bifurcation (1942) for example lies deeper than CT. The Hopf theory shows how a stable equilibrium bifurcates to a stable oscillation in ordinary differential equations. Moreover, there is the reference *Theory of oscillations* by Andronov and Chaiken, 1937, with English translation in 1949 published by the Princeton University Press which is never referred by Thom or Zeeman. This book besides giving an early account of structural stability, gives a good account of dynamical systems in two variables with explicit development of discontinuous phenomena, quite close to Zeeman's use of the cusp catastrophe. Examples from physics and electrical engineering are studied in some depth.

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Bornologies and functional analysis, by Henri Hogbe-Nlend, Mathematics Studies no. 26, North-Holland, Amsterdam, New York, Oxford, 1977, xii + 144 pp., $19.50.

The author states in his introduction that functional analysis is analysis over infinite dimensional spaces. This is a fact. But concrete infinite dimensional spaces, e.g. function spaces, are more important than the reader would gather from the book.

Hard functional analysts evaluate and prove a priori inequalities. Their topologies are related to the problems they study, to the inequalities they prove. The solution of a concrete problem is the main emphasis. If this solution involves the consideration of a half dozen topologies on a given space, well it does, but the problem is solved.

The soft functional analyst does not find these proofs elegant. Some proofs may even be "clumsy", the hypotheses being too strong. Of course, the examples to which the "better" proof applies are fairly artificial, but that does not affect the general principle. Elsewhere, a "main theorem" can be proved, its proof involves one single topology or convergence on the space. The other topologies only serve to bridge the gap between the main result and the applications. The hard functional analyst does not appreciate the progress since the main result is only justified by its applications.

Bornology is a chapter of soft functional analysis.

Locally convex space theory is a well established subject. We all know a half dozen or more classes of examples of locally convex spaces. These examples put the flesh on the skeleton when we, or our students, read a textbook on locally convex space theory.

Bornology is not as well established. The reader of a text on bornology may not know how it can be used to help the hard analyst. It is the author's responsibility to lead his reader to the applications. These applications are the final test in judging the value of a soft analytic theory.

In this book, the author places more emphasis on the easy parts of bornology, or in the chapters where functional analysts used bornologies before they were invented than on the chapters where the consideration of bornologies really brings something to functional analysis. A senior