

Contents

<i>Preface</i>	<i>page</i>	vii
1 Introduction		1
2 Preliminaries in complex analysis		6
2.1 Analytic facts		6
2.2 Geometric inequalities		10
2.3 Normal families		15
3 Uniformization and conformal distortion		18
3.1 The Möbius group		18
3.2 Some topological results		26
3.3 Hyperbolic contraction		32
3.4 Uniformization of bounded simply connected domains		35
3.5 The holomorphic universal covering of $\mathbb{C} \setminus \{0, 1\}$		37
3.6 Uniformization of domains in the Riemann sphere		43
3.7 Dynamical applications		46
3.8 Conformal distortion		59
3.9 Thermodynamics of Cantor repellers		62
4 The measurable Riemann mapping theorem		78
4.1 Quasiconformal diffeomorphisms		78
4.2 Extremal length and moduli of quadrilaterals		81
4.3 Quasiconformal homeomorphisms		87
4.4 The Ahlfors–Bers theorem		95
4.5 First dynamical applications		105
4.6 The no-wandering-domains theorem		106
4.7 Boundary behavior of quasiconformal maps		111
4.8 Polynomial-like maps		113
4.9 Quasiconformal surgery		116

vi	<i>Contents</i>	
5	Holomorphic motions	123
5.1	Holomorphic functions in Banach spaces	123
5.2	Extension and quasiconformality of holomorphic motions	128
5.3	The Bers–Royden theorem	132
5.4	Density of structural stability	141
5.5	Yoccoz rigidity: puzzles and para-puzzles	149
6	The Schwarzian derivative and cross-ratio distortion	155
6.1	Cross-ratios and the Schwarzian	155
6.2	Cross-ratios and <i>a priori</i> bounds	160
<i>Appendix</i>	Riemann surfaces and Teichmüller spaces	168
A.1	Riemann surfaces	168
A.2	Teichmüller theory	173
<i>References</i>		185
<i>Index</i>		190