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Nota di contenuto	Contents; Part 1: Building a Definition for Synergy; 1.1 Synergies and Non-Synergies: A Few Examples; 1.2 Palama's Concept of Synergy; 1.3 Inanimate "Synergies": The Table and the Rusty Bucket; 1.4 Examples of Biological Synergies; 1.5 The Definition: Three Components of a Synergy; Part 2: A Brief History of Movement Studies; 2.1 Ancient Greece and Rome; 2.2 Renaissance; 2.3 The Century of Frogs, Photography, and Amazing Guesses; 2.4 The Twentieth Century: Wars of Ideas; 2.5 Nikolai Alexandrovich Bernstein and Movement Science in the Soviet Union 2.6 History of Synergies and the Problem of Motor Redundancy2.7 Problems with Studying Biological Movement; Part 3: Motor Control and Coordination; 3.1 Israel Gelfand and Michael Tsetlin; 3.2 Structural Units and the Principle of Minimal Interaction; 3.3 Motor Control: Programs and Internal Models; Digression #1. The Muscle: Slow and Visco-Elastic; Digression #2. Neural Pathways: Long and Slow; Digression #3. Sensors: Confusing and Unreliable; Digression #4. Adaptation to Force Fields and After-Effects; Digression #5. Brain Imaging Techniques: What Do They Image? 3.4 The Equilibrium-Point Hypothesis; Digression #6. Reflexes and

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	Nonreflexes; 3.4.2 Equilibrium-Point Control of Simple Systems; 3.4.3 Three Basic Trajectories within the Equilibrium-Point Hypothesis; 3.4.4 Equilibrium-Point Control of Multi-Muscle Systems; 3.4.5 The Mass- Spring Analogy and Other Misconceptions; Part 4: Motor Variability: A Window into Synergies; 4.1 The Uncontrolled Manifold Hypothesis; 4.2 Modes as Elemental Variables; 4.2.1 Force Modes; Digression #7: Digit Interaction and Its Indices; 4.2.2 Muscle Modes Digression #8: Electromyography4.2.3 Experimental Identification of the Jacobian; 4.3 Stability, Variability, and Within-a-Trial Analysis of Synergies; 4.4 Other Computational Tools to Study Synergies; 4.4.1 Principal Component Analysis and Uncontrolled Manifold; 4.4.2 Analysis of Surrogate Data Sets; 4.5 Timing Synergies; 5.1.1 Postural Synergies in Standing; 5.1.2 Sit-to-Stand Task; 5.1.3 Reaching; Digression # 9: Optimization; 5.1.4 Reaching in a Changing Force Field; 5.1.5 Multi-Joint Pointing 5.1.6 Quick-Draw Pistol Shooting5.2 Kinetic Synergies; 5.3 Multi-Digit Synergies; 5.3.1 Force and Moment Stabilization during Multi-Finger Pressing; 5.3.2 The Role of Timing Errors; 5.3.3 Emergence and Disappearance of Synergies; 5.3.4 Anticipatory Synergy Adjustments and Purposeful Destabilization of Performance; 5.4 Prehensile Synergies; 5.4.1 Hierarchical Control of Prehension; 5.4.2 Principle of Superposition; 5.4.3 Adjustments of Synergies: Chain Effects; 5.4.4 Hierarchies of Synergies; 5.5 Multi-Muscle Synergies; 5.5.1 Anticipatory Postural Adjustments; 5.5.2 Making a Step 5.5.3 Multi-Muscle Synergies; 5.5.1 Anticipatory
Sommario/riassunto	Synergy dicusses a general problem in biology: The lack of an adequate language for formulating biologically specific problems. Written for an inquisitive reader who is not necessarily a professional in the area of movement studies, this book describes the recent progress in the control and coordination of human movement. The book begins with a brief history of movement studies and reviews the current central controversies in the area of control of movements with an emphasis on the equilibrium-point hypothesis. An operational definition of synergy is introduced and a method of analysis of syn