(b) Is the conclusion of Theorem 3 sharp, with respect to the type of tangential limit obtained, for star-like functions, for univalent functions or for functions in D? Is there a function ϕ (satisfying the conditions in Section 4) such that there exists a univalent function f which does not have a T_ϕ - limit at any point on C?

Answers on a postcard, please.

REFERENCES

1. COLLINGWOOD, E.F. and LOHWATER, A.J.
   'The Theory of Cluster Sets', Cambridge University Press, 1966.
2. KOOSIS, P.
   "Lectures on H_p Spaces", London Math. Soc. Lecture Note Series, 40, Cambridge University Press, 1980.
3. LOHWATER, A.J. and PIRANIAN, G.
   "The Boundary Behaviour of Functions Analytic in a Disk", *Ann. Acad. Sci. Fenn. Ser. A1*, No. 239 (1957).
4. LUSIN, N.N. and PRIVALOV, I.I.
   "Sur l'Unicite et la Multiplicite de Fonctions Analytiques", *Ann. Sci. Ecole Norm. Sup.*, (3) 42 (1925) 143-191.
5. NAGEL, A., RUDIN, W. and SHAPIRO, J.H.
   "Tangential Boundary Behaviour of Functions in Dirichlet-Type Spaces", *Annals of Math.*, 116 (1982) 331-360.
6. POMMERENKE, Ch.
   'Univalent Functions', Vandenhoeck and Ruprecht, 1975.
7. RUDIN, W.
   'Real and Complex Analysis', 2nd Ed., McGraw-Hill, 1974.

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BOOK REVIEWS

"FIELD EXTENTIONS AND GALOIS THEORY"

By *Julio R. Bastida*

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The author begins with a four-page "Historical Introduction" followed by fifteen pages devoted to "Prerequisites" and ten (!) to "Notations". The work proper is divided into four chapters entitled "Preliminaries on Fields and Polynomials", pp. 1-40; "Algebraic Extensions", pp. 41-91; "Galois Theory", pp. 92-211 and finally "Transcendental Extensions", pp. 212-280.

"In this book, Professor Bastida has set forth this classical theory, of field extensions and their Galois groups, with meticulous care and clarity. The treatment is self-contained, at a level accessible to a sufficiently well-motivated graduate student, starting with the most elementary facts about fields and polynomials and proceeding painstakingly, never omitting precise definitions and illustrative examples and problems. The qualified reader will be able to progress rapidly, while securing a firm grasp of the fundamental concepts and of the important phenomena that arise in the theory of fields. Ultimately, the study of this book will provide an intuitively clear and logically exact familiarity with the basic facts of a comprehensive area in the theory of fields. The author has judiciously stopped short (except in exercises) of developed specialized topics important to the various applications of the theory, but we believe he has realized his aim of providing the reader with a sound foundation from which to embark on the study of these more specialized subjects."

The above is an extract from the foreword by Roger Lyndon, and it hardly seems necessary for me to add to it, so I shall just make some comments instead.

Professor Bastida has adopted the term "factorial domain" instead of what I would have considered to be the standard terminology, namely unique factorisation domain or UFD for short. At least "UFD" has the merit of describing (precisely) a property of the domain in question.

The examples given in 3.2.4 - 3.2.8 are well chosen and interesting and illustrate the following facts: There are fields which are not prime, but possess a unique automorphism. There are proper field extensions having trivial Galois group and hence have a unique intermediate field invariant in the top field. There exists a field extension whose Galois group contains infinitely many subgroups having the same field of invariants and making up a chain.

In another instance, a classical example due to Dedekind is used to motivate the introduction of topological notions in studying infinite Galois theory. This didacticism in the author's approach to the subject is very commendable.

The book appears in the series "Encyclopedia of Mathematics and its Applications", however, the treatment is far from encyclopaedic. The notes and suggestions for further reading which follow each chapter indicate it was not the author's intention to provide such coverage. However, it does seem to me that the book is hardly likely to supplant Jacobson's "Lectures in Abstract Algebra" Vol. III in providing a comprehensive introduction to the theory of fields; and Jacobson provides better value for money!

Let me conclude with the following extract which I found rather droll:

"It is well known that some beginners in algebra, with complete disregard for the classical binomial theorem are quite prepared to accept the validity of the equality:

$$(\alpha \pm \beta)^n = \alpha^n \pm \beta^n.$$

As a consequence, they reach a number of interesting conclusions." I wonder what Fermat would have had to say to them?

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