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# Semantic Operations in Aphasic Comprehension: Implications for the Cortical Organization of Language

Maria Mercedes Piñango

*Yale University*

and

Edgar B. Zurif

*Brandeis University and Aphasia Research Center, Boston University School of Medicine*

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# Goal

- To study the localization of coercion operations by studying them in Broca's and Wernicke's aphasics.
  - **Background assumption: Wernicke's aphasics have a "semantic" deficit -- therefore would be impaired on coercion.**



# Two tasks

## ■ Complement coercion

- **Coerced:**        **The boy began the book.**
- **Transparent:** **The boy began reading the book.**

## ■ Aspectual coercion

- **Transparent:** **The horse jumped over the fence yesterday.**
- **Coerced:**        **The horse jumped for an hour yesterday.**

# Results: complement coercion

TABLE 2  
Complement Coercion in Broca's and Wernicke's Aphasia  
(Number and Percentage Correct of Responses)

Clinical Diagnosis	Patient	Condition	
		Transparent	Enriched
Broca's	HB	24 (96%)	22 (88%)
	RD	23 (92%)	20 (80%)
	JB	24 (96%)	24 (96%)
	Mean	23.66 (94.6%)	22 (88%)
Wernicke's	WN	21 (84%)	17 (68%)
	CC	25 (100%)	20 (80%)
	Mean	23 (92%)	18.5 (74%)

# Results: aspectual coercion

TABLE 3  
Aspectual Coercion in Broca's and Wernicke's Aphasia  
(Number and Percentage Correct of Responses)

Clinical Diagnosis	Patient	Transparent	Enriched
Broca's	JC	14/16 (87.5%)	13/16 (81.2%)
	RD	12/16 (75%)	14/16 (87.5%)
	JB	16/16 (100%)	16/16 (100%)
	Mean	14/16 (87.5%)	14.3/16 (89.3%)
Wernicke's	WN	14/16 (87.5%)	9/16 (56.2%)
	JM	12/16 (75%)	8/16 (50%)
	CC	16/16 (100%)	10/16 (62.5%)
	Mean	14/16 (87.5%)	9/16 (56.2%)



## **Alleged localization of coercion: Wernicke's area**

- But our results indicate a frontal lobe source for coercion. How to reconcile these results?
- My answer: Wernicke's area (roughly) provides the input for coercion. If the input is blocked, coercion is blocked.





