CONSISTENCY AND TYPES OF SEMANTIC ERRORS IN A
DEEP DYSLEXIC PATIENT

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INTRODUCTION

Acquired dyslexias are varieties of reading impairments which may result when previously normal, adult readers suffer brain damage. In the last decade there has been a growing, and generally productive, interaction between the study of such patients and the development of information processing models of normal word recognition. Although this relationship is at its most fruitful when it is reciprocal, two separate directions of approach may be distinguished.

First, the pattern of preserved and impaired reading functions shown by a particular patient may be interpreted within models of normal word recognition. Typically, modular information processing (or computational) centers ("boxes") are functionally isolated or disconnected from other centers. This is achieved by the deletion of either the boxes themselves, or the information transmission lines between the boxes ("arrows" are severed). That coherent explanatory accounts of the reading performance of dyslexic patients can be obtained in this way often increases confidence in the validity of such models (see Coltheart, and Marshall, this volume, for some elegant examples of this approach).

Second, data from dyslexic patients can also be used to elaborate and refine the information processing models. For instance, if

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there exist patients who can perform reading function A but not function B, and other patients who can perform function B but not A, then most models sensitive to neuropsychological data would be adapted to represent this functional independence, or double dissociation. Functions A and B would be given different boxes, although interconnecting arrows between them would still be permitted, and indeed would probably also be required, as they would need to be functionally unified at some level in the normal intact system.

This theoretically generative type of approach usually stops, however, at the postulation of assumed necessary functional separations (more boxes and/or more arrows). In this paper, I want to advance and explore a claim for the greater and more detailed use of the relevance of single-case studies of dyslexic patients to models of normal reading. The argument will be that data from such patients may also be used to assist in the theoretical specification of the precise nature of the processing intercommunication between functionally separable components. The claim will be made that certain patient, in whom a particular reading "route" (a particular sequence of boxes and arrows) is assumed to be operating in functional isolation, can aid the detailed specification of the normal operation of this route (or at least stimulate plausible hypotheses concerning its operation). For example, surface dyslexic patients (Marshall and Newcombe, 1973; Coltheart et al. 1983) have problems reading aloud words with 'irregular' pronunciations (e.g. yacht and colonel), and are assumed to be reading only by phonological recoding of print prior to lexical access. However, there is a subset of psycholinguistically defined irregular words that all the patients studied by Coltheart (personal communication) can read correctly. Inspection of this set of words will therefore provide potentially useful information concerning the mechanism that is assumed to be responsible for constructing prelexical phonological codes.

Deep dyslexia has probably been the most intensively studied of the acquired dyslexias (see the recent volume edited by Coltheart, Patterson and Marshall, 1980). Deep dyslexic patients show a fairly complex pattern of reading impairments; they can read some words, make no substantive response to others (called reading omissions), and they make various types of paralexical reading errors. The interest of deep dyslexia for cognitive psychologists studying word recognition and production in reading lies in the opportunity that the rich data-base collected from such patients presents for the critical testing (and the possible elaboration) of models of normal lexical processing.

In this paper I will present some new data from one such deep dyslexic patient and use this to assist in the characterisation of the nature of the functional interface between two separable subprocesses (the semantic, or word comprehension system and the word production system). Although the account offered here has as its