

Drawing From the Bottom Up

Peter Van Sommers

Drawing and Cognition: Descriptive and Experimental Studies of Graphic Production Processes
Cambridge, England: Cambridge University Press, 1984. 296 pp. \$37.50

Review by

Jennifer J. Freyd

Peter Van Sommers is associate professor of psychology at Macquarie University (Australia). ■ Jennifer J. Freyd is assistant professor of psychology at Cornell University. She is coauthor with J. Baron, R. Treiman, and P. Kellman of the chapter "Spelling and Reading by Rules" in U. Frith's Cognitive Processes in Spelling.

Drawing and Cognition by Peter Van Sommers is a clearly written monograph on the principles of drawing behavior. The work is remarkable in its thorough empirical analysis of drawing, from physical constraints on production processes through higher level cognitive influences. Also striking is the extent to which Van Sommers has completed his investigations almost totally apart from related research taking place in the United States and in England. Despite the isolated nature of his research program (he cites almost no work other than his own and has not, as far as I can tell, previously published any work on drawing), *Drawing and Cognition* is a valuable and informative book. I believe that Van Sommers was able to make such a contribution in relative isolation because he picked a topic that has not been extensively studied by others and because his research is imaginative and thorough.

Perhaps the most serious omission from the book is a discussion of the "grammar of action" literature (see Goodnow & Levine, 1973; Simner, 1981). Van Sommers does mention that Goodnow (1977) has investigated children's drawing behavior, but he fails to describe the fascinating finding that when children copy geometric figures they seem to follow a set of rules about where to begin drawing and in which directions to proceed. The book might have been more interesting, too, if it had included some discussion of the many studies that have used children's drawing behavior as evidence of various

perceptual and cognitive effects; however, Van Sommers is interested in production in drawing per se, not in drawing as evidence of something else.

Van Sommers presents his corpus of information on drawing in a straightforward and organized fashion. He begins with basic production issues (how is paper contact maintained, how do people make straight lines, what are the geometric constraints affecting stroke order?) and then moves on to more complex drawing tasks. Throughout the book, the author makes good use of figures to convince the reader that drawing behavior is orderly. For instance, cleverly conceived "polar plots" depict frequencies of stroke directions that compellingly make the case that subjects use a highly restricted set of stroke directions (e.g., people generally draw vertical strokes not from the bottom up but from the top down).

I was especially interested in a section of the book on the effects of meaning on drawing strategies. Van Sommers reports a study using designs each of which could be associated with two different descriptions. For instance, one design was described as either a diamond with a cross line or a pyramid and its reflection; another was a four-leaf clover or a number 3 and its mirror image. Subjects were asked to look at these figures and copy them. Depending on the subject's experimental condition, one of the two descriptions was present as a caption for each design. Van Sommers found that the order in which subjects copied the various components on the design was strongly influenced by the subjects' semantic interpretation of the design.

A potential drawback to the book is that it has very little theoretical content, something that Van Sommers acknowledges in the preface. What theory is present does not seem particularly illuminating. For instance, Van Sommers often compares drawing to speaking, and except for pointing out that the analyses of both drawing and speaking involve multiple levels, the analogy does not seem compelling. However, the empirical story that Van Sommers tells is solid and interesting, and there is much material that readers may want to use for their own theorizing.

References

- Goodnow, J. J. (1977). *Children drawing*. Cambridge, MA: Harvard University Press.
Goodnow, J. J., & Levine, R. A. (1973). "The grammar of action": Sequence and

syntax in children's copying. *Cognitive Psychology*, 4, 82-98.
Simner, M. L. (1981). The grammar of action and children's printing. *Developmental Psychology*, 17, 866-871.