THE ACQUISITION OF WORD PROSODY

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THE ACQUISITION OF LEXICAL TONE

PERCEPTION OF LEXICAL TONES

- Ability to distinguish between lexical tones is established in the first year after birth
  - Speakers of non-tonal languages are able to discriminate tones only before the age of 6 months (Harrison, 2000)
  - Learners of tonal languages become more sensitive to tonal contrasts after the age of 6 and retain sensibility for non-native contasts beyond the age of 9 months (Harrison, 2000)
- Perception of tonal contrasts depends on salience of tones
  - High-level vs. high-falling exhibits strong acoustic difference and is thus easier to discriminate (Huang and Johnson, 2010)
- Learners of non-tonal languages regain sensitivity to tonal contrasts at 14-18 months (Götz et al., 2018)

THE ROLE OF LEXICAL TONE IN WORD LEARNING

- Acquisition of lexical tones requires infants to connect tonal contrasts with word meaning
  - 7.5-month-old children acquiring English only recognize words when presented together with familiar pitch
  - 9-month-old children recognize words independent from pitch (Singh et al., 2008)
  - Both English- and Mandarin-learning infants detect Mandarin tonal mispronunciations at 18 months, but only Mandarin infants do so at 24 months (Singh et al., 2014)

➡ awareness whether tone is a lexically relevant feature in a learned language develops until the age of approximately 2.5 years

PRODUCTION OF LEXICAL TONES

Adults' transcriptions of children's production

- Learners of Mandarin first learn the production of high-level tone and high-falling tone followed by mid-rising and low-dripping (Li and Thompson, 1977)
- Rarely tone errors after the age of 2 years (So and Dodd, 1995)

Acoustic analyses

- Low-dripping tone in Mandarin is acquired later than other tones
- Phonetic realization of tone not adult-like until 5 years

THE ACQUISITION OF PITCH ACCENT

PERCEPTION OF PITCH ACCENT

- Similar to tone, discrimination of pitch accent contrast is independent of experience at first (Nazzi et al., 1998)
- Learners of pitch accent languages improve their abilities, learners of other languages do not
- Limburgian learners are able to distinguish lexical words with the help of pitch by 6 -12 months (Ramachers et al., 2018)
  - Not necessarily attributed to exposure to lexical pitch as other languages (e.g. Dutch) utilize pitch to mark intonational contrasts

THE ROLE OF PITCH ACCENT IN WORD RECOGNITION AND LEARNING

- Japanese learners of 17-24 months identify familiar words slower if the pitch contour is incongruent (Ota et al., 2018; Yamamoto and Haryu, 2018)
  - Similar results for Limburgian children between 2.5 and 4 years (Ramachers et al., 2017)
  - However, incorrect pitch does not block identification completely
- ➡ Sensitivity to pitch variation indicates lexical representation of pitch accent

- Dutch learners behave similar to Limburgian learners, but fail to associate level and falling tonal contrasts with novel objects (Ramachers et al., 2017)
- ➡ Children can only learn to recognize intonational contrasts that mark lexical differences if the contour type is present in their language

PRODUCTION OF LEXICAL ACCENT

- Japanese and Swedish children start to produce lexical and intonational aspects of pitch phonology within their second year of life
  - Exact time depends on individual development

- Swedish learners start to distinguish produced lexical pitch at around 16-18 months and distinguish reliably between contours at around 24 months

THE ACQUISITION OF WORD STRESS

PERCEPTION OF WORD STRESS

- Infants exhibit a preference for the dominant stress pattern in their language even before starting to talk
  - English infants at 7.5 months (trochaic) (Jusczyk et al., 1993)
  - Dutch infants at 9 months (trochaic) (Houston et al., 2000)

- Preferences are presumably not caused by a universal trochaic bias
  - Learners of French and Hebrew show a preference for iambic patterns (Höhle et al., 2009; Segal and Kishon-Rabin, 2012)

➡ Similar to pitch accent and tone, infants adapt to their native stress system

THE ROLE OF WORD STRESS IN WORD RECOGNITION AND WORD LEARNING

Word Learning

- Habituation paradigms:
  - Testing ability to learn words that only differ in word stress (BEdoka vs. beDOka) (Curtin, 2009)
- 16-month-olds are able to utilize the difference between trochees and iambs for category learning (Curtin et al., 2012)
  - Iambs: verbs
  - Trochees: nouns

Word Recognition

- Mispronunciation paradigms:
  - Dutch children at the age of 3 years listened to correctly and mispronounced iambic and trochaic words while seeing corresponding objects (De Bree et al., 2008)
    - Only correctly pronounced trochaic stimuli led to longer fixation times compared to mispronounced instances
    - Iambic words did not exhibit such an effect
  - ⇨ Only violation of regular pattern hinders word recognition

PRODUCTION OF WORD STRESS

- Infants learning a trochaic language often omit initial unstressed syllables (e.g. "nana" instead of "banana") (Smith, 1973)
  - Apart from this, stress errors are rare

- Presence of a universal bias toward trochaic stress at the early stage of infancy is controversial
  - Evidence for and against this assumption (e.g. Adam and Bat-El, 2009; Hochberg, 1988)