The Case of the Boy with Anomia: Contributions of Visual and Language Processing in Naming

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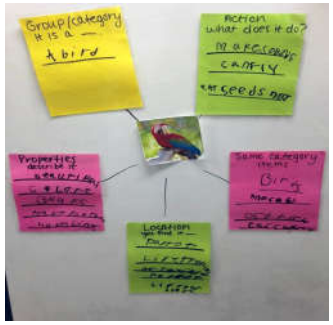
Background

- For most people, language is located in the brain's left hemisphere and visual processing is in the right hemisphere
- Damage in the left hemisphere may cause **aphasia**: a difficulty in the production and/or comprehension of language
- Word retrieval difficulties typically observed in people with aphasia are based on categorical or speech sound errors

CT Case History

- Unremarkable gestation, birth, and development until 6 months
- Diagnosis of right parietal malignant primitive neuroectodermal brain tumor at 8 months
- Chemotherapy and radiation until 15 months
- Assessment at 2 years indicated delayed language milestones
- CT underwent intensive language therapy during the summer of 2015 at WJSHC
- Significant improvement on goals, but not on standardized picture confrontation naming after treatment
- Further investigation of error types indicated a high percentage of visually related errors, consistent with right hemisphere damage



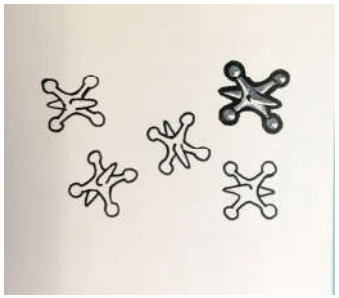
Testing Results

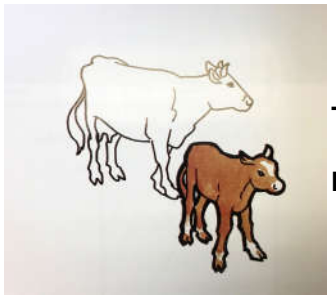
Error Types	Test of Word Finding (4/2/15)	Test of Word Finding-2 (7/29/15)
	Percentile: < 1	Percentile: 1
	Number/Total Errors (% of total)	**Number/Total Errors (% of total)**
Visual	5/9 (56%)	5/14 (36%)
Semantic	1/9 (11%)	0/14 (0%)
Phonologic	0/9 (0%)	1/14 (7%)
Nonword Phonologically Related	0/9 (0%)	5/14 (36%)
Unfamiliar/Didn't know (Didn't Pass Comprehension)	3/9 (33%)	3/14 (21%)

Error Examples

Target word: jack

Response: snowflake





Target word: calf

Response: /kaʊf/ ("cowf")

Discussion & Conclusions

- Semantically-based treatment resulted in substantial improvement in naming tasks that were **not** visually-based
- Rate of visually-based errors decreased (possibly due to different test versions), but remained significantly high
- Error types are consistent with the hypothesis that CT has right-hemisphere or mixed hemisphere dominance for language
- Visual difficulties sometimes influence lexical access in unique ways (/kaʊf/)
- Further language treatment should include non-picture stimuli in order to bypass impaired visual processing difficulties

Selected References

German, D. (1986). *National College of Education Test of Word Finding* (TWF). DLM Teaching Resources, Allen, TX.

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Roach, A., Schwartz, M. F., Martin, N., Grewal, R. S., & Brecher, A. (1996). The Philadelphia Naming Test: Scoring and rationale. Clinical Aphasiology, 24, 121–133.