

Monitoring the Lexicon with Normal and Compressed Speech: Frequency Effects and the Prelexical Code

EMMANUEL DUPOUX

Ecole Nationale Supérieure des Télécommunications and Laboratoire de Sciences Cognitives et Psycholinguistique, CNRS/EHESS, France

AND

JACQUES MEHLER

Laboratoire de Sciences Cognitives et Psycholinguistique, CNRS/EHESS, France

Previous reports suggest that initial phonemes are monitored on the basis of lexical information in monosyllabic words and on the basis of acoustic/phonetic information in multisyllabic words (Cutler, Mehler, Norris, & Segui, 1987). In Experiment 1, a frequency effect was found with item-initial phoneme monitoring for monosyllabic but not for bisyllabic words. In Experiments 2 and 3, we used speech time-compressed at a rate of 50% and failed to find a frequency effect for bisyllabic words, even though they were shorter than uncompressed monosyllables. In Experiment 4, we used a lexical decision task on the same items and found a frequency effect for both mono- and bisyllabic words. Results are interpreted on the basis of the dual code hypothesis. Implications for the nature of the prelexical code are discussed. © 1990 Academic Press, Inc.

The nature of the perceptual access code by which lexical entries are activated is still a matter of debate. The most common belief in spoken word recognition is that the speech signal is continuously transformed and processed and that even a few ms of speech stimuli can broadly activate the lex-

icon. This very diffuse lexical activity can be narrowed down as soon as new information is available, resulting in the isolation of a unique lexical candidate (see Marslen-Wilson & Tyler, 1980; McClelland & Elman, 1986). However, some psycholinguists believe that the signal is first parsed into large prelexical units, for instance, syllables, that are in turn the source of lexical look-up (see Massaro, 1972, 1975; Mehler, Dommergues, Frauenfelder, & Segui, 1981). In this view, lexical activation is essentially discontinuous, because nothing happens in the lexicon before a critical amount of prelexical information has been processed.

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In this study, we will explore the nature of prelexical units in three experiments using word initial phoneme monitoring. This task seems adequate to explore the first stages of lexical activation because it has been shown to be sensitive both to acoustic/phonetic factors and to lexical factors (Cutler & Norris, 1979; Foss & Blank, 1980; Newman & Dell, 1978). Indeed, it is