

Massaro D W. Preperceptual images, processing time, and perceptual units in auditory perception. *Psychol Rev* 79:124-45, 1972.

[Department of Psychology, University of Wisconsin, Madison, WI]

A theoretical account of the auditory recognition process is given in terms of the information in a preperceptual image and the time it is available for perceptual processing. Necessary distinctions are drawn between auditory detection, recognition, and short-term memory [The Science Citation Index® (SCI®) and the Social Sciences Citation Index® (SSCI®) indicate that this paper has been cited in over 140 publications since 1972.]

Dominic W. Massaro
Program in Experimental Psychology
University of California
Santa Cruz, CA 95064

July 18, 1984

When I was notified that a publication of mine was identified as one of the most-cited items in its field, my first terrifying thought was that I was citing my own work too frequently. This is not the case for the paper in question, however, since most of my research areas after the cited paper have been "something completely different," to steal a phrase from Monty Python.

As a graduate student and a postdoctoral fellow, I was impressed with the information-processing framework as a heuristic for psychological inquiry. Performance in any domain could be conceptualized as involving a set of processing stages, and it is important to isolate and define the nature of the information and the operations performed on it at each stage of processing. This paradigm has major implications for experiment and theory. The primary one in my mind was that it served as an organizational framework to relate disparate areas of investigation previously believed to be concerned with fundamentally different psychological questions.

My interest in auditory perception evolved from my thesis research on memory for pitch, a situation chosen to eliminate the possibility of subvocal rehearsal during the forgetting interval. It became apparent that memory performance was as much dependent upon "perception" as memory, and this realization clarified previous studies of verbal memory.¹ I pursued the study of auditory perception utilizing many of the concepts developed in the visual information-processing area² and quickly discovered the widely different approaches to the study of the problem. The approaches ranged from the highly sensory orientation of psychoacoustics to the study of the auditory modality in memory tasks. The goal of the cited paper was to review the relevant literature across these areas and to provide a single theoretical account of phenomena rarely related to one another.

Why choose such a project for a Wisconsin summer after a long, cold winter's first year of teaching? Although we had a gigantic garden on our new country land, weeding wasn't a problem and there was much time for library research. (There seems to be less time for such endeavors today.) The project and its apparent success provided a model for employing a similar organization for a textbook.³

The frequent citation of the publication is probably due to the value of the information-processing framework for clearly expressing psychological facts and to the paper capturing the state of the art for the following decade. Although some of the central themes have since been hotly debated, criticized, and supported, the endeavor has been healthy and progressive. The most encouraging outcome has been the general success of the theoretical framework even when extended beyond its original domain.⁴⁻⁶

- 1 Massaro D W. Perceptual processes and forgetting in memory tasks. *Psychol Rev* 77 557-67, 1970 (Cited 35 times)
- 2 Preperceptual auditory images *J Exp Psychol* 85 411-17, 1970 (Cited 65 times)
- 3 Experimental psychology and information processing Chicago, IL Rand McNally, 1975 651 p (Cited 115 times)
- 4 Cowan N, Suomi K & Morse P A. Echoic storage in infant perception *Child Develop* 33 984-90, 1982
- 5 Kallman H J & Massaro D W. Backward masking, the suffix effect and preperceptual storage *J Exp Psychol—Learn Mem Cogn* 9 312-27, 1983
- 6 Watson C S & Kelly W J. The role of stimulus uncertainty in the discrimination of auditory patterns (Getty D J & Howard J H, Jr, eds) *Auditory and visual pattern recognition* Hillsdale, NJ Erlbaum, 1981 p 37-59