



An Animated and Narrated Glossary of  
Terms used in Linguistics  
*presents*

# Voice Onset Time (VOT)



## *Basic Idea*

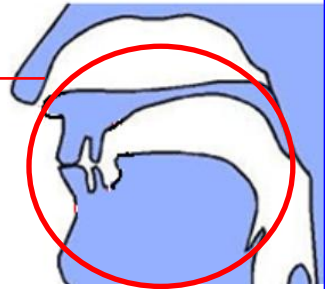
- Voice Onset Time (VOT) is refers to the **time interval** between the **release of a stop** and the beginning of **vocal fold vibration**.
- The possible existence of this interval is caused by the fact that the **voicing and closure mechanisms are distinct**.



## Creation of closure

- The production of oral stops involves a **complete closure of the articulators** so that airflow is completely obstructed.

The oral closures occur at the region which is above the larynx



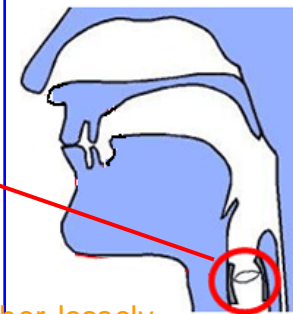
Slide 3



## Vibration of vocal folds

Where does voicing take place ?

Voicing occurs at the larynx which houses the vocal folds



Voiced: The vocal folds are **close together loosely** so they can vibrate

Voiceless: The vocal folds are **wide apart** so that air passes freely.

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## *Closing and Voicing*

- As the closing and voicing mechanisms are distinct, so their operations **may** have a **temporal mismatch**, measured in milliseconds (ms) or seconds (s).
- VOT only concerns stops that are followed by voiced segments.

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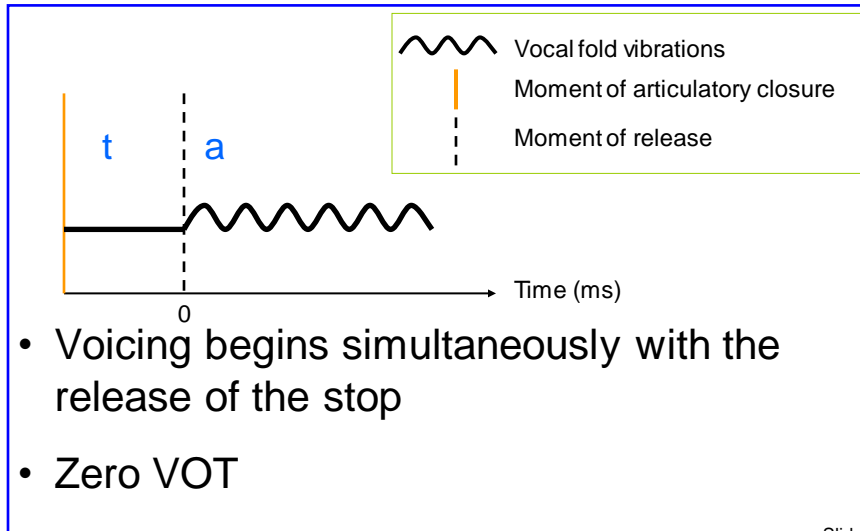


The following slides illustrate **three** possible voice onset times:

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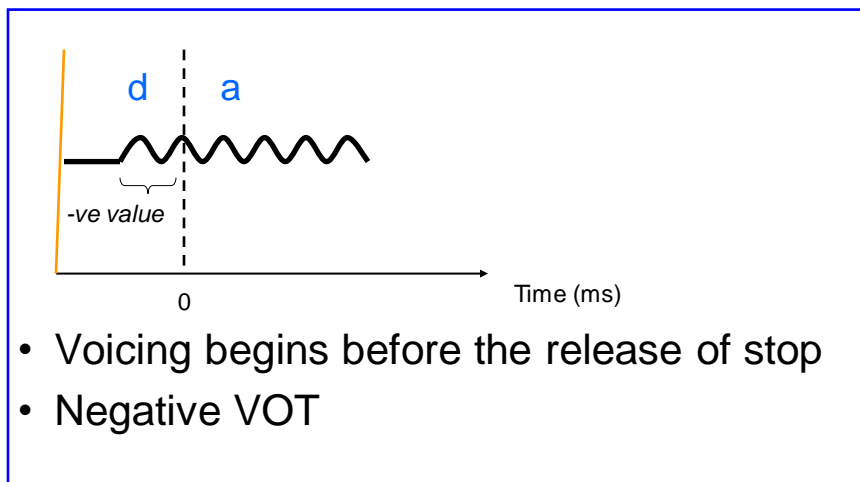
## *First possibility*



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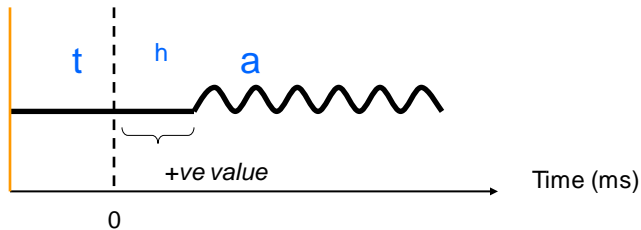
## *Second possibility*



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## *Third possibility*

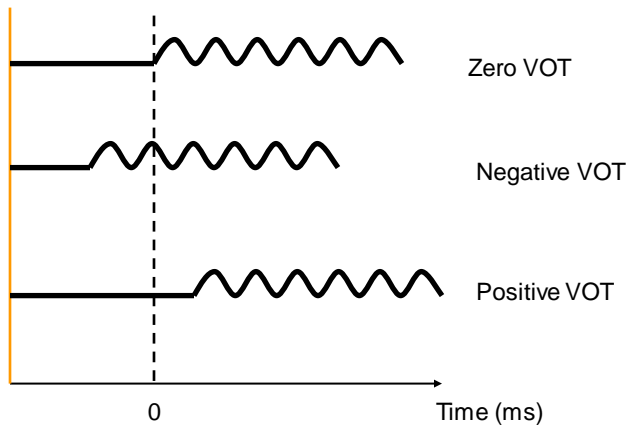


- Voicing begins after the release of the stop
- Positive VOT

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## *Interim summary*



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## VOT & Glottal Stops

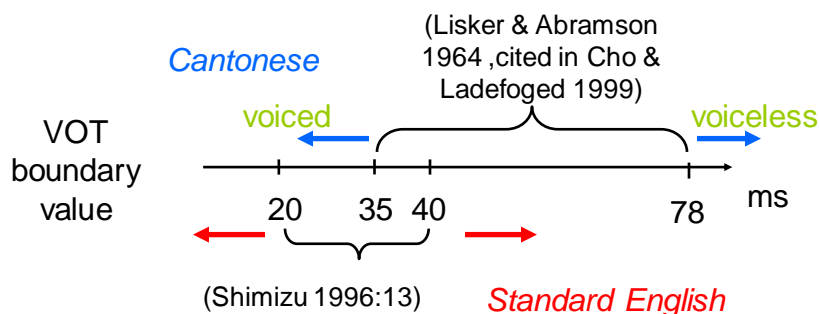
- Glottal stops are formed by closure of vocal folds.
- Glottal stops can have VOT values too, but the value is never negative.
- Voicing (vibration of vocal folds) can coincide with release of that closure, or lag after it; but never precede it.
  - “egg” in English is sometimes pronounced with a glottal stop onset.
  - Coughing is essentially glottal stop with a positive VOT, accompanied by large outburst of air.

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## Language Specificity

Different languages have different VOTs along the VOT continuum in forming contrasts among plosives.



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## *Categorical Perception*

- Cantonese and English make a **two-way voicing distinction** for plosives along the continuum with very different VOT boundary values.
  - ⇒ Cantonese and English speakers perceive **discrete** categories of voicing, though VOT itself is measured along a temporal continuum.
- This phenomenon is referred to as **categorical perception**.

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## *Endnote*

- Other languages may make more than a two-way distinction in terms of VOT
  - E.g. Hindi, Korean, etc
- Voicing distinction of plosives can also come about from phonetic cues other than VOT.
  - E.g. Malay, where there is some evidence that voicing distinction comes from the onset frequency of F1 (first formant) of the following vowel.

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## The End

Wee, Lian-Hee and Winnie H.Y. Cheung (2009)  
*An animated and narrated glossary of terms used in Linguistics.*  
Hong Kong Baptist University.

