Synchronic typology of metrical systems

Day 1: Introduction / Phonetic correlates of metrical structure

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Goals of this course

- Course description:

"In this course, we discuss two aspects of the topic: the cross-linguistic typology of linguistic rhythm and the phonetic correlates of main stress."

Some fundamental issues this course addresses

- What is stress? How do we produce / perceive it?
- What is the relationship between stress and rhythm?
- How is stress represented in moraic phonology (syllables and feet)?

Day-to-day program

- Monday – Introduction / phonetic correlates of stress
- Tuesday – Moraic Phonology
- Wednesday – Foot inventory
- Thursday – Foot inventory II
- Friday – Metrical structure in Optimality Theory

What is stress?

- General questions:
  - What are the correlates of stress?
  - Is there a fixed order of the correlates across languages?
  - What are your intuitions?

Some of the most important phonetic correlates of stress

- Attraction of (intonational) tones
- Higher pitch
- Longer duration / lengthening of stressed syllables
- Higher intensity
- Lenition in unstressed syllables (reduction / deletion)
- Fortition in stressed syllables (vowels / consonants)

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Attraction of intonational tones

- Prominent pitch movements commonly take place in stressed syllables
- Commonly regarded as the strongest correlate, but rather as a correlate of sentential stress rather than word stress / lexical stress

Citation / Declaratives

(a) p e r m i t (noun)

(b) p e r m i t (verb)

Question

(a) p e r m i t (noun)

(b) p e r m i t (verb)

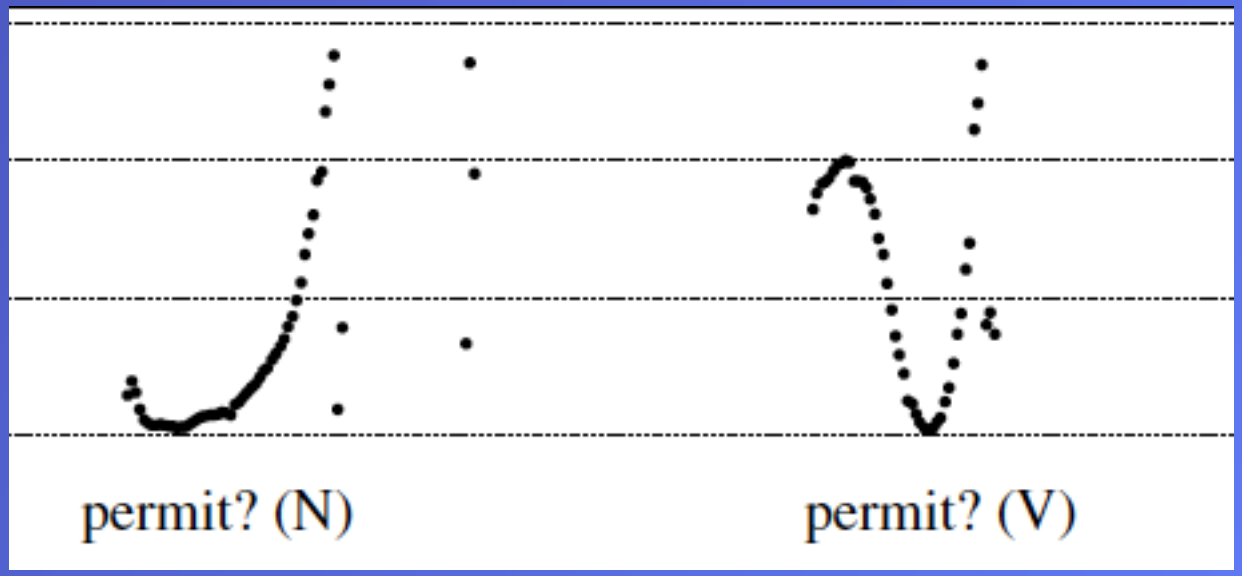
taken from Ladd (2008)

Question I

(a) p e r m i t (noun)

(b) p e r m i t (verb)

Question II



taken from Gussenhoven 2004

Small experiment

- Manipulating pitch / duration in praat

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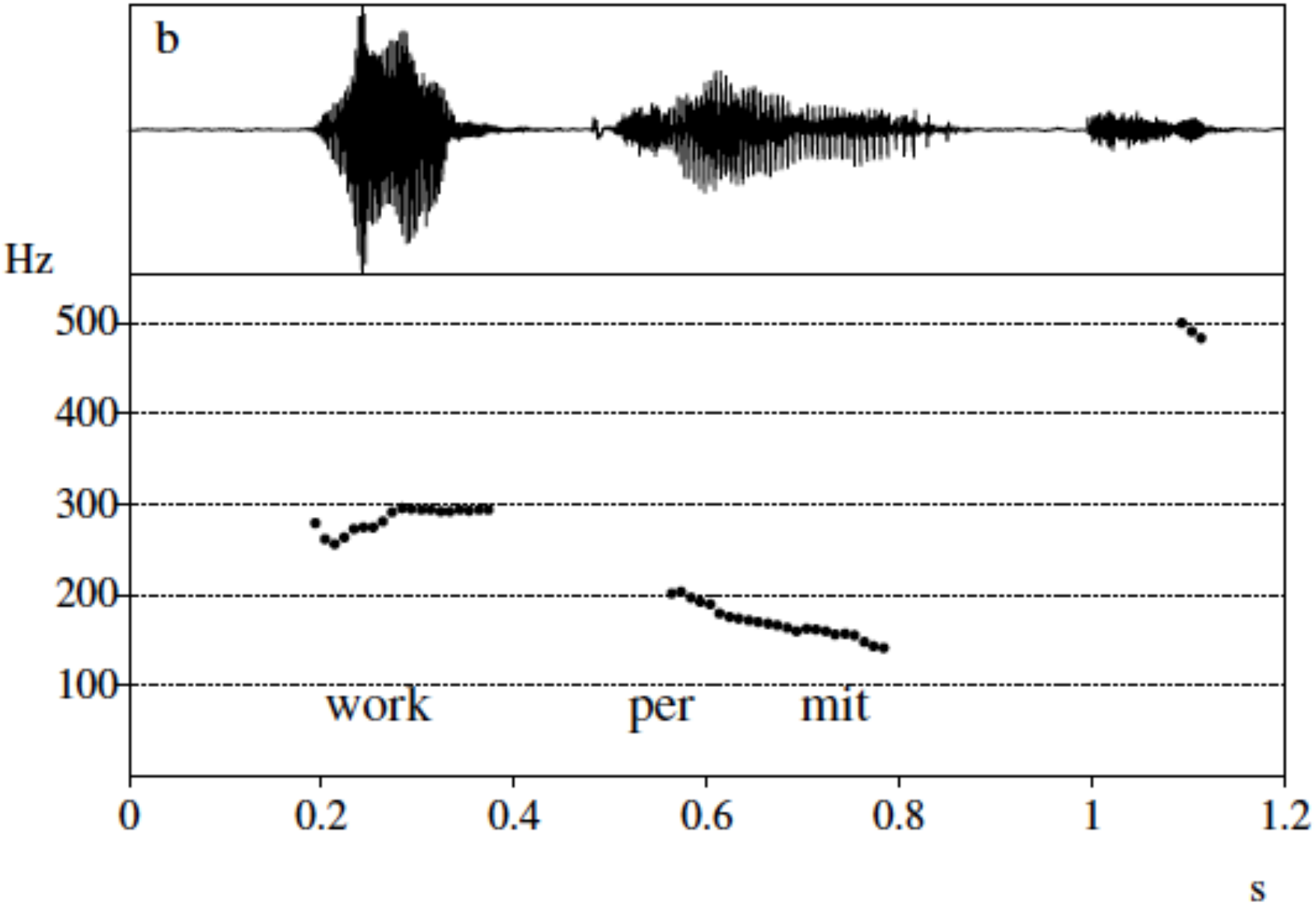
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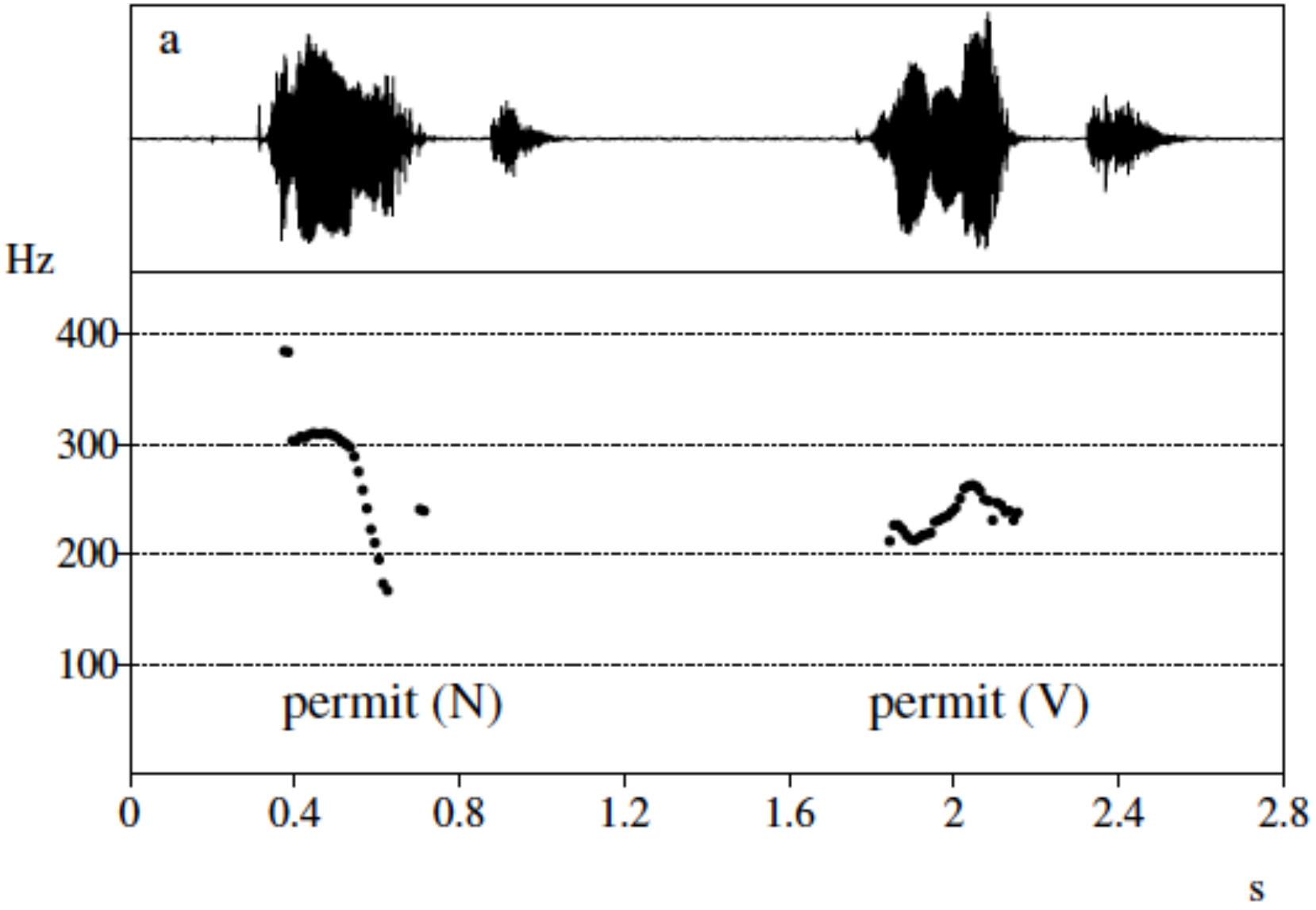
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Vowel lenition

- Vowel reduction / vowel deletion are widely observed phonological processes in unstressed syllables
- Can also be a phonetic process (spectral reduction, e.g. Van Heuven & de Jonge 2011)

Vowel reduction in English

- Vowels are often reduced in unstressed syllables (e.g. to schwa)
- [ˈkʌntɛkst] vs. [kənˈtɛkstuəl]
- → The full vowel appears in stressed syllables, the weak / reduced vowel in unstressed syllables

Vowel reduction in Dutch

- Dutch has optional vowel reduction in unstressed syllables (e.g. Kager 1989, Booij 1995, Van Oostendorp 1995)
- Several factors influence reduction
- We will look at the basic patterns

Vowel reduction in Dutch

- Unreduced: [ˌfo.no.lo.ˈxi] ‘phonology’
- One unstressed vowel reduced: [ˌfo.nə.lo.ˈxi]
- Both unstressed vowels reduced: [ˌfo.nə.lə.ˈxi]
- Impossible: *[ˌfo.no.lə.ˈxi]
- Question: (how) can we express this in phonological terms?

Vowel deletion in English

- In English, vowels can sometimes be deleted if they occur in unstressed syllables
- Example: [təmeitou] ~ [tmeitou]

Vowel reduction / deletion in German

- In the history of German(ic), we can see a quite complex change in the behavior of vowels in unstressed syllables
- Three stages
  - Umlaut
  - Reduction to schwa (center of the vowel triangle)
  - Deletion of schwa (many dialects)

But: reduction does not always work in the same way

- Reduction to the center: e.g. Germanic
- Reduction to the corners: e.g. Belarussian (/e/ and /o/ reduce to /a/)

(1) Vowel Neutralizations in Belarusian (Krivitskii and Podluzhnyi, 1994)

Vowels Under Stress		**Same Vowels Unstressed**	
ˈn**o**ɣi	‘legs’	n**a**ˈɣa	‘leg’
ˈk**o**l	‘pole’ (nom.)	k**a**ˈla	‘pole’ (gen.)
ˈvʲ**o**snɨ	‘spring’ (gen.)	vʲ**a**ˈsna	‘spring’ (nom.)
ˈmʲ**o**t	‘honey’ (n.)	mʲ**a**ˈdovɨ	‘honey’ (adj.)
ˈʃ**e**pt	‘whisper’	ʃ**a**pˈtatsʲ	‘to whisper’
ˈr**e**ki	‘rivers’	r**a**ˈka	‘river’
ˈspʲ**e**tsʲ	‘to ripen’	paˈspʲ**a**vatsʲ	‘to mature’
ˈklʲ**e**j	‘glue’	klʲ**a**ˈjonka	‘oil-cloth’

Consonant lenition

- Lenition: weakening of consonants in non-prominent positions
- Overview: de Carvalho, Joaquim Brandão, Tobias Scheer, and Philippe Ségéral, eds. Lenition and fortition. Vol. 99. Walter de Gruyter, 2008.

One example from English

- Flapping: in many varities of English, /t/ is flapped to [r] in the onset of unstressed syllables (intervocalically and after sonorants)
- /sɪti/ → /sɪri/

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Fortition in Dutch

- Glottal stop is inserted in stressed syllables that start with a vowel
- [ˈxa.os] ‘chaos’
- [xa.ˈo.tis]

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