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Response

G.W. Flake, *The Computational Beauty of Nature*

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As the author of *The Computational Beauty of Nature* (hereafter, abbreviated as CBN) I am grateful for both the complimentary remarks as well as the thoughtful criticisms made by Melanie Moses, Stephanie Forrest, and Martin Berzins. As Moses and Forrest point out, CBN contains many of my intellectual biases and enthusiasms and, as a result, it undoubtedly contains imperfections related to my subjective view of science, mathematics, and philosophy. That said, I am delighted that the two reviews in this issue agree in positive aspects as much as they do. However, the two reviews do differ in some key aspects, which will be the focus of my response.

I purposely designed CBN so that it could be read in multiple ways so as to suit the needs of different readers. As described in the preface, the first method of reading CBN would exploit the relatively self-contained and independent nature of the chapters, allowing the reader to skip around and pursue only those parts that look immediately appealing. A second method would use a more linear approach, working through the five parts in succession, so as to best appreciate the connections made between computation, fractals, chaos, complex systems, and adaptation. And still, a third reading would focus on the overall pattern that ties the five book parts into a single theme, as put forth in the preface, five "Postscript" chapters, and the epilogue.

As I wrote in CBN's preface:

> If this book is a forest, then the first way of reading it is akin to poking at individual trees. The second way is analogous to observing how nearby trees relate to each other. The third way would equate to standing back and taking in the whole forest at once. It doesn't really matter which path you take in exploring these ideas, as I expect that most readers will stick to one path in preference to the others. But if you happen to try all three paths, you may be rewarded with a special type of understanding that not only relates each topic to the others but also each topic as it is viewed from different perspectives.

While Berzins's review samples CBN with a mixture of the first two reading methods, Moses and Forrest's review examines all three methods while paying special attention to

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[1] http://www.neci.nj.nec.com/homepages/flake/.

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the third. Taking a wider view, I am happy that different reviewers are evaluating CBN from a variety of positions and motivations. In the end, the mixture should give a more accurate description of the book, while also giving potential readers a better estimate of the value that they will yield from it.

For more reviews of CBN (as well as Java and C source code, the figures, glossary, and bibliography from CBN, and many other educational resources), please see http://mitpress.mit.edu/flake/.