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# *Preface to the Second Edition*

A few years after the publication of the first edition of this book, I submitted a paper on congruence lattices of finite lattices to a journal. The referee expressed surprise that I have more to say on this topic, after all, I published a whole book on the subject.

This Second Edition, will attest to the fact the we, indeed, have a lot more to say on this subject. In fact, we have hardly started.

The new topics include

- The minimal representation theorem for rectangular lattices, a combinatorial result, see Chapter 11; this is joint work with E. Knapp.
- A new field investigating the ordered set  $\text{Princ } K$  of principal congruences of a lattice  $K$ , see Part VI. I started this field; it was continued by G. Czédli and myself.
- Congruences and prime intervals, a field concerned with the congruence structure of finite lattices, especially of SPS lattices, see Part VII. For SPS lattices this field was started by G. Czédli; the results are due to him and myself.

Part I has been extended to also provide an introduction to the new topics.

LTF refers to the book *Lattice Theory: Foundation*, [62], and LTS1 to the book *Lattice Theory: Special Topics and Applications, Volume 1* [152].

We use now the notation as in LTF, in particular, the functional notation for maps and bold Greek letters for congruences. This introduced  $\aleph_0$  incorrect formulas and diagrams. I think I have been able to catch 99% of the errors. However, if you find a map  $\varphi\psi$  difficult to figure out, just change it to  $\psi\varphi$ .

I would like to thank all those who sent me corrections, especially, G. Czédli, K. Kaarli, H. Lakser, R. Padmanabhan, and F. Wehrung.

**Note** All the unpublished papers in the references can be found in the ResearchGate Website, [researchgate.net](https://www.researchgate.net); since Gratzner will not find my publications, use the link

[https://www.researchgate.net/profile/George\\_Graetzer](https://www.researchgate.net/profile/George_Graetzer)

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