

Visual Perception: A Clinical Orientation, 5th ed

Steven H. Schwartz

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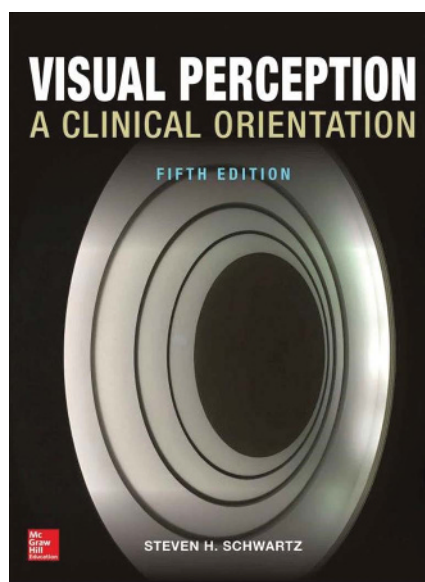
It is an honor to review the 5th edition of *Visual Perception: A Clinical Orientation*, by Dr. Steven Schwartz. In my training, I was very thankful to have used a prior edition of Dr. Schwartz's book as it gave me the first framework for studying and learning vision and visual perception. As a clinician, researcher, and educator I chose to review the book through the lens of my students – as I am sure Dr. Schwartz wrote it with that perspective in mind.

The intended audience is “beginning clinicians” (i.e., students of optometry or ophthalmology) and graduate students in vision or experimental psychology. The goal of the book has always been to give the reader an “accessible description” of vision that is useful to clinicians. As such, the book has considerable breadth and sufficient depth to allow the reader to gain firm conceptual grasp of the material coupled with understanding and awareness of current references to launch further investigation.

The text is well known with the first edition published in 1994 and with successive editions released every 5–6 years. Ever since the 2nd edition, the same 17 chapters headings have been utilized. The topics covered in the book are extensive including photometry, psychophysical methods, light and dark adaptation, spatial vision, temporal vision, color vision, motion perception, depth perception, ocular neurophysiology, visual electrophysiology, and vision development and maturation. All chapters have well prepared introductions and concise summaries to close each chapter.

The first 11 chapters and last cover what most would consider a course (or two) in vision perception or visual psychophysics, the next five chapters cover ocular neurophysiology, and the last chapter covers the development and maturation of vision. Prior reviews focused on content in each chapter while the focus of this review are changes and enhancements which have improved this essential text.

The 5th edition of *Visual Perception* continues to be concise and useful to clinicians. Some material from prior editions



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was deemed “extraneous” and removed, while adding the most recent research and knowledge relevant to the text’s topics. While prior editions showed an increasing number of pages, the most recent 5th edition is the second shortest at 382 pages, but clearly still delivers terrific and relevant content.

A great addition that occurred in the 4th edition were sections in blue text termed “clinical highlights”. These sections are continued and expanded in the 5th edition to engage to exemplify the utility of vision science in clinical settings and promote clinical research.

While prior editions had more practice problems and exams, the 5th edition now has only multiple-choice questions at the end of each chapter and does not have practice examinations, which reduces the number of pages in the book. Perhaps the questions will sufficiently replace the practice exams, though some, particularly those studying for licensing exams, may miss the experience afforded by practice exams. Moreover, former editions included explanations with problem answers which were

omitted in the 5th edition. This may be considered a shortcoming by some readers. It also is noteworthy that many of the practice questions are based on the clinical highlight sections making those mandatory reading and not optional as their separate sections may lead some readers to believe. Likewise, it should be pointed out that some very good information is contained in footnotes and the reader would benefit from checking those as they read the text.

Even though the chapter order has remained the same in the last four editions, to some readers, the organization of the book may be unnatural in some instances. For example, photometry is covered in chapter 4, but this is after chapter 3 which covers how the eye adapts to different light levels (i.e., light and dark adaptation). Similarly, psychophysical methodology is covered in chapter 11, but this can seem unusual since the results of psychophysical testing of spatial, temporal, and color vision were already presented in preceding chapters. As an example, the book presents a computerized color vision test, the Rabin Cone Contrast Test and describes the test as using an “interactive staircase procedure”, but if the reader were proceeding through the book sequentially they would not have read about staircase procedures and hence this could be confusing. However, placing psychophysical methods essentially last in this section also allows Dr. Schwartz to provide clinical examples of the psychophysical methods covered in prior chapters dealing with threshold measures of VA, CS and color vision. This is similar to optometry programs today that may cover clinical methods before visual psychophysics in their curriculum.

Another consideration for readers is that some material that would be in their own chapter in other books is contained within a broader chapter in Dr. Schwartz's text. For example, the topic of dark adaptation is explained in a mere three pages (which is a great summary) within the chapter entitled ‘Duplex Retina’. The topic of visual field testing, also known as perimetry, is

also covered in this broad chapter as a clinical highlight section.

The color figures and tables in the book are very good and high-yield for the learner. Most figures and tables are recognizable from previous editions. There are a few rare instances where figures or tables are repeated, they are somewhat awkwardly formatted (e.g., spectral power distribution for illuminant C), or their captions are not completely clear. These instances are very few and likely to be unnoticed by readers. In the case of a repeated figure to describe cone photoreceptor sensitivities it is to the benefit of the reader to have the figure repeated so as not to disturb the flow of each of their respective chapters. In the area of

color vision, there is still a lot of great text description on the anomaloscope, but the table from the 4th edition was removed – which will be missed. The omission of information on the Munsell color system, however, will likely not be missed and is appreciated. The book could also benefit from a table listing color vision prevalence as well as updating the newest study on the prevalence of tritan deficiencies.

Overall, the book is well written with great color tables and figures. Dr. Schwartz is masterful at explaining complex material in a very concise manner and appealing to how basic science information is applied clinically. This latest edition is updated with our most recent understandings of vision

and the visual system and the content is delivered in a clear and concise manner with as many clinically relevant applications as possible. This edition of *Visual Perception* allows Dr. Schwartz to keep his great textbook at the fingertips of future generations of clinicians and scientists. The textbook's longevity and continuous updating are bound to make it a classic for those seeking an introduction to vision.

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Visual Perception. Notice Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required. No single volume can address all of visual science; however, Visual Perception: A Clinical Orientation covers an extraordinarily broad range of clinically important topics, including color vision and its defects, spatial vision, temporal aspects of vision, psychophysics, physiology, and development and aging. The fourth edition is a real advance. All the figures are now in stunning color, and there is a host of new images that are clinical in nature (including, for example, color vision tests, fundus photographs, etc.).

Visual Perception Theory. By Saul McLeod, updated 2018. In order to receive information from the environment we are equipped with sense organs e.g. eye, ear, nose. Sensory inputs are somehow converted into perceptions of desks and computers, flowers and buildings, cars and planes; into sights, sounds, smells, taste and touch experiences. A major theoretical issue on which psychologists are divided is the extent to which perception relies directly on the information present in the environment. Gregory argued that this object appears to flip between orientations because the brain develops two equally plausible hypotheses and is unable to decide between them.