

# Intonation

Phonetics II

# Joke

(M. Liberman)

## **NB: bamboo shoots?**

A giant panda goes into one of those expensive and pretentious restaurants serving French/Asian fusion cuisine and takes a table for one. The surprised waiter for that table explains that his name is Marcel, he will be your server tonight, and we 'ave a number of specials (he is French), etc., etc. The panda listens impassively to the list of \$27 chili-pepper encrusted swordfish specials and so on, and then orders a delicately flavored dish of young bamboo tips and mixed greenery served with steamed jasmine rice. On finishing his meal, the panda gets up, reaches into his fur for a handgun, brings down the waiter with one shot, and calmly heads for the door. The head waiter is near the door and exclaims in shock, "Oh, monsieur, what 'ave you done? You 'ave killed Marcel! Why 'ave you done zis, monsieur? You 'ad some problem? Ze service was not acceptable?"

The panda scowls at him and says, "I'm a fucking panda. Go look it up." He stalks out into the night.

The baffled staff huddle round the compact encyclopedic dictionary that they keep on the premises, and turning to **Panda, giant**, they read this:

**Panda, giant.** Large bear-like animal, *Ailuropoda melanoleuca*, with distinctive black and white markings, related to raccoon family. Rare; found only in bamboo forests of Tibet and western China. Eats shoots and leaves.

# Why is the joke funny?

- Ambiguity
  - Eats [shoots]<sub>N</sub> and [leaves]<sub>N</sub>
  - Eats [shoots]<sub>V</sub> and [leaves]<sub>V</sub>
- How does prosody mark this ambiguity?
  - Prominence on *eats*
  - Break between *eats* and *shoots*

# You have a date...

- It is now 8pm and you ring the bell...
- Your date says: “It’s 8 o’clock”
  - you are late! should have been here 7,30
  - you are early, should have been here 8,30
  - Is it really so late? I don’t believe this!
  - after waiting for 45 minutes for your date to get ready
  - ...

# Intonation makes the difference

A: What types of foods are a good source of vitamins?



B1: Legumes are a good source of vitamins.



B2: Legumes are a good source of vitamins.



A: I'd like to fly to Davenport, Iowa on TWA.



B: TWA doesn't fly there ...



B1: They fly to Des Moines.



B2: They fly to Des Moines.



A1: I met Mary and Elena's mother at the mall yesterday.



A2: I met Mary and Elena's mother at the mall yesterday.



# What are we interested in?

- Broadly: what is the relationship between the form and the meaning of speech?
- Are there any systematicities? If yes:
  - What is the best description of this system?
  - ...
- How do these phenomena generalize
  - Across individuals and groups?
  - Across languages?

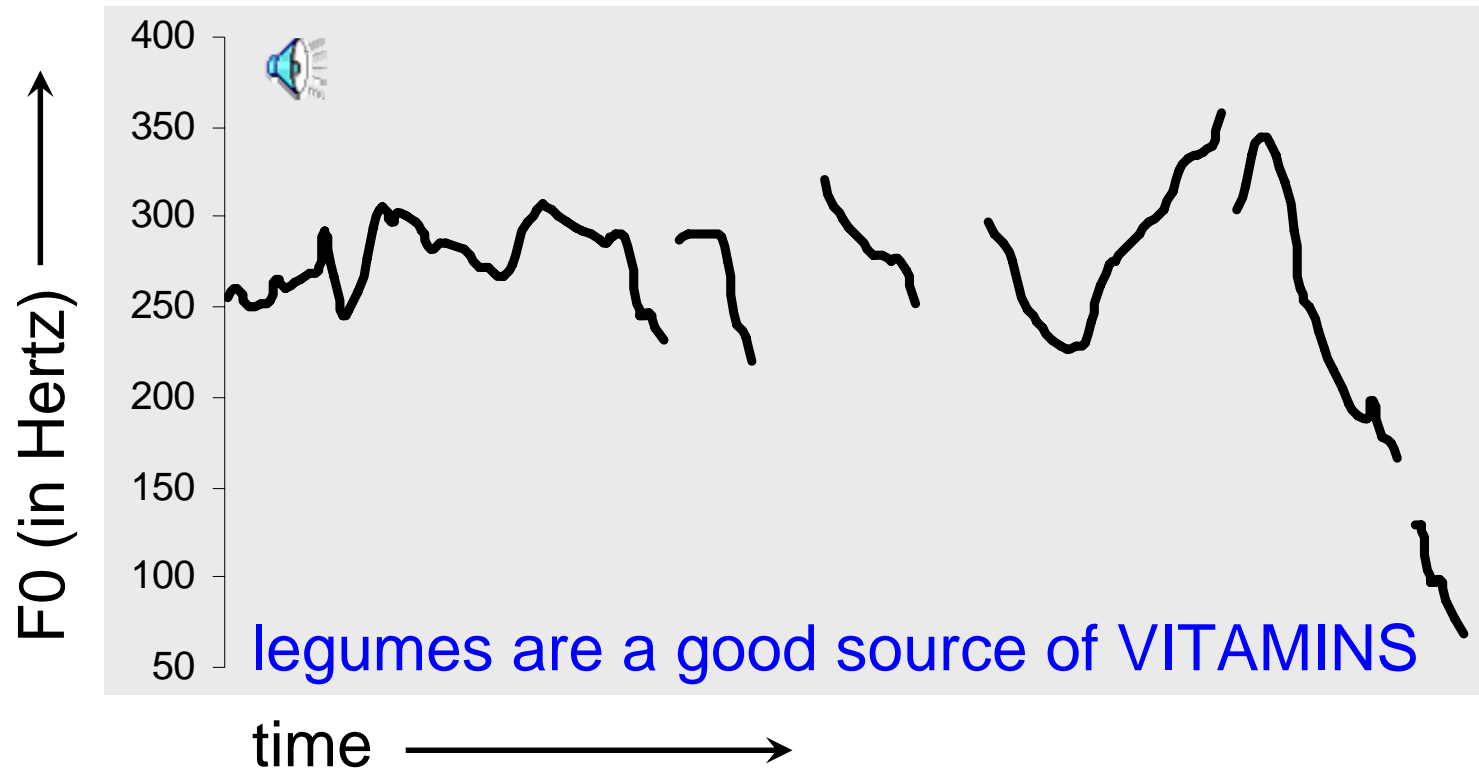
# Categorical vs. continuous

- Segmental description
  - *car vs. key vs. tea*
  - What is the difference between continuous and categorical?
- What is ‘categorical’ in prosody?
  - Clearly perceived meaningful contrast
  - Under the speaker’s control
- Continuous features
  - Pitch range
  - Tempo
  - ...

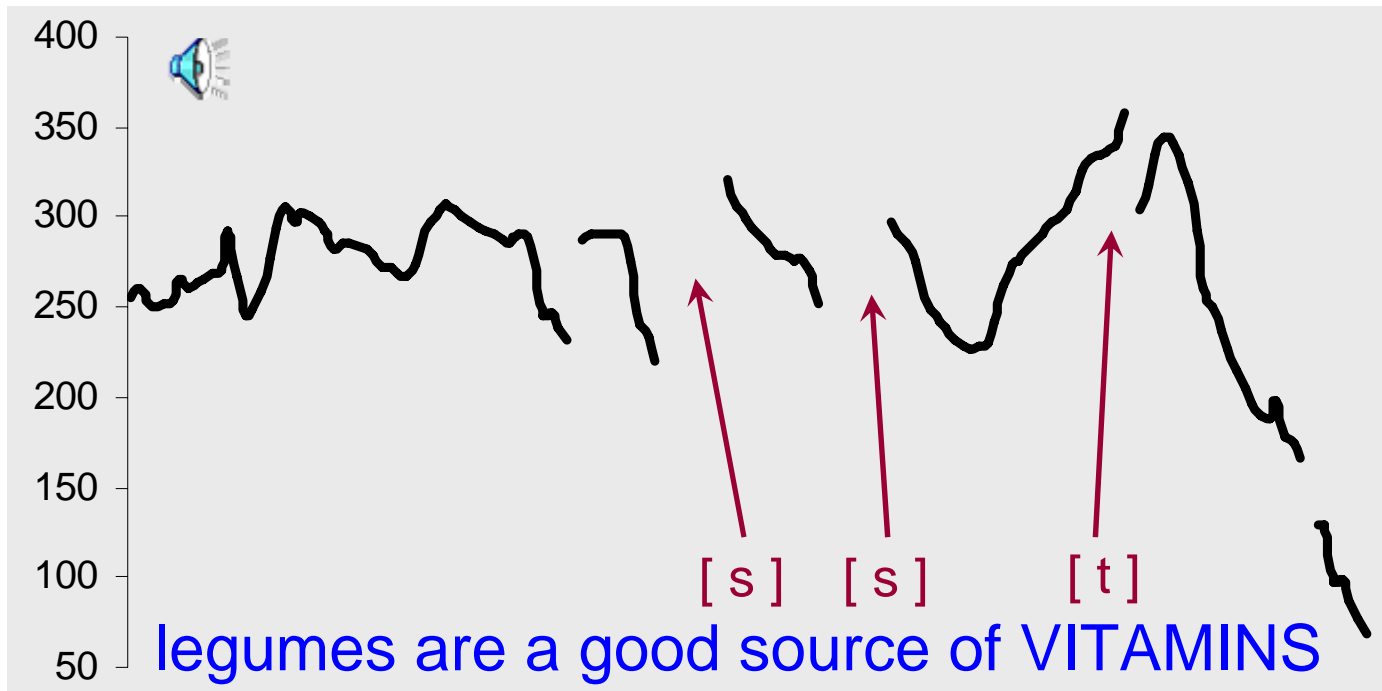
# Form

- Form: variation in the prosodic characteristics of speech
  - F0/pitch
    - Pitch accents, pitch contours, peak alignment, pitch range, final lowering,...
  - Loudness
  - Duration
    - Pauses, tempo/speech rate
  - Voice quality

# Graphic representation of F0

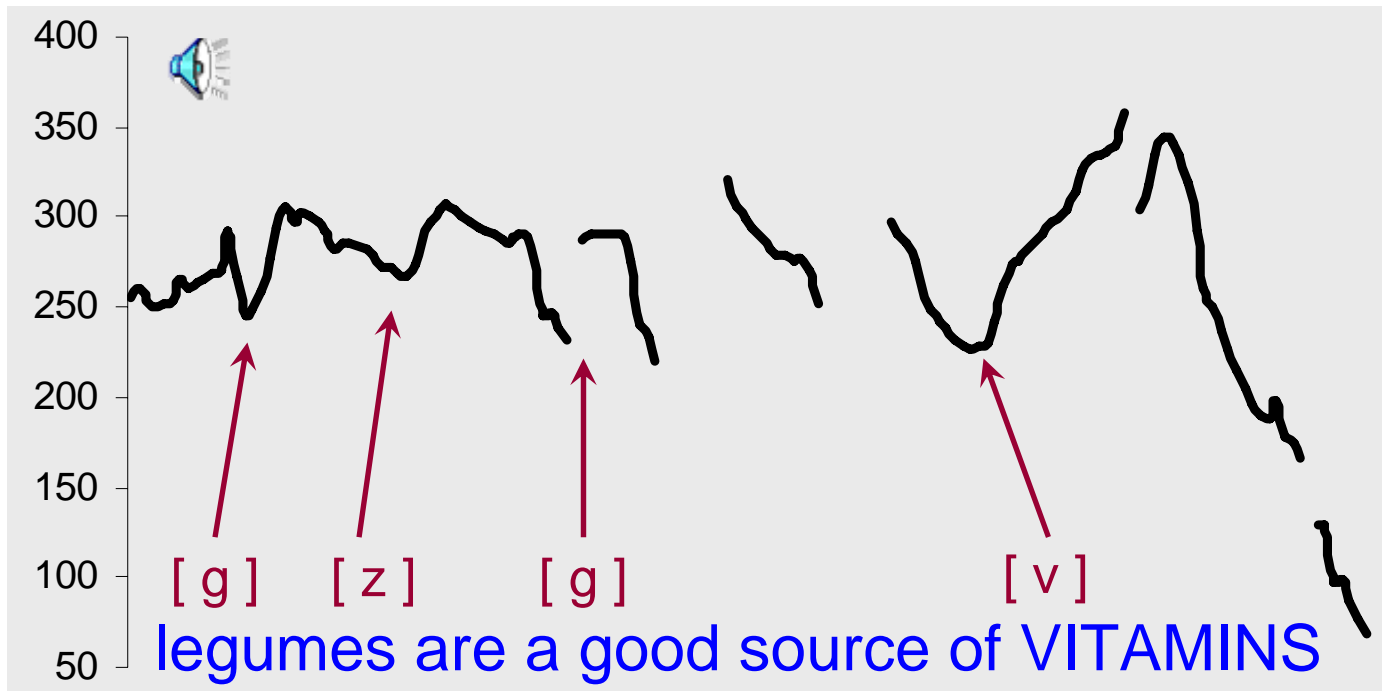


# The 'ripples'



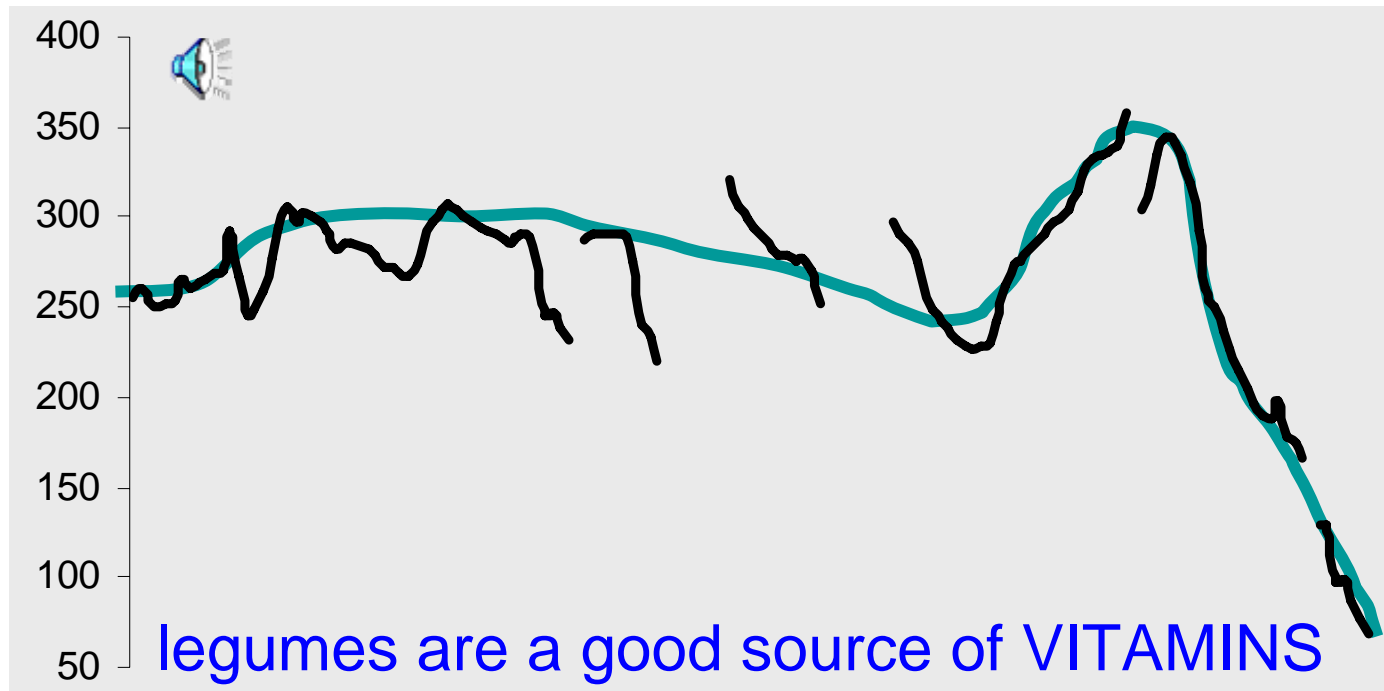
F0 is not defined for consonants without vocal fold vibration.

# The 'ripples'



... and F0 can be perturbed by consonants with an extreme constriction in the vocal tract.

# Abstraction of the F0 contour



Our perception of the intonation contour abstracts away from these perturbations.

# **Pitch & duration manipulation with Praat**

# ToBI

- System of transcribing prosody
  - Why is it useful?
- We are interested only in the qualitative aspects of prosody (just like in phonetic transcription we only transcribe clear contrasts)
  - Accents and phrasing
- ToBI is the most used system in the “American” tradition, it is based on labeling ‘targets’
- the “British” systems differ mostly in that they label ‘moves’
- MIT course in ToBI