

Control

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Description: Control in cybernetics is a system regulation mechanism involving monitoring, comparing, and correcting actions to achieve intended goals.

Introduction:

Control is a fundamental mechanism in cybernetic theory, enabling systems to maintain stability and achieve specific objectives. It is a continuous process of comparing actual state with the desired state and taking corrective actions.

Control in Cybernetics

Essence of Control:

Control is a systematic process of monitoring, evaluating, and regulating system behavior through feedback mechanisms. It includes:

- Information gathering
- Comparison with reference state
- Implementing corrections
- Optimization of performance

Types of Control:

1. Open control (without feedback)
2. Closed control (with feedback mechanism)
3. Adaptive control
4. Hierarchical control

Practical Examples:

Social Systems: - Organizational management through periodic reports and strategy corrections - Democratic mechanisms in government - Employee performance evaluation systems

Biological Systems: - Body temperature regulation - Homeostasis mechanisms - Nervous system regulating vital functions

Technical Systems: - Aircraft autopilot - Temperature regulators - Robot control systems

Information Systems:

- Machine learning algorithms
- Network security systems
- Computer process monitoring

Key Control Mechanisms:

- Measurement
- Comparison
- Correction
- Feedback

Significance in Cybernetics:

Control enables:

- System stability maintenance
- Achieving set goals
- Error minimization
- Performance optimization

Conclusions:

Control is a crucial regulatory mechanism allowing systems to adapt, maintain balance, and effectively achieve set goals. It forms the foundation for understanding complex functioning mechanisms in various scientific and social domains.

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