بسم الله الرحمن الرحیم

علوم شناختی

جلسه ۸ (ب)

نگاشت مرحله‌های پردازش لغوی

Mapping the Stages of Lexical Processing

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PART 1:
HISTORICL LANDMARKS

Chapter 3:
The Turn to the Brain

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Chapter 3.4: Mapping the stages of lexical processing

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Functional neuroimaging with PET

- Study the brain non-invasively
- Study the function of different brain areas by measuring blood flow in the brain—tracking the movement of radioactive water in the brain
- Need to design PET experiments to find ways to filter out potentially irrelevant, background activity, e.g. Petersen et al. 1988

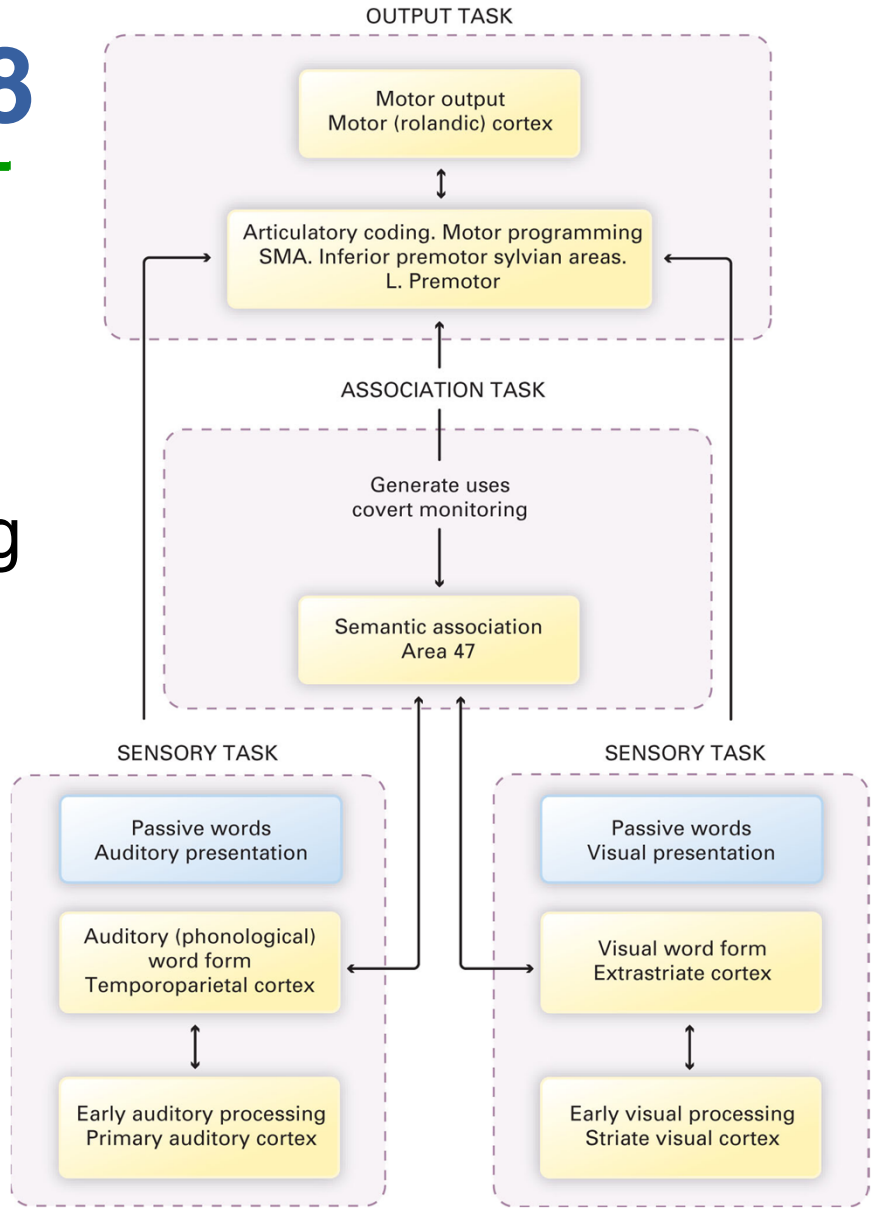
Petersen et al. 1988

- Test of parallel vs. serial processing of individual words (lexical access)

- Two models of individual word processing
  - **Neurological** (serial): Series of information processing "stations" (e.g., meaning ⟶ sound ⟶ visual appearance)
  - **Cognitive** (parallel): No single route. Different types of lexical processing take place at once.

Petersen et al. 1988

Results seem to provide evidence for parallel processing

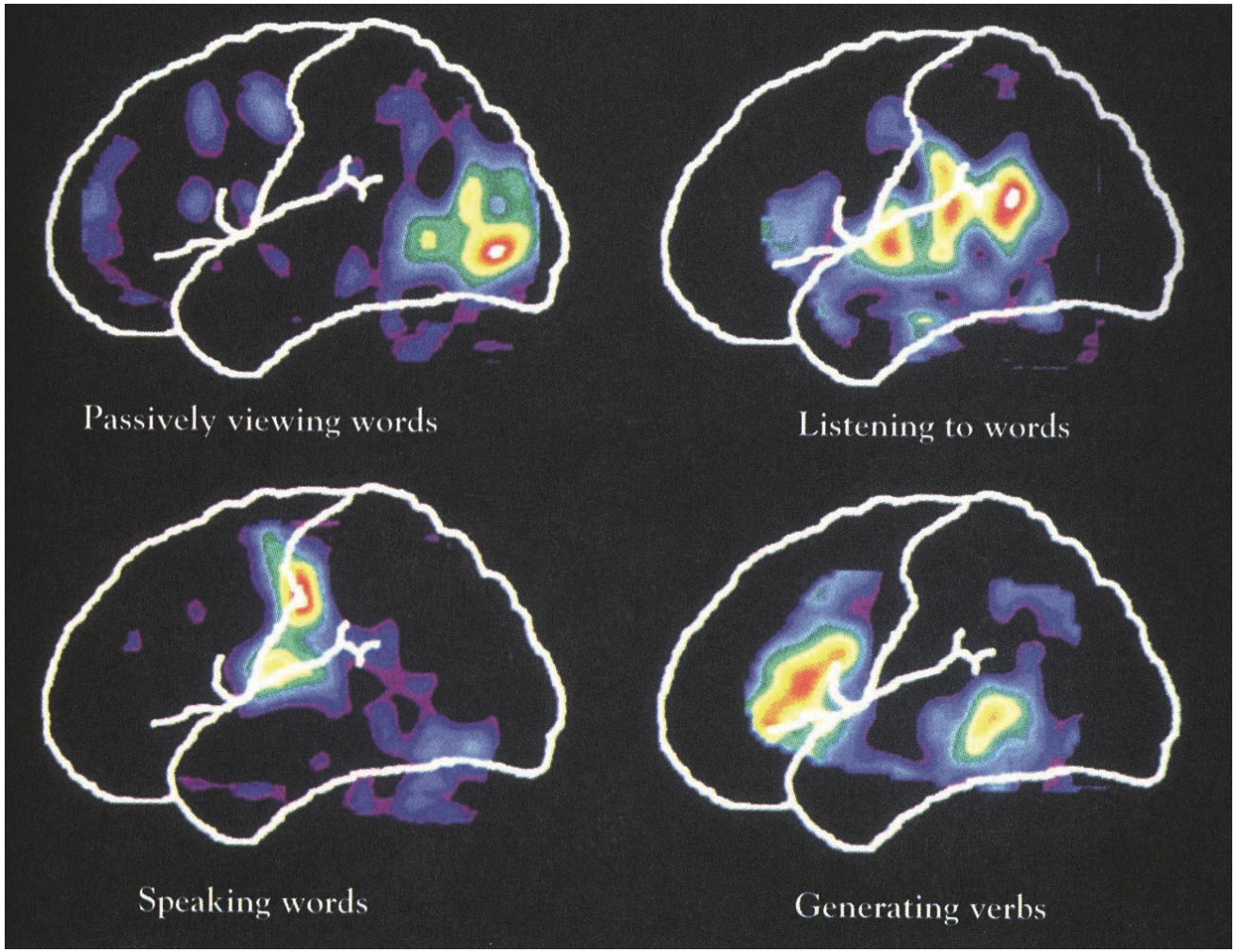


Petersen et al. 1988

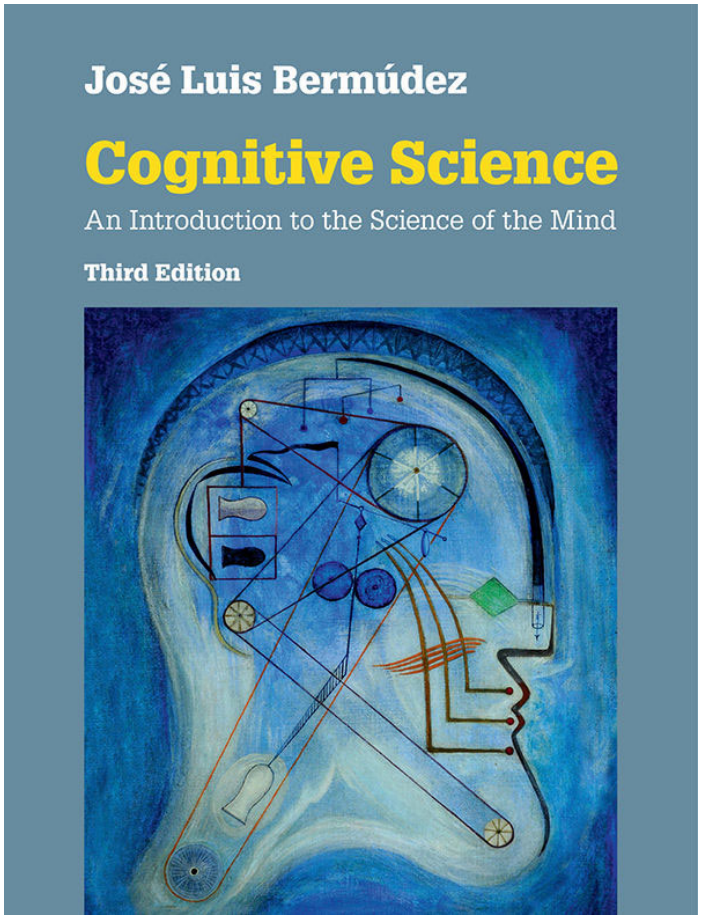
Method:

- Series of progressively more complicated lexical tasks
- Observe brain areas involved with each new task
- Infer which brain areas are responsible for which type of lexical information processing

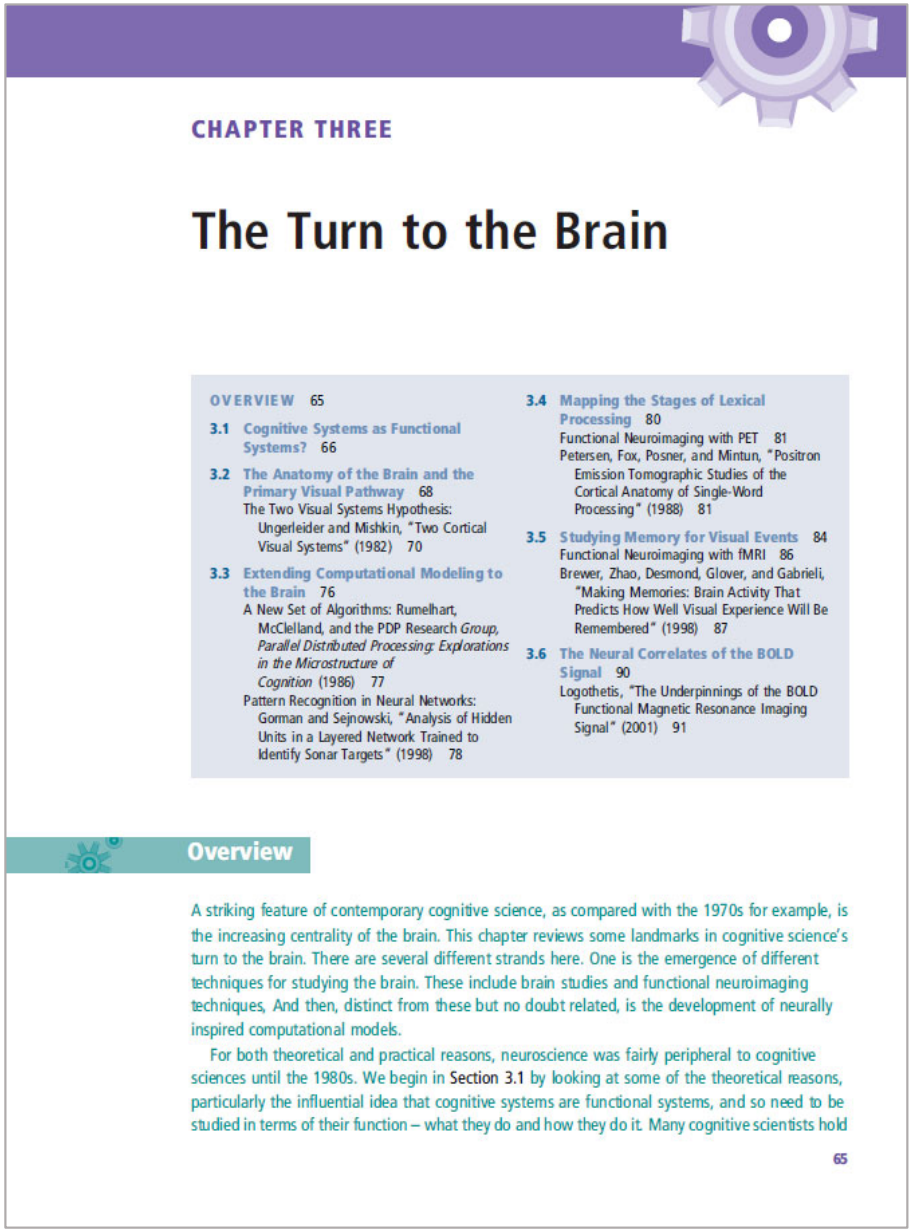
Petersen et al. 1988



منبع اصلی



José Luis Bermúdez,
Cognitive Science:
An Introduction to the Science of the Mind,
3rd ed., Cambridge University Press, 2020.
Chapter 3 (Section 3.4)



CHAPTER THREE

The Turn to the Brain

Overview

A striking feature of contemporary cognitive science, as compared with the 1970s for example, is the increasing centrality of the brain. This chapter reviews some landmarks in cognitive science's turn to the brain. There are several different strands here. One is the emergence of different techniques for studying the brain. These include brain studies and functional neuroimaging techniques, And then, distinct from these but no doubt related, is the development of neurally inspired computational models.

For both theoretical and practical reasons, neuroscience was fairly peripheral to cognitive sciences until the 1980s. We begin in Section 3.1 by looking at some of the theoretical reasons, particularly the influential idea that cognitive systems are functional systems, and so need to be studied in terms of their function – what they do and how they do it. Many cognitive scientists hold

65