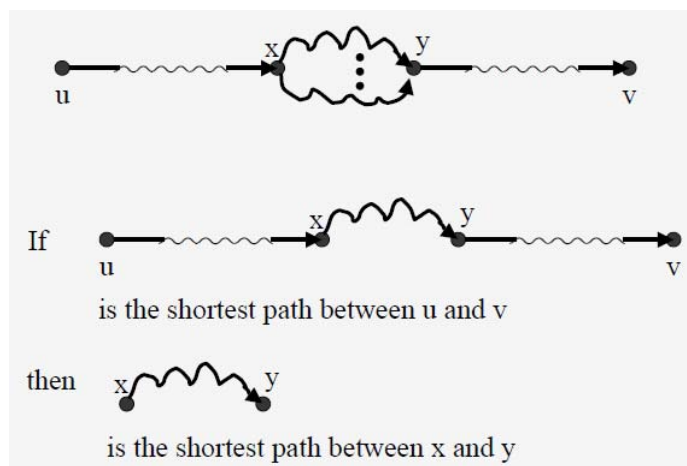


國立臺北大學自然資源與環境管理研究所  
100 學年度第二學期『環境系統分析』

課程講義(14)：動態規劃與目標規劃  
Dynamic Programming and Goal Programming

• INTRODUCTION TO DYNAMIC PROGRAMMING

- Formulation of DP? => No Specific Forms
- Principle of Optimality
- Terminology: Stage, State, Decision, Return, Recursive Equation
- Dynamic programming is a technique for solving problems with a recursive structure with the following characteristics:
  - ⇒ Optimal substructure (principle of optimality): An optimal solution to a problem can be decomposed into optimal solutions for sub-problems.
  - ⇒ A small number of sub-problems: The total number of sub-instances to be solved is small.
  - ⇒ Overlapping sub-problems: During the computation same instances are referred to over and over again.



• GOAL PROGRAMMING

- Criteria for Decision-Making: Attribute, Objective, Target, and Goal
- Multiple Criteria Decision Making: Multiple Attribute and Multiobjective
- Classification of Goal Programming: Non-Preemptive vs. Preemptive
- Non-Preemptive Goal Programming
  - ⇒ Complementary relationship
  - ⇒ One-sided vs. Two-sided
- Preemptive Goal Programming or Lexicographic GP
  - ⇒ Sequential procedure
  - ⇒ Streamline procedure
- Graphical Solution Procedure
- Drawbacks: Normalization and Weighting; Pareto Optimality?