Motivation

How do we percept speech in a noisy environment?

Interference from other sound sources love eating donuts!

Sound Source

Acoustic Transfer function

Sensory Input

What did I heard?



|aɪ lʌ... 'iːtɪ... 'd...ʊ...s|

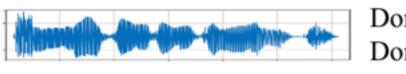
What did he say?

- Multimodality information.
 - Linguistic knowledge.
 - Common senses.

|aɪ lʌv ˈiːtɪŋ ˈdəʊnʌts|

What was it sound like? What does he imply?

- Speaker age, emotion, sex.
- Acoustic environment.
- Phonetic and other prior knowledges.



Donut is a kind of food. Donut is delicious.

Bilateral Anterior STG

Primary Auditory Cortex → Planum Temporale (PT) (PAC)

Initial Processing

Identification, segregation and matching onto previously learnt spectemporal representations

Auditory Spatial Analysis

Left Posterior STG Left Inferior Frontal Gyrus

Imaginery and Comprehension

High Level Perception

Interference from other sound sources love eating

Sound Source

Acoustic Transfer function

Sensory Input

What did I heard?



|aɪ lʌ... 'iːtɪ... 'd...ʊ...s|

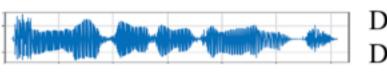
What did he say?

- Multimodality information.
 - Linguistic knowledge.
 - Common senses.

|aɪ lʌv ˈiːtɪŋ ˈdəʊnʌts|

What was it sound like? What does he imply?

- Speaker age, emotion, sex.
- Acoustic environment.
- Phonetic and other prior knowledges.



Donut is a kind of food. Donut is delicious.

Bilateral Anterior STG

Primary Auditory Cortex → Planum Temporale (PT) (PAC)

Initial Processing

Identification, segregation and matching onto previously learnt spectemporal representations

Auditory Spatial Analysis

Left Posterior STG High Order Cortical Areas Left Inferior Frontal Gyrus

Imaginery and Comprehension

High Level Perception