

# Psycholinguistics

Language, Mind and Brain

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## Language and the Brain

- The brain is divided into two hemispheres, right and left
- The human language capacity is located in the left hemisphere, for 90% of speakers

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## The hemispheres



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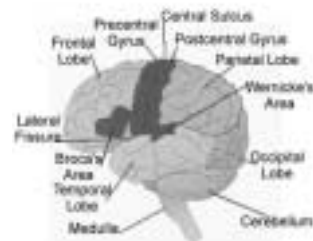
## The Left Hemisphere

Wernicke's area: activated when accessing the lexicon; interprets lexical entry

Broca's area: interprets information received from Wernicke's area (via arcuate fasciculus; transmits articulatory information to motor cortex)

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## The Left Hemisphere



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## Dichotic Listening



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## Aphasia

How many people have aphasia?

It has been estimated that about one million people in the United States have acquired aphasia. The majority are the result of stroke. About one third of severely head-injured persons have aphasia.

(National Aphasia Association)

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## Aphasia and the Brain

About 70% of people with damage to the left hemisphere experience aphasia

About 1% of people with damage to the right hemisphere suffer from aphasia

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## Aphasia and the Brain



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## Types of Aphasia

- Broca's aphasia

Sometimes called "agrammatism"

halting speech

incomplete words

telegraphic speech (content words only)

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## Broca's aphasic

Q. Tell me, what did you do before you retired?

A. Uh, uh, uh, pub, par, partender, no.

Q. Carpenter?

A. (shaking head yes) Carpenter, tuh, tuh, tenty year.

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## Types of Aphasia

- Wernicke's aphasia

receptive disorder primarily  
semantically incoherent  
circumlocutions (word finding problems)  
syntactic order is perturbed  
cannot follow simple instructions

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## Wernicke's aphasic

Q. Do you like it here in Kansas City?

A. Yes, I am.

Q. I'd like to have you tell me something  
about your problem.

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## Wernicke's aphasic

A. Yes, I, ugh, can't hill all of my way. I  
can't talk all of the things I do, and part of  
the part I can go alright, but I can't tell  
from the other people. I usually most of  
my things. I know what I can talk and  
know what they are, but I can't always  
come back even though I know they  
should be in, and I know something eely I  
should know what I'm doing ....

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## Wernicke's aphasic

Sometimes called "fluent aphasics".

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## Summary

Left hemisphere specialization for language  
Brain damage leads to aphasia  
Language learning biologically governed  
Subject to a critical period  
Language Acquisition errors reveal  
children's grammars, using general  
principles of language

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