

Table of Contents

Introduction	1
Chapter 1. Implicit First-Order Differential Equations	5
§1. Simple examples	5
§2. Normal forms	12
§3. On partial differential equations	17
§4. The normal form of slow motions of a relaxation type equation on the break line	19
§5. On singularities of attainability boundaries of typical differential inequalities on a surface	21
§6. Proof of Theorems 2.1 and 2.3	24
§7. Proof of Theorems 2.5 and 2.8	26
Chapter 2. Local Controllability of a System	29
§1. Definitions and examples	29
§2. Singularities of a pair of vector fields on a surface	36
§3. Polydynamical systems	43
§4. Classification of singularities	60
§5. The typicality of systems determined by typical sets of vector fields	71
§6. The singular surface of a control system	72
§7. The critical set of a control system	77
§8. Singularities of the defining set and their stability	88
§9. Singularities in the family of limiting lines in the steep domain	92
§10. Transversality of multiple 3-jet extensions	99
Chapter 3. Structural Stability of Control Systems	103
§1. Definitions and theorems	103
§2. Examples	109
§3. A branch of the field of limiting directions	111
§4. The set of singular limiting lines	113
§5. The structure of orbit boundaries	120
§6. Stability	124
§7. Singularities of the boundary of the zone of nonlocal transitivity	130
Chapter 4. Attainability Boundary of a Multidimensional System	135
§1. Definitions and theorems	135

§2. Typicality of regular systems	138
§3. The Lipschitz character of the attainability boundary	139
§4. The quasi-Hölder character of the attainability set	140
References	145