VISUAL PERCEPTION

Preface

The idea for the edition of a special volume dedicated to *Visual Perception* arose as a consequence of the meeting of two researchers who come from two countries largely separated, but with a great deal of social, cultural, and scientific affinities: Spain and Brazil. Both researchers have observed that a consolidation of perceptual research and theory appears to be taking place in Spain as in Brazil. In order to highlight and facilitate such consolidation, it is important to assemble in a common volume examples of such perceptual research, and we hope this volume of *Psicologica* helps further these goals.

Because visual perception involves investigation at many different levels of the visual system, a comprehensive understanding of visual perception must involve an interdisciplinary approach. An increase in our understanding of biological, neurophysiological, and psychophysiological characteristics of visual perception has resulted from development and use of a wide variety of procedures and techniques for research, including neuroanatomy, biophysics, biochemistry, physiology, and psychology. The wide range of techniques has allowed researchers to learn about an equally wide range of perceptual processes, and because these techniques originate in or arise from different approaches, the evidence obtained is complementary and convergent, and so we can therefore speak of a Visual Science.

Vision represents the richest source of information on the environment in the animal kingdom. As Huertas et al. (1993) [Huertas, N. Ochaita, E. y Espinosa. J. (1993), *Psicologia de la ceguera*. Madrid: Piramide] claimed, vision is the pre-eminent perceptual system because "*it enables the organism perceive simultaneously a wide area in the environment*" (p. 208). Additionally, vision provides useful anticipations without requiring physical contact with the stimuli, that is, vision allows us to be aware of the layout, size, and type of object within any given space. The importance of the visual system is due to its ability to: 1) detect stimuli at a distance (externabilty), enabling the recognition of the objects without contact with them; 2) operate on animated structures as well as on inanimated ones; 3) operates in a multiplicity of scales either with high and low spatial resolution; 4) it integrates spatial simultaneity with temporal sequentially (events and successions); 5) achieve inter-individual consensus regarding properties of a stimulus (and so sensory scales measuring visual properties are relatively more objective); 6 guide an observer's actions and movements within the environment; and 7) discriminate properties of the objects (size, shape, colour, texture, location, and so on), making possible to categorize with regard to these attributes.

Because we are living in an epoch in which all the sciences are being urged to play a role in the transformation and improvement of the human society, researchers in Vision Sciences have grown more concerned with practical application of experimental findings. And as consequence, researchers have had a very large interest in sharing and integrating their knowledge with that of others. By publishing a special volume like this, we hope to facilitate integration of recent empirical and theoretical work which would otherwise have been spread out in different journals and lacking in integrative connections.

In this special volume we have assembled reports from researchers from three continents (America: the North and the South, Asia and Europe), including seven different countries: USA (Texas, Illinois, Washington), Canada (Montreal), Brazil (Sao Paolo, Rio de Janeiro), The Netherlands (Rotterdam), Japan (Kyoto, Tokyo, Toyama), France (Lille), Portugal (Lisbon), Spain (Barcelona, Madrid). Several topics are discussed, varying how space is measured and what types of stimuli enable veridical visual perception to considerations of the physiological, psychophysical, and cognitive mechanisms and processes that underlie visual processing.

John Philbeck and Shannon O'Leary studied how a remembered landmark reduces uncertainty when navigating without vision. Particularly, they attempted to find out the role of the landmarks in a simple path integration task for human people. Ranxiao Frances Wang conducted three experiments in order to investigate the prevalent hypothesis that performance in a task involving some transformation in perspective reflects the imagination process. Yann Coello reviewed a great deal of evidence about the last advances on the couple visual estimation and action plans. Maria Pilar Aivar, Eli Brenner, and Jeroem B.J. Smeets examined whether performance in a sequence of moves was affected by changes in size, shape, and location of a stimulus. Atsuki Higashiyama, Koichi Shimono, and Wataru Zaitsu reported two experiments, one comparing the separation between objects and one comparing the perceived depth, using a plane or a convex mirror. Elton Matsushima, Artur P. de Oliveira, Nilton P. Ribeiro-Filho, and Jose A. Da Silva studied the relevance of visual angle in relative distance perception by using a particular layout in an open field experiment. Antonio Aznar Casanova, Lluïsa Quevedo, and Scott Sinnett compared two procedures used currently to measure Dynamic Visual Acuity (DVA): displacement motion and drifting motion. And, paradoxically, visual acuity diminished more when no pursuit movements were necessary. Luiz G. Gawryszewski, Luiz Renato Carreiro, and Fábio V. Magalhães examined whether the Inhibition of Return (IOR) is dependent on Cartesian co-ordinates, and they analyzed the effects of spatial cues to examine whether effects of inhibition of return were more consistent with a polar or a Cartesian coordinate system. Joan López Moliner reported in one experiment an asymmetry between expansion and contraction, suggesting the intervention of fast and slow motion processing mechanisms rather than the contribution of different higher-order motions detectors. Cesar Galera, Michael von Grünau, and Afroditi Panagopoulos investigated changes in attentional focus by using simple geometric shapes in a visual search task.

Morton Heller, Melissa McCarthy, and Ashley Clark reviewed experiments on haptic pattern perception in blind people, very low vision, and sighted participants, emphasizing the relationships between haptic picture recognition and semantic memory. Helder Bertolo reviewed the most recent experimental work about visual imagery and defended the hypothesis of an analogical format in the mind. He presented evidence in neuropsychological and phenomenological fields, as well as some drawing performance related to dreams. In order to measure the discriminability of characters on a screen (i.e., the contrast in the luminance between the figure and background), Julio Lillo and Humberto Moreira designed a low cost psychophysical method, which was administrated to people with and without colour impairment. Timothy Hubbard, Susan Ruppel, and Jon Courtney described three experiments that used gamma movement to evaluate an impetus explanation of the launching effect.

Finally, this volume on Visual Perception would not have been possible without the enthusiastic reception of the editors: Salvador Algarabel and Alfonso Pitarque. We would also like to express our gratitude to the referees, all of whom are experts in different domains of visual perception. For all of them we want sincerely express our gratitude. We thank you very much.

At last, but not the least, we want to dedicate this work to our students, colleagues and professionals who work in this field. We hope that this special volume on Visual Perception to be useful in clarifying points of debate, suggesting ideas, and asking new questions.

J.Antonio Aznar-Casanova and José Aparecido Da Silva
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Guest Editors

José Antonio Aznar-Casanova
University of Barcelona, Spain

José Aparecido Da Silva
University of São Paulo at Ribeirão Preto, Brazil

List of Participants

Afroditi Panagopoulos
Concordia University, Montreal, Canada

Arthur de Oliveira
Federal University of Rio de Janeiro, Brazil

Ashley Clark
Eastern Illinois University, Charleston, Illinois, USA

Atsuki Higashiyama
Ritsumeikan University, Kita-ku, Kyoto, Japan

César Galera
University of São Paulo at Ribeirão Preto, Brazil

Elli Brenner
Department of Neuroscience, Erasmus M.C., Rotterdam, The Netherlands

Elton Matsushima
University of São Paulo at Ribeirão Preto, Brazil

Fábio Magalhães
Neurobiology Department, UFF, Niterói, Rio de Janeiro, Brazil

Helder Bértolo
School of Medicine at Lisbon, Portugal

Humberto Moreira
Complutense University of Madrid, Spain

Jeroen Smeets
Department of Neuroscience, Erasmus M.C., Rotterdam, The Netherlands

Joan López-Moliner
University of Barcelona, Spain

John Philbeck
George Washington University, Washington, USA

Jon Courtney
Texas Christian University, Forth Worth, TX, USA

Julio Jover
Complutense University of Madrid, Spain

Koichi Shimono
Tokyo University of Marine Science and Technology,Tokyo, Japan

Lluïsa Quevedo
Polithecnical University of Barcelona and Optical School of Terrassa, Barcelona, Spain

Luiz Gawryszewski
Neurobiology Department, UFF, Niterói, Rio de Janeiro, Brazil

Luiz Carreiro
Neurobiology Department, UFF, Niterói, Rio de Janeiro, Brazil

Maria Aivar
Department of Neuroscience, Erasmus M.C., Rotterdam, The Netherlands

Melissa McCarthy
Eastern Illinois University, Charleston, Illinois, USA

Morton Heller
Eastern Illinois University, Charleston, Illinois, USA

Michael von Grünau
Concordia University, Montreal, Canada

Nilton Ribeiro-Filho
Federal University of Rio de Janeiro, Brazil

Ranxiao Wang
University of Illinois at Urbana-Champaign, Illinois, USA

Scott Sinnett
University of Barcelona, Spain

Shannon O'Leary
George Washington University, Washington, USA

Susan Ruppel
Francis Marion University, Fort Worth, TX, USA

Timothy Hubbard
Texas Christian University, Forth Worth, TX, USA

Wataru Zaitsu
Research Institute of Scientific Investigation at Toyama Prefectural Police, Toyama, Japan

Yann Coello
University of Lille, France