synthetic, agglutinating features.
- Ultimately stress may take on a role that is rhythmic and structural, or one which is more demarcational and morphologically functional.
Thank you!