POST-GRADUATE COURSE ON FUNCTIONAL DISCOURSE GRAMMAR

PHONOLOGICAL LEVEL

IPC-FDG-2018, Salvador, Brazil

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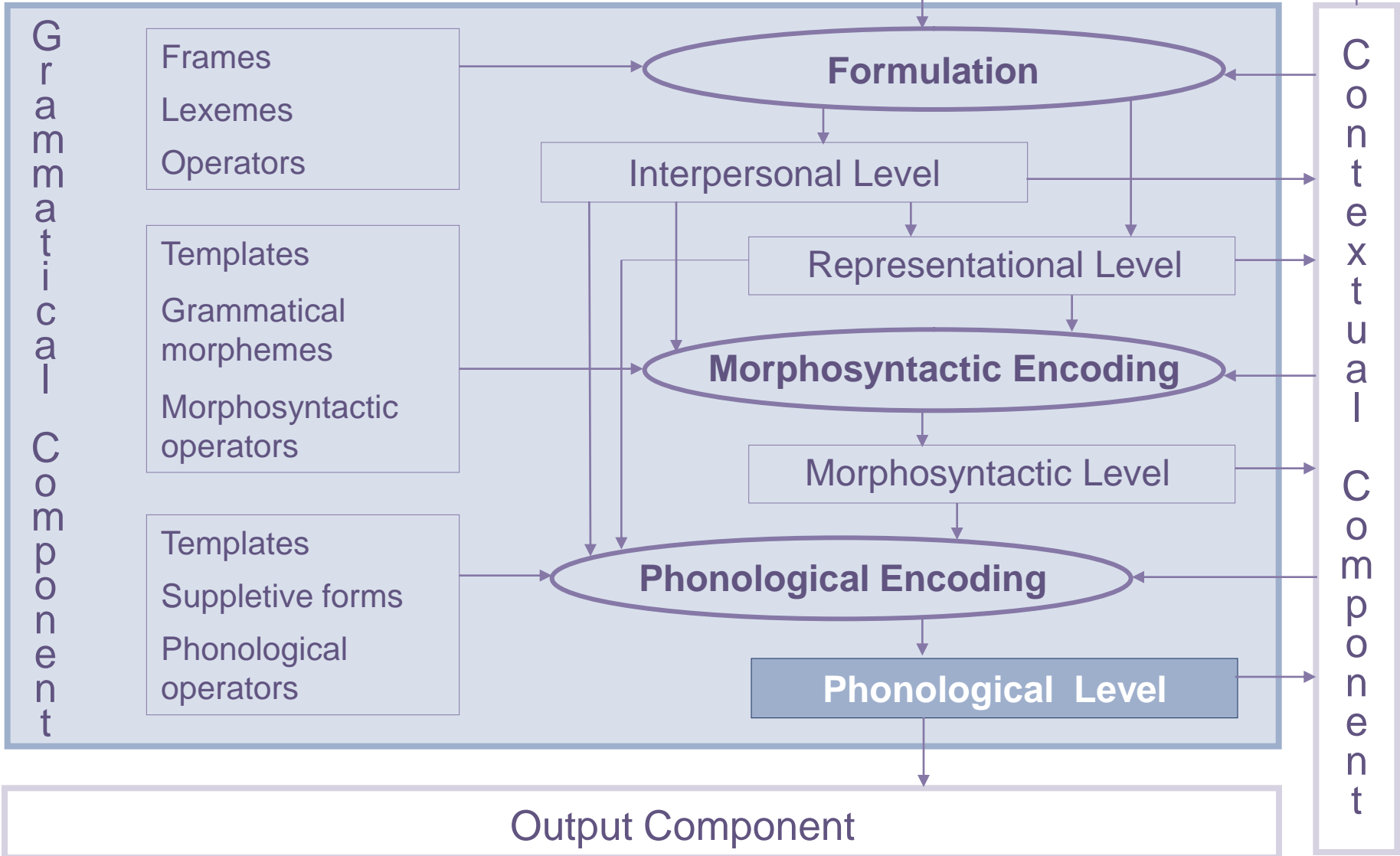- Phonological Words
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3 Phonological Encoding

Phonological Encoding

- The Phonological Level is obligatory in the production of a linguistic expression
- The Phonological Level receives its input from the three higher levels
  - Interpersonal: Illocution, pragmatic functions, operators (irony, emphasis)
  - Representational: lexical information (including word stress), scope relationships (structural ambiguities)
  - Morphosyntactic: allomorphs (e.g. /ən/, /ə/; suppletion (si*ng-sang-sung*), word order
- The Phonological Level feeds into the operation of Articulation, which converts these representations into acoustic, written or signed output.

Conceptual Component

Grammatical Component

| Frames |
| Lexemes |
| Operators |

Formulation

Interpersonal Level

Representational Level

| Templates |
| Grammatical morphemes |
| Morphosyntactic operators |

Morphosyntactic Encoding

Morphosyntactic Level

| Templates |
| Suppletive forms |
| Phonological operators |

Phonological Encoding

Phonological Level

Output Component

Contextual Component

Phonological Encoding

- Phonological encoding only; e.g. irony:
  - A: Peter will come to the meeting tonight.
  - B_1: That's just GREAT.
  - B_2: That's JUST great.

- Combination of phonological and morphosyntactic coding:
  - Abstract Illocutions (Declarative, Interrogative, etc.)
  - Cleft constructions
    - It was JOHN who suggested this.
    - word order (morphosyntactic template)
    - prosody (phonological template)

Hierarchical organization

Phonological layers

- The Utterance (U_1)
- The Intonational Phrase (IP_1)
- The Phonological Phrases (PP_1)
- The Phonological Words (PW_1)
- The Foot (F_1)
- Syllables (S_1)

Phonological Level

$(\pi\ U_1: [$ $]\ (U_1))$ Utterance

     $(\pi\ IP_1: [$ $]\ (IP_1))$ Intonational Phrase

         $(\pi\ PP_1: [$ $]\ (PP_1))$ Phonological Phrase

             $(\pi\ PW_1: [$ $]\ (PW_1))$ Phonological Word

               $(\pi\ F_1: [$ $]\ (F_1))$ Foot

                 $(\pi\ S_1: [\ \dots\ ]\ (S_1))$ Syllable

Example

- your entire family

$$(f \ PP_1: [\quad (PW_1: \quad (F_1: (ss_1: / j\sigma\partial r / (s_1)) \ (F_1)) \ (PW_1))$$
$$(PW_2: [\ (s_2: / \text{ɪn} / (s_2))$$
$$(F_2: (ss_3: / \text{taɪə} / (s_3)) \ (F_2))] \ (PW_2))$$
$$(PW_3: \quad (F_3: [\ (ss_4: / \text{fæm} / (s_4))$$
$$(s_5: / li / (s_5))] \ (F_3)) \ (PW_3))] \ (PP_1))$$

The Utterance

The Utterance (U_1)

- Utterances are the largest stretches of speech at the Phonological Level.

- They are separated from other Utterances by a substantial (intentional) pause.

- In speaking, Utterances typically correspond to Moves at the Interpersonal Level.
  - This only really works for shorter Moves – when Moves are longer, distinguishing Utterances on phonological grounds becomes more difficult.

- In writing, Utterances may correspond to a (short) paragraph.

Internal structure of the U_1

- Utterances consist of one or more Intonational Phrases:

  - $(\pi\ U_{1:}\ [(\pi\ IP_1)\ \dots\ (\pi\ IP_n)]\ (U_1))$

- The global intonation pattern of these Intonational Phrases is determined by the Illocution of a Discourse Act.

  - A: I saw Peter yesterday.

    B: I haven't seen him for ages. How is he?

- B's turn forms one Utterance, consisting of two Intonational Phrases, each with its own intonation pattern (falling/rising).

Operators of the Utterance

- Utterances can be specified (optionally) by the intonational operators 'fall' (f) and 'rise' (r), which have the effect of strengthening the falling or rising intonation of the Utterance as a whole.

  - … *They lived happily for many years*. But then things started to go wrong …

    (U_1: … (**f** IP_i: / ðeɪˈlɪvdˈhæpəlifəˈmeniˈjɪəz / (IP_1)) … (U_1))

  - … the next day they got married. *And they lived happily ever after*.

    (**f** U_1: … (f IP_1: / ðeɪˈlɪvdˈhæpəlˈɪˈevəˈɑːftə / (IP_1)) (U_1))

15 The Intonational Phrase

The Intonational Phrase (IP_1)

- Internally, Intonational Phrases contain a **nucleus**, i.e. a pitch movement on one (or more) Syllables characterizing the Phrase as a whole.

- The direction of the pitch change is determined by an operator (fall, rise)

- Neutral position of the movement is set language-specifically; in English, it is the nuclear syllable of the last PP_1

- Externally, Intonational Phrases are typically separated from each other by a short pause (shorter than the pause between two Utterances)

- Intonational Phrases typically correspond to a Discourse Act at the Interpersonal Level.

Relation to the Discourse Act (1)

- One-to-one relationship:

  - Her father advised aGAINST this – and so did ANdrew. (BNY-BNC)

    IL: $(M_1$: [$(A_1$: $[(F_1$: DECL $(F_1))$ $(P_1)_S$ $(P_2)_A$ $(C_1)]$ $(A_1))$

    $(A_2$: $[(F_2$: DECL $(F_J))$ $(P_1)_S$ $(P_2)_A$ $(C_2)]$ $(A_2)]$ $(M_1))$

    PL: $(U_1$:   [$(f$ IP$_1$: / həˈfɑðərədˈvaɪzdəˈgenstðɪs / $(IP_1))$

    $(f$ IP$_2$: / əndˈsəʊdɪdˈændruː / $(IP_2))]$ $(U_1))$

- Extent of (IP_1) can vary according to:

  - speed of delivery, attachment point of modifiers (e.g. *however*), integration of Discourse Acts, avoidance of ambiguity, demarcation of direct speech

Relation to the Discourse Act (2)

- No one-to-one relationship: two Discourse Acts, one IP

  - Her father advised against this and so did ANdrew.

  IL: $(M_i: [(A_1: [(F_1: DECL (F_1)) (P_1)_S (P_2)_A (C_1)] (A_1))$

  $(A_2: [(F_2: DECL (F_2)) (P_1)_S (P_2)_A (C_1)] (A_1))] (M_1))$

  PL: $(U_1: (f IP_1: / həˈfaðərədˈvaɪzdəˈgenstðɪsəndˈsəʊdɪdˈændruː / (IP_1)) (U_1))$

Relation to the Discourse Act (2)

- No one-to-one relationship: one Discourse Act, more than one IP

  - However, her father advised against this.

    IL: (contr A_1: [(F_1: DECL (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1)] (A_1))

    PL: (U_1: [(f IP_1: / haʊˈevə / (IP_1)) (f IP_2: / həˈfaðərədˈvaɪzdəˈgenstðɪs / (IP_2)) (U_1))

  - Her father, however, advised against this.

    PL: (U_1: [(f IP_1: / həˈfaðə / (IP_1)) (r IP_2: haʊˈevə / (IP_2))

    (f IP_3: ədˈvaɪzdəˈgenstðɪs / (IP_3)) (U_1))

Operators of the IP_1

- Intonational Phrases can be specified (optionally) by the operators 'fall' (f) and 'rise' (r), triggering a falling or rising pitch on the last stressed Syllable of the Phrase.

- Rising pitch, e.g. *Yes-no* Interrogatives or *if-clauses*:

  - Have you ever seen The Third Man?

    IL: $(M_1: (A_1: [(F_1: \text{INTER } (F_1)) (P_1)_S (P_2)_A (C_1)] (A_1)] (M_1))$

    PL: $(U_1: [(\mathbf{r} \; IP_1: / \; hœvjʊˈevəˈsi:nðəˈðɜdˈmœn / (IP_1)) (U_1))$

  - if you're tired just go to sleep on the couch (BYU-BNC)

    IL: $(M_1: [(A_1: [(F_1: \text{DECL } (F_1)) (P_1)_S (P_2)_A (C_1)] (A_1))_{\textbf{Cond}}$

    $\qquad (A_J: [(F_J: \text{IMP } (F_J)) (P_I)_S (P_J)_A (C_J)] (A_J)] (M_I))$

    PL: $(U_1: [(\mathbf{r} \; IP_1: / \; ˈɪfjʊəˈtaɪəd / (IP_1))$

    $\qquad\qquad (f \; IP_2: / \; ˈdʒʌstˈgəʊtʊˈsli:pɒnðəˈkaʊʃ / (IP_2)) (U_1))$

The Phonological Phrase

The Phonological Phrase (PP_1)

- In stress languages like English, Phonological Phrases contain one Syllable that is more strongly stressed: the **nuclear Syllable**.

- In English it is typically the nuclear Syllable of the final Phonological Phrase within an Intonational Phrase that carries the tone (**end focus**).

- In tone languages, the phonological phrase defines domain of **tone sandhi**.

- Phonological Phrases typically correspond to a Subact.

- Phonological Phrases consist of one or more Phonological Words:

  - $(\pi\ PP_1: [(PW_1)\ \ldots\ (PW_n)]\ (PP_1))$

Relation to the Subact

- Shakespeare wrote many sonnets

  - One-to-one relationship :

    (f IP$_1$: [(PP$_1$: / ˈʃeɪkspɪə / PP$_1$)) (PP$_2$: / ˈrəʊt / (PP$_2$)) (PP$_3$: / ˈmeniˈsɒnɪts / (PP$_3$))] (IP$_1$))

  - No one-to-one relationship:

    (f IP$_1$: [(PP$_1$: / ˈʃeɪkspɪə / PP$_1$)) (PP$_2$: / ˈrəʊtmeniˈsɒnɪts / PP$_2$))] (IP$_1$))

- in the case of polysyllabic words, the position of (primary and secondary) stress is fixed: this information is carried over from the higher levels of representation;

- in turn, these levels have received this information from the (grammatical) lexicon

Operators of the (PP_1)

- Reinforcement: full falls and rises, complex tones

- Awful!

  IL: (**emph** A_1: [(F_1: DECL (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1)] (A_1))

  PL: (U_1: (**f** IP_1: (**f** PP_1: / ˈɔːfəl / (PP_1)) (IP_1)) (U_1))

- Really??

  IL: (**emph** A_1: [(F_1: INTER (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1)] (A_1))

  PL: (U_1: (**r** IP_1: (**r** PP_1: / ˈrɪəli / (PP_1)) (IP_1)) (U_1))

- A: There's no class today.

- B: Terrific!

  IL: (**emph** A_1: [(F_1: DECL (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1)] (A_1))

  PL: (U_1: (**f** IP_1: (**r** PP_1: / təˈrɪfɪk / (PP_1)) (IP_1)) (U_1))

Pragmatic functions

- intonation can be sensitive to the presence of pragmatic functions
- does not bring about a movement in pitch, but results in relative pitch differences.

  - (Who did you trust?) I trusted Sue.

    IL: $(A_1: [(F_1: \textbf{DECL } (F_1)) (P_1)_S (P_2)_A (C_1: [(T_1) (R_1) (R_2: Sue (R_2))_{\textbf{FOC}}] (C_1)] (A_1))$

    PL: $(U_1: (\textbf{f } IP_1: [(PP_1: / \text{aɪ'trʌstɪd} / (PP_1)) (PP_2: / \text{'suː} /) (PP_2))] (IP_1)) (U_1)))$

  - Sue I trusted.

    IL: $(A_1: [(F_1: \textbf{DECL } (F_1)) (P_1)_S (P_2)_A (C_1: [(T_1) (R_1) (R_2: Sue (R_2)) \text{ } _{\textbf{CONTR}}] (C_1)] (A_1))$

    PL: $(U_1: (\textbf{f } IP_1: [(\textbf{h } PP_1: / \text{'suː} / (PP_1)) (PP_2: / \text{aɪ'trʌstɪd} /) (PP_2)] (IP_1)) (U_1))$

  - I've ALWAYS trusted Sue.

    IL: $(A_1: [(F_1: \textbf{DECL } (F_1)) (P_1)_S (P_2)_A (C_1: [(T_1) (T_2)_{FOC} (R_1) (R_2: Sue (R_2))] (C_1)] (A_1))$

    PL: $(U_1: (\textbf{f } IP_1: [(PP_1: / \text{aɪv'ɔːlwəz} / (PP_1)) (\textbf{l } PP_2: / \text{'trʌstɪd'suː} / (PP_2))] (IP_1)) (U_1))$

The Phonological Word

The Phonological Word (PW_1)

- The Phonological Word is a phonological unit between the Phonological Phrase and the Foot/Syllable.
  - not universal
  - exact definition depends on the language in question.
- In stress languages like English, the defining feature of a Phonological Word is the presence of one primary stress.
- This means that there is a default relation between lexemes/morphosyntactic Words and Phonological Words.
- Phonological Words consist of Feet (and Syllables):
  - $(PW_1: [(F_1) \dots (F_n)] (PW_1))$

Stress

- English: variable stress:
  - terrific
    (PW_1: / təˈrɪfɪk / (PW_1))
  - horrible
    (PW_1: / ˈhɒrɪbl / (PW_1))
  - individual
    (PW_1: / ˌɪndɪˈvɪdjʊəl / (PW_1))

- Other languages have fixed stress (first Syllable (e.g. Hungarian); last Syllable (Turkish), penultimate Syllable (Polish))
  - not marked in underlying structure

- Some languages: prosodic (phrasal) stress (e.g. Acehnese, French)
  - no need for separate Phonological Word layer

Relation to morphosyntactic Words

- One-to-one relationship:
  - Shakespeare wrote many sonnets.

ML: $(Cl_1: [(Np_1: (Nw_1: / \text{ˈʃeɪkspɪə} /) (Np_1))_{Subj}$

$(Vp_1: (Vw_1: \text{write-past}) (Vp_1))$

$(Np_2: [(Gw_1: / \text{ˈmeni} / (Gw_1))$

$(Nw_2: / \text{ˈsɒnɪt} /\text{-pl} (Nw_2))] (Np_2))_{Obj}] (Cl_1))$

PL: $(f \text{ } IP_1: [(PP_1: (PW_1: / \text{ˈʃeɪkspɪə} / (PW_1)) (PP_1))$

$(PP_2: (PW_2:/ \text{ˈrəʊt} / (PW_2)) (PP_2))$

$(PP_k: [(PW_k:/ \text{ˈmeni} / (PW_k))$

$(PW_l: / \text{ˈsɒnɪts} / (PW_l))] (PP_k))] (IP_1))$

Relation to morphosyntactic Words

- No one-to-one relationship:
  - *You've* lost.

    ML: $(Cl_1: [(Np_1:$ **$(Nw_1:$ you $(Nw_1))$ $(Vp_1: [(^{fin}Vw_1:$ have.2.sg $(Vw_1))$**
    $(^{non-f}Vw_2:$ lose.past-part $(Vw_2))]$ $(Vp_1))]$ $(Cl_1))$

    PL: $(U_1: (f\ IP_1: [(PP_1:$ **$(PW_1: /$ juv $/$ $(PW_1)))$** $(PP_1)))$ $(PP_2: (PW_2:/$ ˈlɒst $/$ $(PW_2)))$
    $(PP_2))]$ $(IP_i))$ $(U_1))$

  - ex-president

    ML: $(Nw_1:$ ekspresident $(Nw_1))$

    PL: $(PW_1: /$ ˈeks $/$ $(PW_1))$ $(PW_2:/$ ˈpresident $/$ $(PW_2))$

- The correlation between Phonological Words and morphological Words is best in isolating, agglutinating and fusional languages; in polysynthetic languages complex Words may correspond to several Phonological Words.

The Foot

The Foot

- Feet consist of one strong Syllable and (in most cases) one weaker Syllable.

- Strong Syllables may have primary or secondary stress. Primary stress is triggered by the stress operator 's' on both the Foot and the Syllable:
  - introspective

  $(\text{PW}_{1:} [\quad (\text{F}_1: [(\mathbf{s}\text{S}_1: / \text{ɪn} / (\text{S}_1)) (\text{S}_2: / \text{trəʊ} /) (\text{S}_2)] (\text{F}_1))$

  $(\mathbf{s}\text{F}_2: [(\mathbf{s}\text{S}_3: / \text{spek} / (\text{S}_3)) (\text{S}_4: / \text{tɪv} / (\text{S}_4))] (\text{F}_2))] (\text{PW}_1))$

- Some (unstressed) syllables do not form part of a Foot ('unfooted'):
  - dependent

  $(\text{PW}_{1:} [\quad (\text{S}_1: / \text{dɪ} / (\text{S}_1))$

  $(\text{sF}_1: [(\mathbf{s}\text{S}_{2:} / \text{pen} / (\text{S}_2)) (\text{S}_3: / \text{dənt} / (\text{S}_3))] (\text{F}_1))] (\text{PW}_1))$

Iambic reversal

- Crosslinguistically, Feet are either
  - trochaic (first Syllable is strong)
  - iambic (second Syllable is strong)

- Most languages (including) English, have only trochaic Feet (see examples above).

- In the case of a stress clash iambic reversal may take place:
  - fourTEEN

    $(PW_1: [(F_1: (ss_1: / f\text{ɔ}: / (s_1)) (F_1)) (\mathbf{s}F_2: (ss_2: / ti:n / (s_2)) (F_2))] (PW_1))$
  - FOURteen PEACHes

    $(PW_1: [(\mathbf{s}F_1: (ss_1: / f\text{ɔ}: / (s_1)) (F_1)) (F_2: (ss_2: / ti:n / (s_2)) (F_2))] (PW_1))$

The Syllable

The Syllable

- A syllable is a grouping of phonemes:
  - Onset – [peak – coda]$_{rhyme}$
    - Peak is required
    - Peak is typically either a vowel or a syllabic consonant

- The Syllable is the domain of phonotactic rules, i.e. language-specific constraints on which (combinations) of sounds are allowed .

- In English, for instance, open Syllables (i.e. Syllables ending in a peak) must have a peak consisting of a long vowel, a diphthong or a schwa; if the peak is a short vowel, it must be followed by a coda.

Ambisyllabicity & degemination

- Ambisyllabicity:
    - the coda of (s_n) also functions as the onset of (s_{n+1})
        - better

            (PW$_1$: (sF$_1$: [(ss$_1$: / be**t** / (s$_1$)) (s$_2$: / **t**ə / (s$_2$))] (F$_1$)) (PW$_1$))

- Degemination:
    - ambisyllabicity is typically followed by a process of degemination: the Articulator reduces the two phonemes to a single phoneme
    - In English, degemination does not take place between separate morphemes, e.g. in derived Words like *night train*
        - night train

            (Nw$_1$: [(Ns$_1$: / naɪt / (Ns$_1$)) (Ns$_2$: / treɪn / (Ns$_2$))] (Nw$_1$)))

            (PW$_1$: (sF$_1$: [(ss$_1$: / naɪt / (s$_1$)) (s$_2$: / treɪn / (s$_2$))] (F$_1$)) (PW$_1$))

Relation to ML-units

- PL-units need not correspond to ML-units (Stems, Affixes)

  - French: liaison

les	anciens	élèves
the	former	pupils

    ML: $(Np_1$: $[(Gw_1$: le.pl $(Gw_1))$ $(Ap_1$: $(Aw_1$: anciens.pl $(Aw_1))$ $(Ap_1))$ $(Nw_1$: elɛv.pl $(Nw_1))]$ $(Np_1))$

    PL: $(PP_1$: $[(S_1$: / le / $(S_1))$ $(S_2$: / **z**ɑ̃ / $(S_2))$ $(SS_3$: / sjɛ̃ / $(S_3))$ $(S_4$: / **z**e / $(S_4))$ $(SS_5$: / lɛv / $(S_5))]$ $(PP_1))$

  - The final (latent) consonants of the morphosyntactic Words *les* and *anciens* are pronounced as the onset of the following Syllables (S_j and S_l, respectively).

Tone languages

- In many tone languages, the Syllable is the location of tonal distinctions, e.g. Thai (Maddieson 2005: 58):

  - k^háá 'trade$_V$

    ($\mathbf{h}$s$_1$: / kha: / (s$_1$))

- In tonal accent languages, the tone and stress operators are combined, e.g. Swedish (Gårding 1998: 114):

  - tanken 'the thought'

    (F$_1$: [($\mathbf{hs}$s$_1$: / t^haŋk / (s$_1$)) (s$_2$: / ɛn / (s$_2$))] (F$_1$))

- In accentual tone languages, the tone (from the lexicon) applies to the PW; in Japanese the stress operator can apply within words with a high tone (Hirst and Di Cristo 1998: 10):

  - kakí 'fence'

    ($\mathbf{h}$PW$_1$: [(s$_1$: / ka / (s$_1$)) ($\mathbf{s}$s$_2$: / ki / (s$_2$))] (PW$_1$))

Exercises

Exercise 1

□ In the following short dialogue, the element *really* can be pronounced in different ways, depending on the Speaker's intentions (given between brackets).

A: Peter thinks you're marvellous.

B: Really! (expressing surprise)

Really. (expressing irony)

□ Provide representations at the Interpersonal and Phonological Levels that bring out the difference between the two realizations of *really*.

Exercise 1: key

- IL: (emph A_1: [(F_1: DECL (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1: [(T_1: really (T_1))] (C_1))] (A_1))

- PL: (U_1: (f IP_1: (f PP_1: / ˈrɪəli / (PP_1)) (IP_1)) (U_1))

- IL: (irony A_1: [(F_1: DECL (F_1)) (P_1)$_S$ (P_2)$_A$ (C_1: [(T_1: really (T_1))] (C_1))] (A_1))

- PL: (U_1: (f IP_1: (l PP_1: / ˈrɪəli / (PP_1)) (IP_1)) (U_1))

or

- PL: (U_1: (f IP_1: (r PP_1: / ˈrɪəli / (PP_1)) (IP_1)) (U_1))

Exercise 2

- Provide the complete phonological representations of the following words and comment on the differences between them (with regard to stress pattern and Syllable structure):

  1. ˈpost-ˈhoc
  2. ˈpostscript
  3. ˌpostˈpone

Exercise 2: key

- Provide the complete phonological representations of the following words and comment on the differences between them (with regard to stress pattern and Syllable structure):

    1. ˈpost-ˈhoc
    - $(PW_1: (F_1: (SS_1: p\text{əʊ}st (S_1)) (F_1)) (PW_1)) (PW_2: (F_2: (SS_2: h\text{ɒ}k)) (S_2)) (F_2)) (PW_2))$

    2. ˈpostscript
    - $(PW_1: (F_1: (SS_1: p\text{əʊ}st (S_1)) (S_2: skr\text{ɪ}pt)) (S_2)) (F_2)) (PW_1))$

    2. ˌpostˈpone
    - $(PW_1: (F_1: (SS_1: p\text{əʊ}st (S_1)) (F_1)) (SF_2: (SS_2: p\text{əʊ}n)) (S_2)) (F_2)) (PW_1))$