

NAMING PEOPLE IGNORING SEMANTICS IN A PATIENT WITH LEFT FRONTAL DAMAGE

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ABSTRACT

Studies about proper name anomia generally assume that persons' names are harder to recall than other semantic information one knows about them and that name retrieval is not possible without biographical knowledge. We describe a patient, SB, who, after a left frontal haemorrhage, was unable to recall any biographical information about people she could name. Moreover, she had a normal score in an Object Picture Naming Test, but gave confabulatory answers in a Semantic Questionnaire involving the same items. The role of frontal function in producing this pattern of impairment is discussed, together with the possible existence of a direct route from visual perception to proper name retrieval.

Key words: proper names, anomia, dysexecutive syndrome, frontal lobe

INTRODUCTION

Traditional cognitive models of face recognition (Bruce and Young, 1986) assume a multi-step sequential processing that, for familiar faces, progresses from the formation of a structural description of the presented face to name retrieval. Successful naming is dependent on previous access to semantic information.

The prevailing account of proper name anomia is that persons' names are harder to recall than other facts one knows about them, as, for instance, their occupation (Cohen and Burke, 1993). This may be due either to the fact that names of people are nonwords and most phonologies can be plausible for a name (Brennen, 1993), or that between people and their names there is a one to one representational correspondence (Cohen, 1990; Hanley, 1995; Semenza and Sgaramella, 1993). Burton and Bruce (1992)'s interactive activation model of face recognition and naming proposes a slightly different explanation: names and semantic information may not be stored in separate boxes, but rather mixed together with the pool of all semantic information. The difference between names and other information is that names are unique to a particular person, while other information may be shared by several people, thus implying different levels of activation and retrieval.

As far as the relationship between proper names and biographical knowledge is concerned, familiar face recognition models assume that the activation of biographical knowledge is a mandatory mediation of the two-way route that links visual and lexical representations (Valentine, Brédart, Lawson et al., 1991; see Cohen and Burke, 1993, for a critical review). Apparently, this is compatible

with data from brain-damaged patients: indeed, proper name anomia is associated with intact semantic knowledge of famous and familiar people (Fery, Vincent and Brédart, 1995; Hittmair-Delazer, Denes, Semenza et al., 1994). However, a few cases of intact naming in the absence of biographical information retrieval are reported. Williams and Smith (1954) described a TBC patient who could not give any information about people he could name perfectly, but this case was not explored in detail. More recently, Brennen, David, Fluchaire et al. (1996) have described the case of an Alzheimer patient who was unable to identify two persons (Catherine Deneuve and Serge Gainsbourg), she could name. The implication of such examples for cognitive models of face processing and naming deserves consideration, since a name recall without biographical information suggests a direct route from face perception to name production.

A few data also come from experiments on people naming conducted on normal subjects. While it is extremely rare that a person's name can be retrieved without recalling information (Hanley and Cowell, 1988), Stanhope and Cohen (1993) have discussed the serial access assumption by comparing the ability to learn proper names, occupations, or both when they are associated with unfamiliar faces. Recall of both names and occupations was not better than recall of names or occupations alone. This finding was thought to contradict the hypothesis that semantic information facilitates the retrieval of names.

Data from patients with disturbances in object naming show a comparable pattern of dissociation. When subjects are unable to give semantic information about an object, they are also unable to name it (Warrington, 1975), while it is possible to recall information about it, without being able to retrieve its name (Barbarotto, Capitani and Laiacona, 1996).

We report the case of a patient, SB, who following a left frontal haemorrhage, proved unable to give any information about people she could correctly name; her answers showed consistency over different trials. There were also a few items in which the opposite dissociation appeared, namely she was able to provide some semantic information in front of a famous person's picture, whose name she could never produce. In no case could SB produce both semantics and names. Object picture naming was normal but she produced abnormal answers on a semantic knowledge questionnaire. However, in no case did the patient produce semantic information about objects without being able to name them.

CASE REPORT

SB was an 86-year-old right-handed woman, with 5 years of education, previously employed as a housekeeper, who suddenly developed a confusional state, with disorientation in time and space and marked confabulation. On neurological examination, she did not show any focal sign. A brain CT-scan revealed a left hyperdensity with a diameter of approximately 3 cm in the frontal polar area, extending from the inferior surface up to 4 cm. The lesion was a haemorrhage, which caused a slight compression over the anterior horn of the left lateral ventricle (see Figure 1). The patient was alert. No other clinical problems emerged in the following weeks. Her daughter reported that, before the stroke, she had been perfectly autonomous.

A marked frontal syndrome was evident. The patient was easily distracted during test sessions: a person walking in the street, seen from the window, as well as a word written

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