5. In conclusion

If I sound critical of the book, it is because I basically like it, and I am somewhat disappointed with the final result. Most of the faults could have been easily eliminated by an expert in lattice theory in a few days. And why are words misspelled in these days of spelling checkers? Why is a section heading abbreviated to make it mathematically meaningless (§5 of Chapter Two)?

More important than these faults is the enthusiasm of the author for the subject matter. Everybody I discussed this book with became quite enchanted with UC lattices. This topic is full of surprising and deep results, yet even some of the most fundamental problems are unresolved. To whet the reader's appetite, let me mention three:

1. Is there a complete nondistributive UC lattice?
2. Is the MacNeille completion of a UC lattice a UC lattice?
3. Is there a simple "natural" example of a nondistributive UC lattice (in geometry, combinatorics, or topology)?

The first two problems are due to R. P. Dilworth; note that the MacNeille completion of a distributive lattice is not necessarily a distributive lattice. The first explicit mention of the third problem seems to be in the reviewer's General Lattice Theory, but I am sure that experts in the field considered it earlier.

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Grassmannians and Gauss maps in piecewise-linear topology, by Norman Levitt. Lecture Notes in Mathematics, vol., Springer-Verlag, 1989, $21.10. ISBN 0-50756-6

Combinatorial geometry goes back at least to Euclid and the study of regular polyhedrons in Euclidean space, using both metric and linear properties. In the 18th and 19th centuries, Euler and Poincaré exploited purely combinatorial properties to define the Euler class, homology and Poincaré duality of general polyhedral surfaces; and Riemann exploited local metric properties of smooth