



ACADEMIC
PRESS

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Brain and Language 84 (2003) 134–147

Brain
and
Language

www.elsevier.com/locate/b&l

The semantic category effect increases with worsening anomia in Alzheimer's type dementia[☆]

C. Whatmough,^{a,b,*} H. Chertkow,^{a,b,c} S. Murtha,^{a,d}
D. Templeman,^{a,b} L. Babins,^a and N. Kelner^a

^a Bloomfield Centre for Research in Aging, Lady Davis Institute for Medical Research, and Jewish General Hospital Memory Clinic, McGill University, Montréal, Canada H3T 1E2

^b Institut de Gériatrie de Montréal, Montréal, Canada H3W 1W5

^c Department of Clinical Neuroscience and Division of Geriatric Medicine, Sir Mortimer B. Davis – Jewish General Hospital, McGill University, Montréal, Canada H3T 1E2

^d York University, Toronto, Canada M3J 1P3

Accepted 8 October 2001

Abstract

A large number of patients ($n = 72$) with probable Alzheimer's type dementia (DAT) and mild cognitive impairment (MCI) carried out a picture naming task which comprised stimuli from biological and nonbiological categories. The results were stratified into five ranges of overall naming ability. Every group except those with scores within the range of elderly normal individuals demonstrated better nonbiological naming than biological naming, an effect which increased with worsening impairment. In general, patients diagnosed with other dementia ($n = 15$) did not fit well within the pattern of the DAT/MCI participants, except those known to have a significant semantic impairment. A category effect favoring nonbiological items appears to be robust and produce a predictable pattern across progressive levels of impairment in AD.

© 2002 Elsevier Science (USA). All rights reserved.

1. Introduction

Semantic memory deficits are a major feature in many cases of dementia of the Alzheimer's type (DAT). Several studies have undertaken to determine whether the

[☆] This work was supported by a post-doctoral fellowship from the Medical Research Council of Canada to C. Whatmough, along with grants from the Fonds de la Recherche en Santé du Québec (FRSQ), the Alzheimer's Society of Canada, the Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR), and the Medical Research Council of Canada to H. Chertkow. We thank the clinical staff of the Jewish General Hospital/McGill University Memory Clinic for their cooperation, and Shelley Solomon for outstanding administrative assistance.

* Corresponding author.

E-mail address: christine.whatmough@mail.mcgill.ca (C. Whatmough).

deterioration of semantic memory in DAT has an equivalent effect across semantic categories. The results of these studies have been used to support theories concerning the representation of concepts in the brain. Contradictory results, however, have been reported. These variable results can be attributed both to differences in the basis on which stimuli were selected and to heterogeneity within the DAT population. We carried out the present study in order to clarify claims regarding the existence of category-specific naming deficits in DAT. In it we tested a large group of elderly individuals on a picture naming task with a unique set of balanced stimuli. By investigating the performance of individuals at successive ranges of anomia (related to degenerative dementia), we seek to resolve important theoretical issues regarding semantic memory deterioration.

The majority of studies which have found a category effect in DAT, have found it to be in the direction of poorer accuracy on items from the biological category (e.g., animals, fruits, vegetables, flowers) than on items from the nonbiological category (e.g., clothing, vehicles, household objects). This effect is rarely as striking as the category *specific* deficits displayed by some acute lesion patients who can demonstrate nearly perfect performance on some categories and less than 50% accuracy on other categories. Patients with AD perform poorly overall on semantic tasks and so do not have “preserved” categories and the difference in accuracy between categories rarely attains more than 20%. An effect attributable to category, nevertheless, has been found on a variety of semantic tasks (Daum, Riesch, Sartori, & Birbaumer, 1996; Garrard, Patterson, Watson, & Hodges, 1998; Laiacina, Barbarotto, & Capitani, 1998; Mauri, Daum, Sartori, & Riesch, 1994; Silveri, Daniele, Giustolisi, & Gainotti, 1991, in press, Fung et al., 2001).

Silveri et al. (1991) tested 15 DATs on a confrontation naming task and on a verbal association task in which participants were asked whether an orally presented word was related to the picture presented. In both tasks the DATs demonstrated poorer performance on the items from the living category than from the nonliving category. Daum et al. (1996) found a similar category effect in 8 DATs on tasks of picture naming, probe questioning, and object decision. Mauri et al. (1994) compared the performance of one DAT subject, Helga, on a variety of tasks with the performance of a herpes encephalitis patient, Michelangelo, who also had a category specific deficit. They found that Helga’s performance profile was very similar to that of Michelangelo, and that the category deficit extended across domains (visual and verbal), and input and output modalities. Fung et al. (2001), tested 16 DATs on a semantic association task in which participants were asked to indicate by a key response which of two words was more closely related to a target word (e.g., lamb: sheep or goat?). The categories tested were animals, fruits and vegetables, clothing and furniture, tools, action verbs, and abstract nouns. Normal elderly participants demonstrated equivalent performance across categories, but were not at ceiling. The DATs performance, though impaired, was significantly better on the nonbiological and action word categories (accuracy of approximately 79%) than on the biological and the abstract word categories (accuracy of approximately 67%). Fung et al. (2001) also found that the same DATs demonstrated a significant category effect on a task of picture naming.

The claim that DATs demonstrate better performance on nonbiological objects has not gone undisputed. Arguments raised against the claim are threefold. The first objection is that in many semantic tasks no category effect can be demonstrated. These tasks include category fluency (e.g., name as many animals as possible in a minute), member dominance (judgment of best category membership), and ranking tasks (Cronin-Golomb, Keane, Kokodis, Corkin, & Growdon, 1992; Hodges, Salmon, & Butters, 1992). Montanes, Goldblum, and Boller (1996) found, in fact, that

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات