

# Introduction to Phonetics & Phonology Ježek Session 4

Mgr. Miroslav Ježek, Ph.D.  
Brno, 6<sup>th</sup> April  
2020

# SUPRASEGMENTAL FEATURES OF ENGLISH


# Suprasegmentals

- Also called **prosody**.
- They are concerned with characteristics stretching over more than one segment (i.e. sound). They might concern syllables, intonational phrases, sentences, clauses, utterances.
- Primary suprasegmentals include
  - stress (a combination of loudness, pitch and length);
  - rhythm;
  - intonation.
- Secondary suprasegmentals include
  - tempo;
  - voice quality.

# Syllable

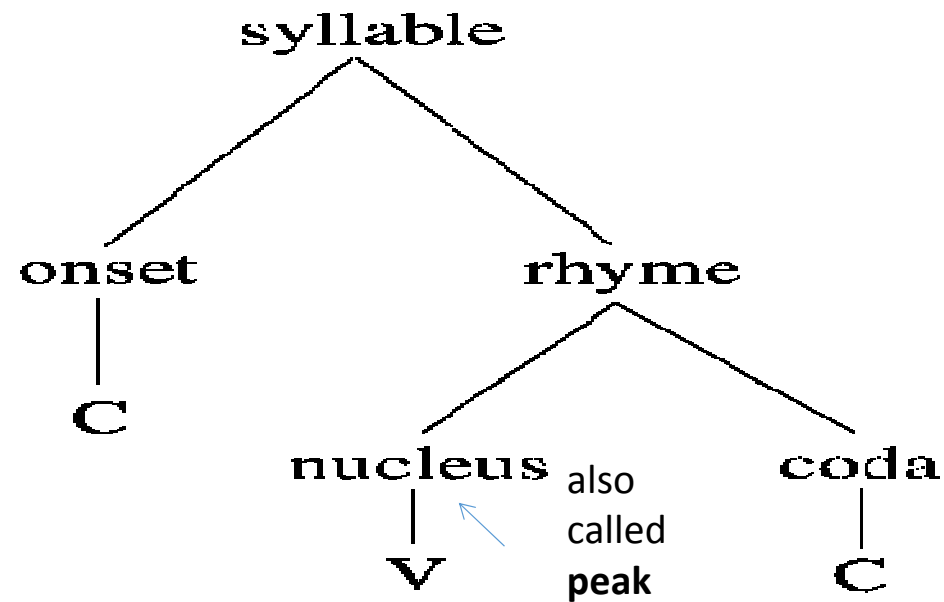
- Sometimes dealt with in segmental phonology, but typically it involves more segments than one, therefore it is dealt with here.
- Intuitively felt but quite difficult to define.
- 'a unit larger than the phoneme but smaller than the word' (Collins and Mees 2003: 14).
- Another attempt invokes the concept of prominence or **sonority**.
  - Sounds which are sonorous are more prominent, i.e. they require more vocal energy and are thus perceived as louder.

# The sonority hierarchy

- English vowels and consonants are ranked according to their level of sonority.
  - The hierarchy is as follows (voiced consonants are always more sonorous than their voiceless counterparts):
    - vowels;
    - approximants /j, w, l, r/;
    - nasals;
    - fricatives;
    - affricates;
    - plosives.
- 
- most sonorous
- least sonorous

# Syllable

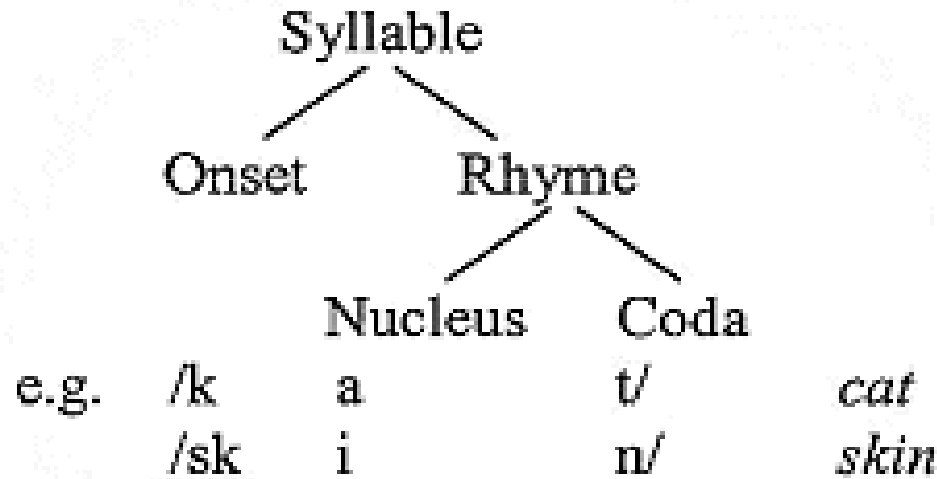
- Syllables are analysed as follows:



[https://www.researchgate.net/figure/Onset-rhyme-syllable-tree\\_fig5\\_11426838](https://www.researchgate.net/figure/Onset-rhyme-syllable-tree_fig5_11426838)

# Syllable

- The least sonorous sounds (true consonants, i.e. fricatives, affricates, plosives) are found in onsets and codas whereas the most sonorous ones are in peaks (nuclei).
- Thus



Source: same as above.

# Syllable

- Peaks are always present, onsets and codas might be missing.
- Syllabic peaks are often represented by vowels (*cat* and *skin* from the previous slide), but also consonants-> syllabic consonants, e.g. /l/, /r/, /n/, /m/ (not true consonants, though, apart from onomatopoeic words like *shhh*, *zzz*).
- Examples of syllabic consonants:
  - Czech *vlk*, *krk*;
  - English *even*, *little*, *bottom*.
- Syllabicity is transcribed by the following diacritic mark below the phonetic symbol itself [̩], thus *little* is [lɪt̩l̩]
  - (it should be right below the dark /l/, of course, but after a 100-minute-long fight I capitulated...)



# Syllable

- **open** (the coda is missing; *may*) v. **closed** (with coda; *hat*)  
**syllables**
- in English, spelling is often misleading (*baked* is, of course, just a single syllable, despite the fact that in many other languages, including Czech, it would be a two-syllable word...)
- How to establish syllable boundaries?
  - *Lon-don* (two vowels=two peaks=two closed syllables).
  - *extra* (two vowels=two peaks=two syllables, but where is the boundary?). Could be /e-kstra/, /ek-stra/, /eks-tra/, /ekst-ra/? Probably not the first one, as such a **consonant cluster /kstr/** is otherwise highly improbable in the onset position.

# Syllable boundaries

- potentially homophonous pairs like *peace-talks* and *pea-stalks*. Are they truly homophonous? Not really, since syllable boundaries tend to be in accordance with morpheme boundaries.
  - Thus the *pea* vowel is slightly longer than the *peace* vowel because it signals where the syllable/morpheme boundary is.
  - Similarly, the two /e/ vowels in *selfish* and *shellfish* are not entirely the same either. *Selfish* /e/ is a bit shorter because the boundary is *self-ish*, unlike *shell-fish*. Moreover, in this example /f/ will be louder in *shell-fish* because it is always louder in the onset position rather than the coda one (i.e. syllable-initially rather than syllable-finally).

Based on Wells (1982: 86).

# Stress

- In transcription, the following diacritic is used preceding the stressed syllable ['].
- Some linguists also call it **accent**, others distinguish between the two:
  - E.g. Cruttenden (2014) agrees that very often stressed syllables are accented as well, but see the example below:
  - A (coming in from outside): *Someone stole my 'phone*. (the stressed and accented syllable are identical). The situation continues like this:
  - B (looking down, averting his eyes...): *Oh, well, you know, I thought...*
  - A (putting two and two together): *'You stole my 'phone*. (the *pho*-syllable is still stressed, but the accented syllable is the *you* one because it is the new piece of information).

# Stress

- **Word stress v. sentence stress.**
- Stress is the degree of prominence attached to a particular syllable (especially in comparison with the other syllable(s) in the given word/sentence).
- It is realised by a combination of
  - loudness;
  - pitch;
  - and sometimes vowel quality and vowel quantity as well.

# Loudness

- The stressed syllable is auditorily perceived as louder; i.e. it stands out against the other(s).
- From the articulatory point of view, it is pronounced with greater **intensity**.
- So intensity (speaker) and loudness (listener) are two sides of the same coin.

# Pitch

- According to many linguists variation in pitch is the most important factor in determining stress in English.
- It refers to how humans perceive sounds, either high or low (or something in between, naturally...).
- From the point of view of speech production, pitch is physically the speed of vibration of vocal cords (i.e. the frequency).
- Higher pitch=stronger stress.
- Pitch variation is discussed below (in Intonation).

# Vowel quantity and quality

- Stress may influence the **quality** of the vowel:
  - E.g. 'famous [eɪ] v. 'infamous [ə].
- Stress may influence the **quantity** as well:
  - E.g. des'sert [ɜː] v. 'desert (noun) [ə].
    - Yes, the two phonetic symbols in *dessert* and *desert* are different but, to all intents and purposes, their quality is identical (certainly not audible to the naked ear), so the duration/length/quantity is the sole difference.

# Word stress

- In some languages, word stress is fixed on one syllable across the entire lexicon
  - Czech (1<sup>st</sup> syllable), French (last syllable), Polish (penultimate syllable)
- In English, word stress is **fixed** (insofar as stress falls on a particular syllable of a given word) and **free** (insofar as it can fall on any syllable of that word)
- As a result, word stress is lexically designated in English and, despite some tendencies and rules, it has to be learnt for every single word.
- Equally, lexically designated word stress in English is extremely important to master to avoid potential misunderstandings.



# Word stress

- In some languages word stress is indicated in spelling.
  - E.g. Italian *pero* (*pear*, 1<sup>st</sup> syl.) v. *però* (*however*, 2<sup>nd</sup> syl.); *città*, *università* (last syllable), etc.
    - Sadly, in many other words the stress in Italian is not signalled via spelling, therefore foreigners go to piz'zeria, while in fact the stress is on the last syllable, thus pizze'ria [pɪtʃɛ'ri:a]. Cf. some famous cities like Napoli or Genova.
- In English, word stress is sometimes phonemic, i.e. it is the sole distinguishing mark between two words:
  - Homophonous pairs like *'billow* v. *be'low* ; *'import* (noun) v. *im'port* (verb)
- But often one vowel is **full** while the other is **weakened**, and the noun/verb pairs are thus not homophonous:
  - *'present* (noun, /'prɛzənt/) v. *pre'sent* (verb, /prə'zɛnt/);

# Word stress

- In some accents of English vowel weakening (also called **vowel reduction**) is not as common as in RP/GenAm.
- Most notably, accents in the North of England often have two full vowels even though only one is stressed, of course. This is very common in monosyllabic prefixes such as:
  - *conspire* [kɒn'spɪə]; *exaggerate* [ɛg'zadzəreɪt], etc.
- Note that there are quite a lot of English two-syllable words with both vowels realised as full vowels (and they are not linked with any particular regional or social accent), cf. *record* (noun), *accent* (noun), *baton*, AmE *address*, etc.

# Weak and strong forms; contracted forms

- It is crucially important to master these for a native-like pronunciation.
- Example:
  - *I came in, **was** there alone, so I then left.* [wəz]
  - A: *You were not surprised at all, were you?*
  - B: *I **was**. I never knew she was gonna do it.* [wɒz]
- Contracted forms: *I'd* [aɪd, ad], *you have* [juv], etc.
- Study the list in Cruttenden (2014: 273-5).

# Prefixes and suffixes

- Prefixes usually do not change the words stress.
- Suffixes are
  - accent-neutral (no change), *'difficult- 'difficulty*;
  - accent-attracting (stress on the suffix), *'cigar-ciga'rette*;
  - accent-fixing (fixes the stress on a different syllable), *'curious-curi'osity*
- Study Cruttenden (2014: 246-8) for more information.

# Compounds

- There are some guidelines for non-native learners of English regarding word stress in compounds (albeit they are very rough as there are numerous exceptions).
- In addition to Cruttenden (2014: 248-52), study the handout from Collins and Mees (2003: 113-4) uploaded in the IS, where some interesting rules are proposed and various groups of compounds are discussed:
  - Initial Element Stress (IES) v. Final Element Stress (FES);
  - The Manufacturers Rule;
  - The Location Rule
  - food items, proper nouns, etc.

# Primary and secondary word stress

- multi-syllable words usually have two syllables stressed, one is called **primary stress** ['], the other **secondary stress** [ˌ].
- *characteristic* [ˌkærəktəˈrɪstɪk], *examination* [ɪgˌzæmɪˈneɪʃn].
- Following the distinction between accent and stress (as maintained in Cruttenden, for example), the secondary-stressed syllable indicates that the syllable is stressed, but not accented (it is the syllable under primary stress which is both stressed and accented).

# Antepenultimate stress shift

- some multi-syllable words have recently (=sometimes the change is actually a few decades old...) undergone a stress shift whereby the primary stress moved to the last but two syllable (=the antepenultimate one).
- While there are many words where this has always been the only option (e.g. *methodo'logical*), in other words there are now two competing variants (older variants are given first below):
  - *'controversy* v. *con'troversy*;
  - *'explicable* v. *ex'plicable*;
  - *Carib'bean* v. *Ca'ribbean*, etc.

## Antepenultimate stress shift

- Sometimes, the pressure is so high that the new stress clearly clashes with the etymological background of the word:
- *kilometre* :
  - older variant ['kɪləmi:tə] respects the fact that the word consists of two independent morphemes, namely *kilo* + *metre*
  - the newer one [kɪ'lɒmətə] does not.



# Sentence stress

- In connected speech, words that have little/no information load (they are often **function** words, e.g. prepositions, articles, auxiliary verbs, pronouns, conjunctions, etc.) lose their word stresses, while the ones with a high information load (often **content** words, e.g. nouns, full verbs, adjectives, adverbs) are stressed.
- *I've'heard that my'boss was'fired'yesterday.*
- In the sentence above, the content words are all stressed while function words are not.
- One word in the sentence carries the highest information load and duly receives the strongest stress—in the example above it is *'fired*.

# Sentence stress

- Potentially, though, any word in the example sentence can receive primary stress to express contrast:
  - ***I**'ve'heard that my'boss was'fired'yesterday.* (i.e. not you);
  - *I've'**heard** that my'boss was'fired'yesterday.* (not read about it);
  - *I've'heard that **my**'boss was'fired'yesterday.* (not yours);
  - *I've'heard that my'**boss** was'fired'yesterday.* (not my secretary);
  - *I've'heard that my'boss **was**'fired'yesterday.* (although you are now saying he was not);
  - *I've'heard that my'boss was'fired'**yesterday**.* (not the day before).

# Rhythm

- It refers to the pattern syllables are (un)stressed in speech with regard to timing.
- English is said to belong to **stress-timed** languages—the stressed syllables come at regular intervals, regardless of how many unstressed syllables there might be in between the stressed ones (the syllables are lengthened or shortened to occupy the same amount of time).
  - But cf. Cruttenden (2014: 271) and his argument that it may not be like that in English at all.
  - Other stress-timed languages include e.g. Dutch, German, Russian, Danish.
- There are **syllable-timed** languages as well—each syllable (no matter whether stressed or unstressed) is of equal length.
  - Syllable-timed languages include e.g. French, Italian, Spanish, Czech.

# Rhythm

- Examples:
  - English: *mean/meaning/meaningful*;
  - Czech: *ples/plesat/plesový*.
- In syllable-timed Czech, *plesat* is, ideally, twice as long as *ples*, and *plesový* three times as long as *ples*.
- In stress-timed English, the three words should, ideally again, be of equal length regarding time. We can transcribe it as follows (hyphens indicate the length of the stressed [i:] vowel):
  - *mean/meaning/meaningful*
  - ---- / --- . / -- . .
  - If we measure it, then *meaningful* probably takes a bit longer to pronounce than *mean*, but there is a clear tendency for [i:] in *mean* to be audibly longer than [i:] in *meaning* and even more so than [i:] in *meaningful*. As if the stressed vowel is reduced/shortened to make space for the unstressed syllable in *meaning* and the two unstressed syllables in *meaningful*.

# Intonation

- often called the melody of speech.
- the classic definition by Crystal (1975: 11) maintains that 'intonation is not a single system of contours and levels, but the product of the interaction of features from different prosodic systems – *tone, pitch-range, loudness, rhythmicality* and *tempo* in particular'.

# Intonation

- In a narrower sense of the word, intonation refers to variation in pitch (**pitch changes**) that does not distinguish word meanings, i.e. it is not tonemic (=tone with the same function as phoneme in English)
  - (like it is in Chinese and other tone languages, where identical phonemes (e.g. [ma:]) have different meanings depending on which pitch change is used).
- In English, Czech and most other European languages, words with various pitch changes do not change meanings but they signal something else (see below).

# Intonation- pitch changes

- Pitch changes include several types, the main ones are:
  - Falls (symbol \);
  - Rises (symbol /);
  - Fall-Rises (symbol ∨);
  - Rise-Falls (symbol /\).
- With individual words, the only possible place for the pitch change is the main word stress:
  - E.g. single-word reactions like *Really?*, *What?*, *No.*, *Yes.*, etc.
- In longer utterances, there might be several word stresses, but only one of them is given primary sentence (utterance) stress.
  - E.g. *I've **never** seen such a **terrible** performance.* (quite a few possible primary stresses here; in the actual utterance only one will be chosen by the speaker to stand out above the rest).

# Intonation- functions of pitch changes

- Pitch changes have the following three main functions (according to Cruttenden 2014: 277):
  - 1/ to signal boundaries between **intonational phrases**;
  - 2/ to signal primary and secondary word stresses;
  - 3/ to signal other types of meaning:
    - discoursal (e.g. turn-taking; questions v. statements v. imperatives; finished v. unfinished utterance)
    - attitudinal (expressing doubt, surprise, certainty, etc.)
    - focusing (which word in the utterance is crucial; cf. all the options in *I've heard that my boss was fired yesterday* in slide 26)



# Intonational phrases

- Apart from pitch changes, **intonational phrases (IPs)** are marked by pauses or by lengthening the pre-boundary syllable.
- Intonational phrases typically follow syntactic and discourse structures:
  - The symbols are: | for minor boundaries, || for major ones.
  - Thus: *Sadly | she gave me nothing | for my twentieth birthday ||*
- Sometimes the boundary is crucial for the meaning:
  - *Do you want some more wine? 1/ I don't know. 2/ I don't. No.*
    - Homophonous answers but 1/ is one IP (=1 pitch change, no boundary) while 2/ is 2 IPs (=2 pitch changes divided by a boundary)

# Intonational phrases- nucleus

- The primary stress in an intonational phrase is called the **nucleus**; it is the last accented syllable in the IP. There falls the major pitch change (= **nuclear tone**).
  - *Jane has completed the whole exercise in a minute.*
  - - · · - · · · - · · · · ) ·
    - (stressed syllables - ; unstressed · ; and the curved line signals the pitch change in the nucleus)
- Do not confuse *nucleus* in IPs with *nucleus* as the obligatory element in syllable structure theory.

# Nuclear tones (pitch changes)

- **Falls \ :**

- By far the most common (70% of all utterances)
- typically in declaratives, wh-questions, commands and/or to express boredom, a lack of interest.
- *I don't \care.*
- *What \books have you read recently?*
- *I'll send him an \email. \ When do you want to do it?*
- *Stop that \noise!*
- *I'm going to show you the latest version of Kill the Bastard PC game! \Really. (there's nothing more boring than that...)*

# Nuclear tones (pitch changes)

- **Rises / :**

- typically in yes/no questions, when asking for more information (clarification), to signal the speaker has not finished enumerating something and/or to express happiness, anger, surprise.
- *Are you /ready?.*
- *The answer is \twenty, /isn't it?*
- *I'll speak about it with my \mom. /Who?*
- *For this dish we need /milk, /butter, /flour, /jam, and \sugar.*
- *You'll have to do the exam a\gain. Do it a/gain?!*

# Nuclear tones (pitch changes)

- **Rise-falls / \ :**

- typically in offering two options, when the speaker is impressed or annoyed.
- *Would you like / \ coffee or tea?* (one or the other)
  - *Cf. Would you like coffee or /tea?* (the speaker is interested in whether yes/no, not which drink the hearer may want)
- *I paid twenty / \ thousand for that phone.*
- A drunk man spills red wine over your white blouse: *Ex/ \cuse me!*

# Nuclear tones (pitch changes)

- **Fall-rises \/ :**

- typically when speaker wants more information, to express utter shock, or to signal the utterance is not finished
- *Can you help /me? \/ Yeah?* (possibly, but what exactly do you want me to do for you?)
- *You'll have to do the exam a\gain. Do it a\gain?!*
- *\Who is she? Well, I know her \/face but I don't know what she's called.* (the fall-rise suggests the speaker should not be interrupted as he/she has more to say, the hearer knows there will be some 'but')

# Upspeak/uptalk (high rising terminal)

- Out of many irregularities in English intonation, this is the one that has been most thoroughly described.
- It refers to the use of rising nuclear tone in statements (where normally a falling tone is employed).
- It's popular in certain parts of the US (the Valley girl), GB (especially Liverpool + among younger speakers of English), in Australian English.
- *I work as a /teacher. I teach /maths. I really like /it.*

# Conclusion

- Intonation is a far more complex phenomenon than could be discussed here. It shows a great deal of variation both socially and regionally as well as among individual speakers (i.e. within their idiolects).
- The focus here is on what people typically say in particular settings to communicate particular meaning—naturally, in many cases a different nuclear tone could be used to communicate something else.
- Also, intonation is largely neglected in the ELT milieu—arguably because of its complexity as well as because of the fact that it is, to a large extent, subconscious; it is acquired through exposure to native speakers of a language rather than through slavish imitation and hard work in the classroom (unlike e.g. /th/ that learners can and do practise a lot).
- Segmentals belong to the realm of WHAT you say whilst suprasegmentals are about HOW you say something. But, as we all know, the latter is often far more important 😊.



# Videos

- In order to expose you to some native English and the matters discussed in this presentation, I have watched a number of videos on the internet. Here is a selection of the best I have managed to find:
- For basic info: <https://www.youtube.com/watch?v=1Ha15yy0lWo> (his voice is good ol' RP. And here: <https://www.youtube.com/watch?v=1Ha15yy0lWo> (a mixture of RP and GenAm, a lot of good examples)
- Fall-rise nuclear tone is discussed here: <https://www.youtube.com/watch?v=1Ha15yy0lWo> (RP guy above) and here <https://www.youtube.com/watch?v=8NH4cVHYBI> (American English)
- Upspeak: GenAm: <https://www.youtube.com/watch?v=HEfMwri22SM>; RP: <https://www.youtube.com/watch?v=q3o0jz2ocCw>; Scouse (Liverpool) English (listen out for the statements he teaches the poor Russian guy): <https://www.youtube.com/watch?v=5eALDOPFZLg>

# Videos

- Last but not least, here is an immensely interesting video: Radek Skarnitzl from *Uvolnete se, prosim*. He is an associate professor at the Institute of Phonetics, Charles University, Prague.
- <https://www.youtube.com/watch?v=ZjKbBB-JpmQ>
- Interesting parts of the interview:
  - 05.18: word stress in Czech and its overall perception by non-native speakers of Czech
  - 9.50: Moravian v. Bohemian intonation in questions
  - **12.52: comparison between Czech and English intonation patterns (prosodická fráze=intonational phrase).**

# References

- COLLINS, Beverley and Inger Mees. 2013. *Practical Phonetics and Phonology*, 3<sup>rd</sup> ed. London: Routledge.
- CRYSTAL, DAVID. 1975. 'Prosodic features and linguistic theory' in *The English tone of voice: essays in intonation, prosody and paralanguage*. London: Edward Arnold.
- CRUTTENDEN, Alan. 2014. *Gimson's Pronunciation of English*, 8<sup>th</sup> ed. London: Routledge.
- WELLS, J. C. 1982. *Accents of English*, 3 vols. Cambridge: Cambridge University Press.