Davide Rivolta

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Prosopagnosia

When All Faces Look the Same

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Prosopagnosia

When All Faces Look the Same

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The Reverend Hugh Stretton, Anglican Minister of Hennacombe, Devon, England "could meet you four times and still not recognize your face. It was this, a serious disability in a person, which accounted for the uncertain smile he would bestow on total strangers, ready to broaden if responded to, snatch back if not".
Carey, Peter (1988). Oscar and Lucinda. University of Queensland Press, St. Lucia, Queensland, Australia, 511 pp, p.47.

Preface

In 2006, after completing my degree in Psychology in Pavia (Italy) I decided to fly (literally) to the other side of the world, to Australia, and join some leading scientists in the very hard task of understanding more about the way our mind works. In April 2007, I started my Ph.D. at Macquarie University, in Sydney. Here I decided to focus my attention toward a specific field, which focuses on understanding the correlates of face recognition both at the behavioral and at the neural level. Prof. Max Coltheart, Associate Professor Mark Williams, Dr. Romina Palermo, and Dr. Laura Schmalzl leaded me toward this challenge that lasted until December 2010, when I completed and submitted my Ph.D. thesis.

After this time spent on face recognition research I was so excited that I wished everyone knew more about this interesting topic. This represents the reason why I decided to write a book that aims to provide a simplified although comprehensive glimpse into the intriguing world of the mechanisms of face recognition. So, I ended up publishing a book in Italian, entitled "Prosopagnosia: Un mondo di facce uguali". This English version does not only represent a translation from the Italian, but, since research on the topic never stops, it also includes very recent results (especially in Chaps. 2 and 3).

What can we read in a face? I bet you have never asked yourself this question. The answer is: "A lot!" In fact, from the face we can retrieve information such as identity, gender, age, attractiveness, race, mood, and approachability of a person. The impressive part is that we can do all of this in a fraction of a second, without even thinking about it (this is probably why you have never asked yourself this question in the first place). Although research has put a lot of effort into trying to understand all those aspects, in this book I will mainly focus my attention on face identification and I try to answer questions like: "Why are humans so fast at recognizing faces?", "Why are we so efficient at recognizing faces?", "Do faces represent a particular category for our visual system?", "Can face recognition fail?".

Of course I am not going to give you the answers now. However, what I can tell you is that in this book I try to summarize and stimulate your curiosity on the line of research that focuses on explaining why humans are generally so good at face processing and why sometimes they are not. I will do this by first providing an introduction to the history, methodology, and techniques commonly adopted for these challenges (Chap. 1). Here, I will not only describe the techniques (there are,

in fact, very well done manuals that do it already), but I wish to engage the reader in a wider trip that gives a general idea of what cognitive science is and what it does. After describing a technique, I will provide the reader with some brief descriptions of research that has successfully adopted those techniques. On purpose, I will not provide face-related research since I believe that the reader in this first chapter should have a more general idea of cognitive science and the very different research questions that can be formulated. The expert reader is invited to skip this chapter and directly proceed to Chap. 2; there is no information in Chap. 1 that precludes the understanding of the rest of the book.

In Chap. 2, I will report what I believe is the most relevant research on the cognitive and neural aspects of face processing. In Chap. 3, I will introduce prosopagnosia and in Chap. 4, I describe the intriguing finding of face recognition without awareness. In the last chapter (Chap. 5), I will describe some real cases of people with face recognition difficulties.

Who should read this book? I believe that everyone can read the book. The psychology student can learn something about face processing, a topic that is (to the best of my knowledge) not addressed in great detail in many undergraduate courses. The person interested in science can understand what researchers in the field of cognitive science do, which techniques they use, and what they found. The person who believes to have face recognition problems can use the book to learn something new about their difficulties. Some people say that research often lives in a world parallel to the real one; that is, they never meet. This book represents a modest attempt to make a field of research—the one that focuses on face recognition—available to the general public.

Acknowledgments

Let me use a few words here to thank some people without whom, not only this book, but even all the research I have done so far, would have been not possible. I owe my deepest gratitude to: Prof. Max Coltheart, for the opportunity he gave me to initiate a Ph.D. project very far from my home country, for the support he gave me over my candidature, and for providing insightful feedback on earlier versions of the book; Dr. Romina Palermo, for the constant academic and psychological support, patience (being almost an "Italian mum"), and constructive criticism; A/Prof. Mark Williams for introducing me to the intriguing world of human neuroimaging; Dr. Laura Schmalzl for the precious and broad support provided during the 4 years. Thanks also to Dr. Charlie Stone, Dr. Ellie Wilson, and Isabella Premoli who provided a crucial contribution in the translation of the book and provided insightful feedback on earlier versions of it. Ellie also prepared great part of Chap. 5.

Frankfurt, May 2013

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