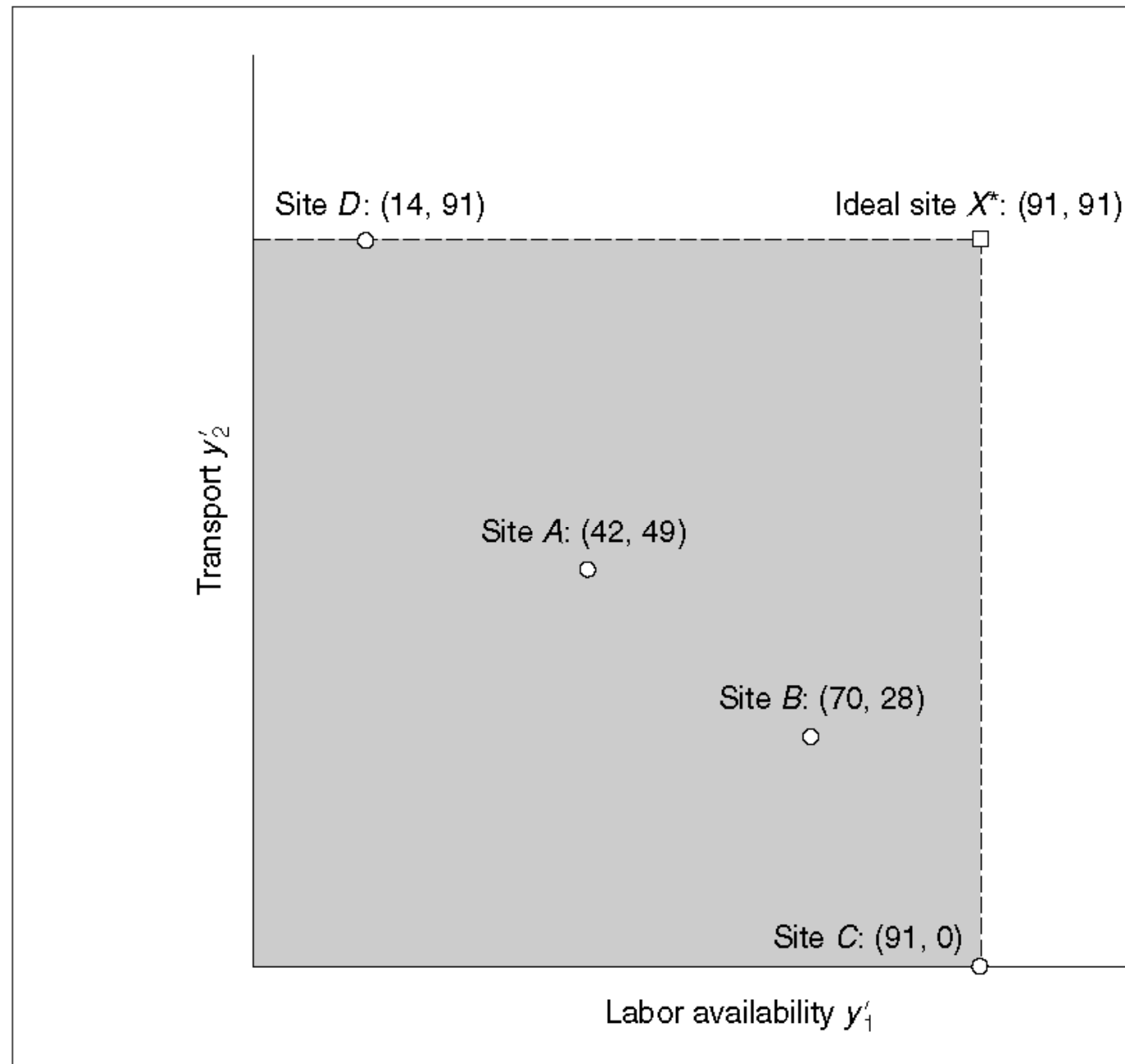
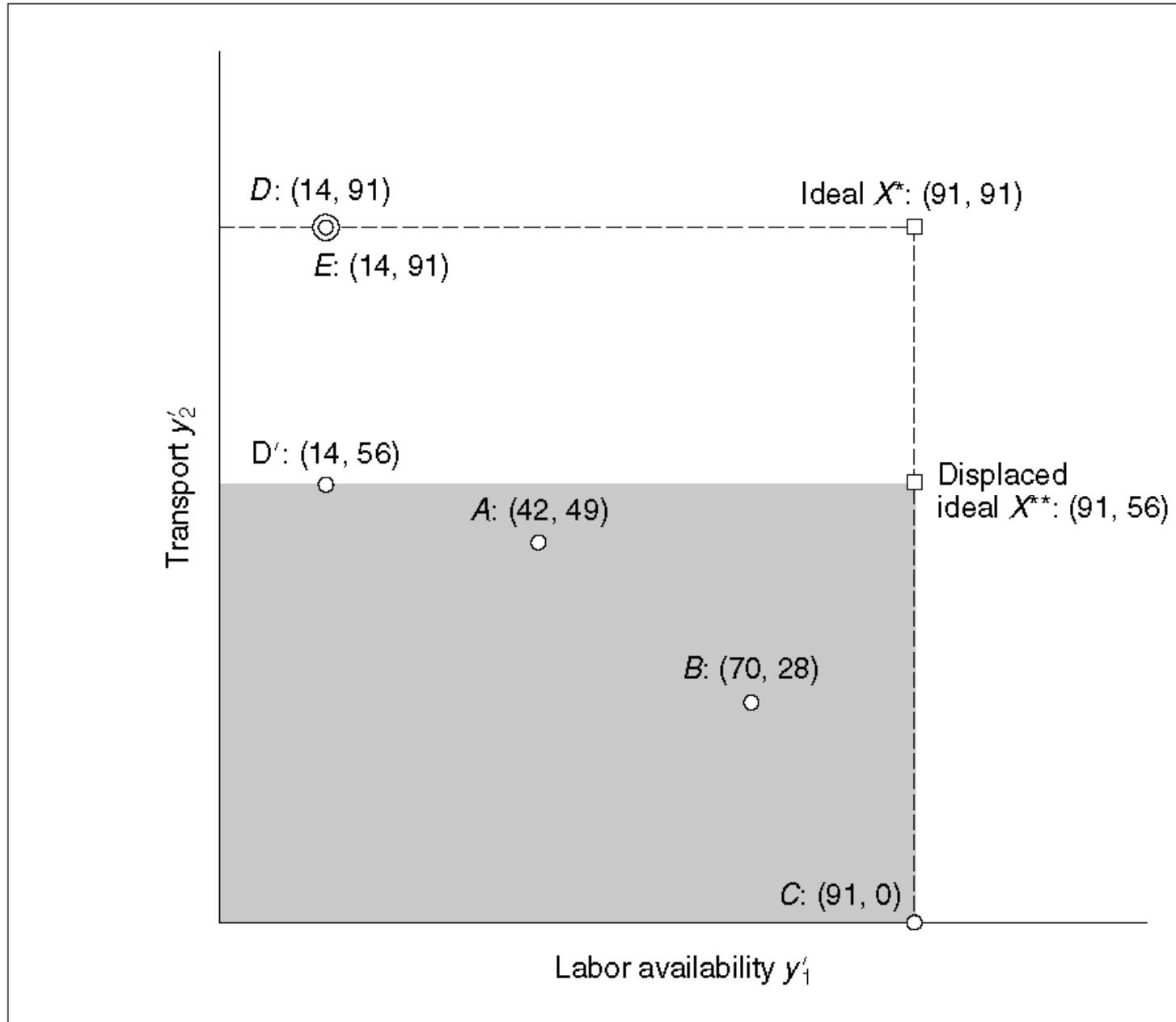


Figure 5.1 IDEAL SITE AND RANKING AMONG LOCATIONS



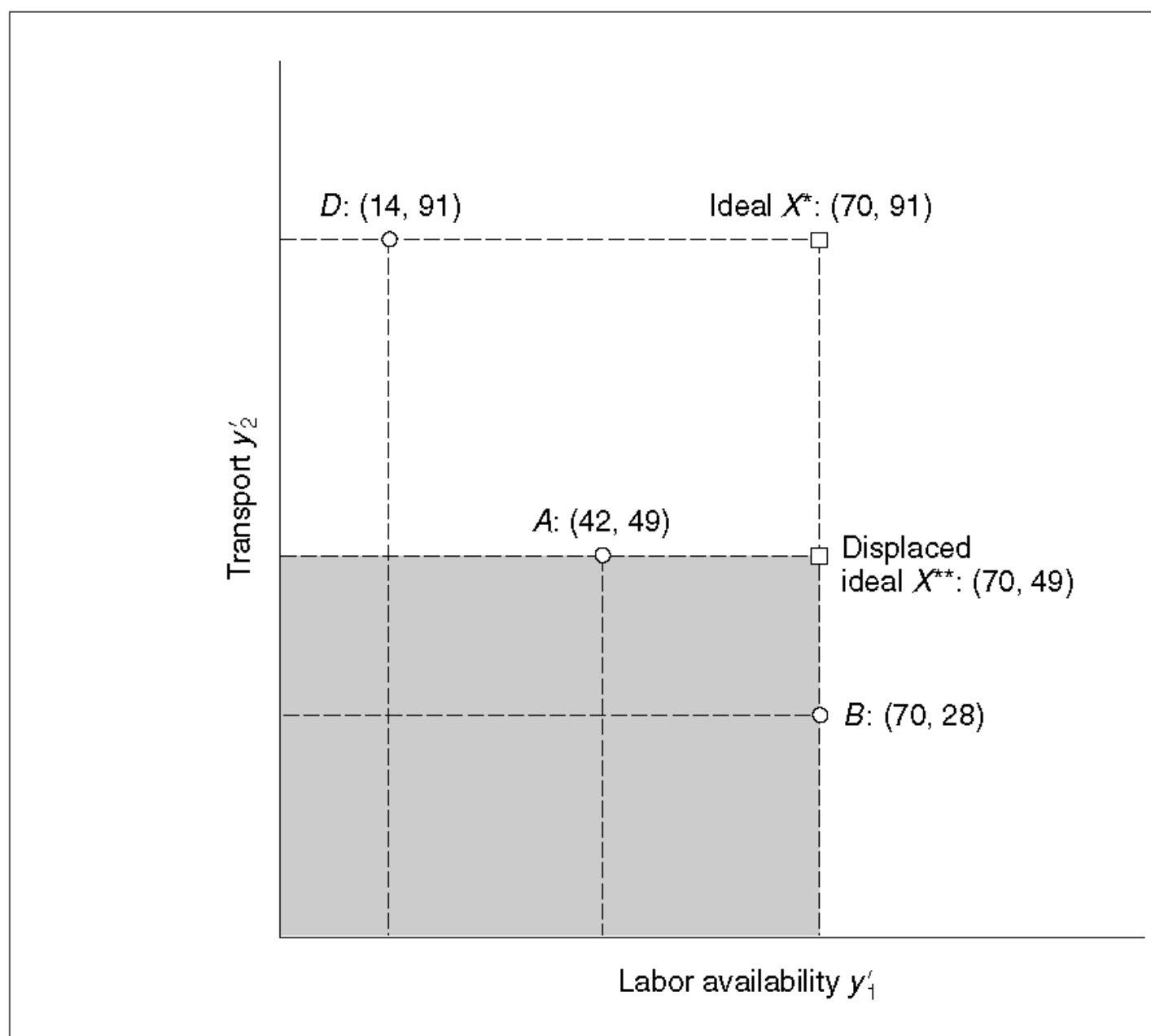
SOURCE: Zelany (1982). Reprinted with permission.

Figure 5.2 DISPLACEMENT OF THE IDEAL



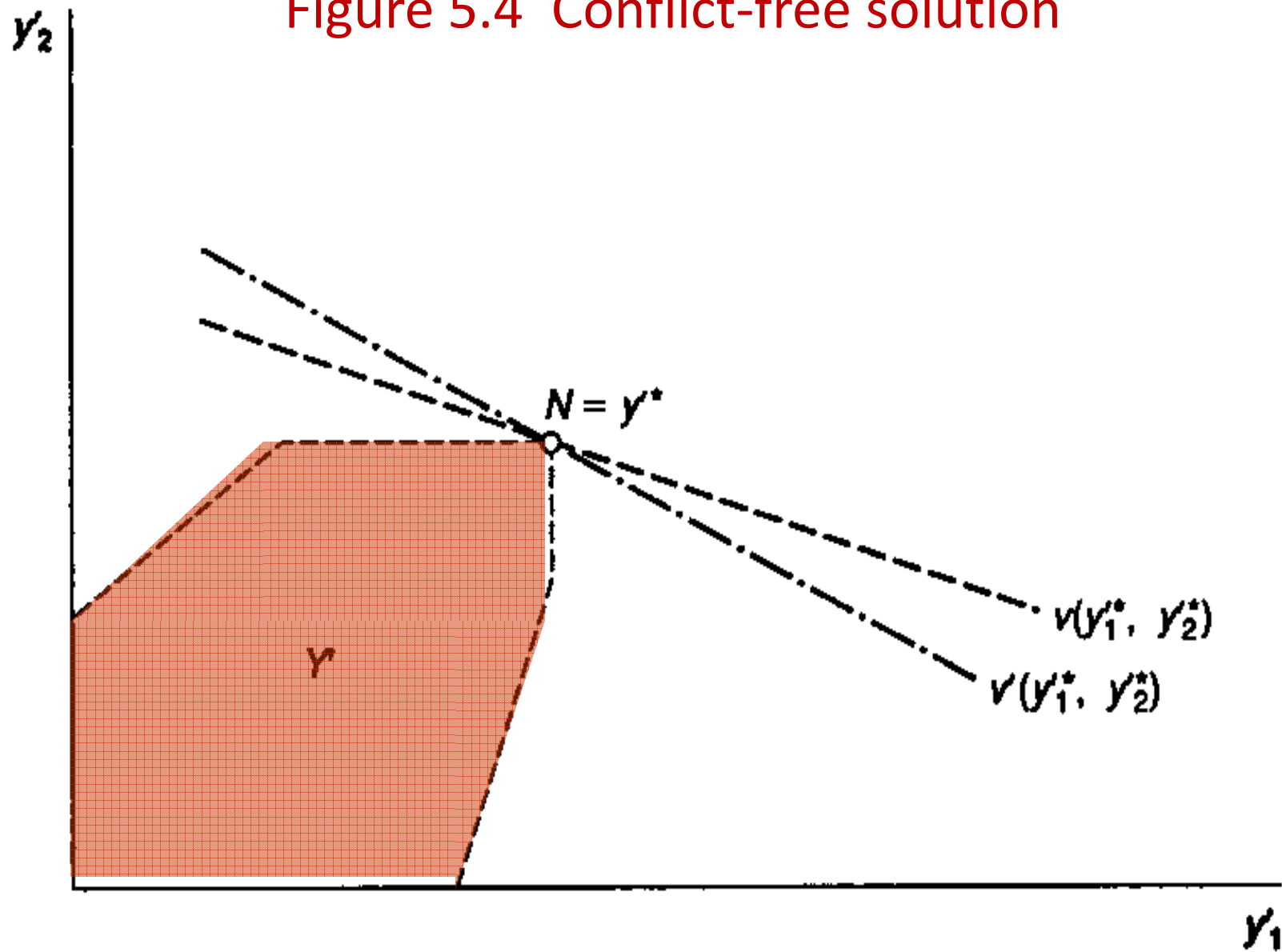
SOURCE: Zelany (1982). Reprinted with permission.

Figure 5.3 SEQUENTIAL CHOICE AMONG THREE ALTERNATIVES



SOURCE: Zelany (1982). Reprinted with permission.

Figure 5.4 Conflict-free solution



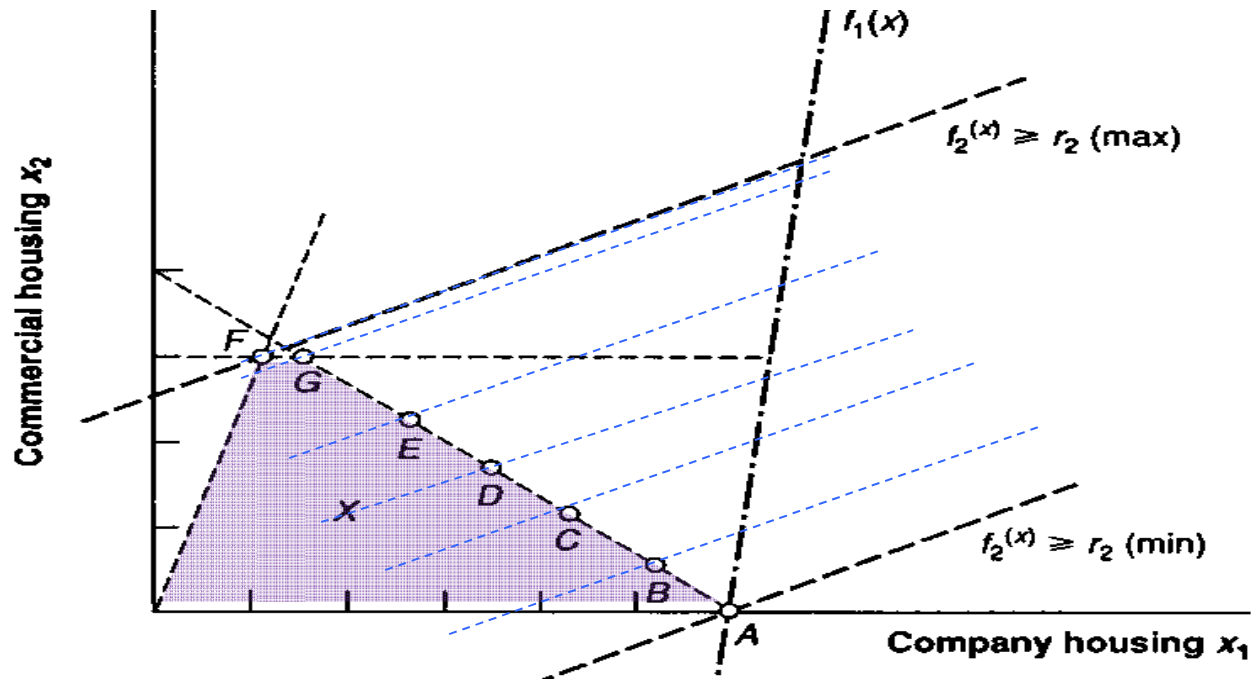
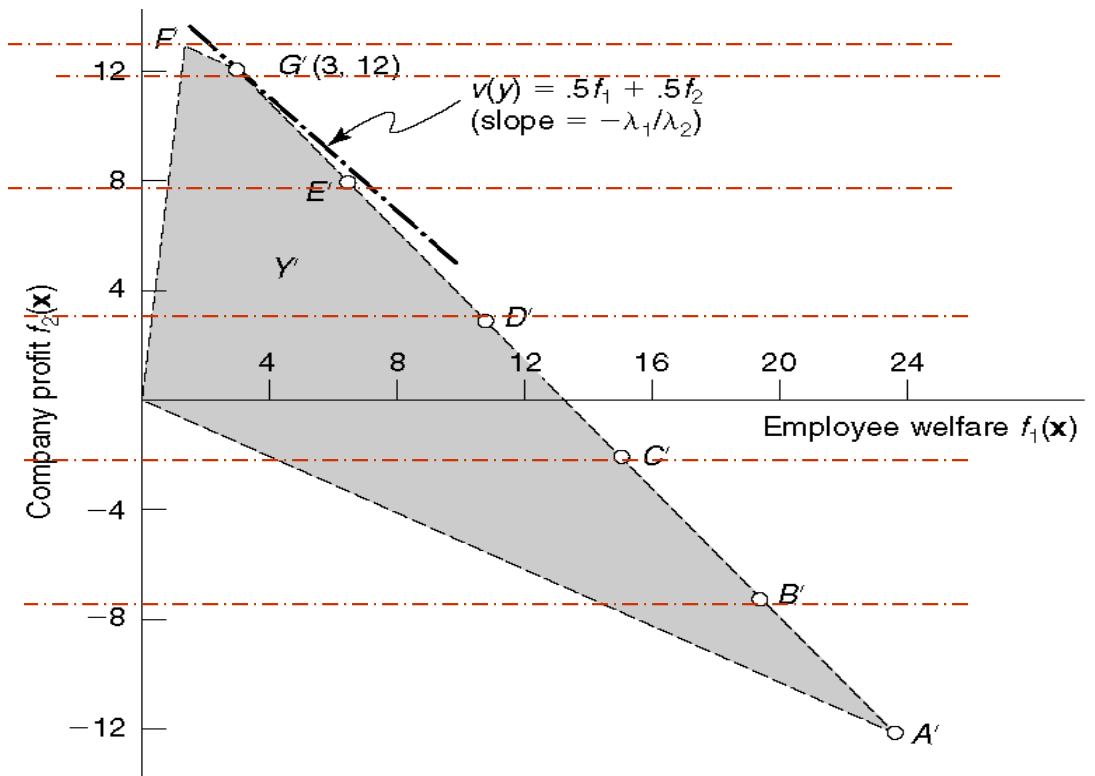
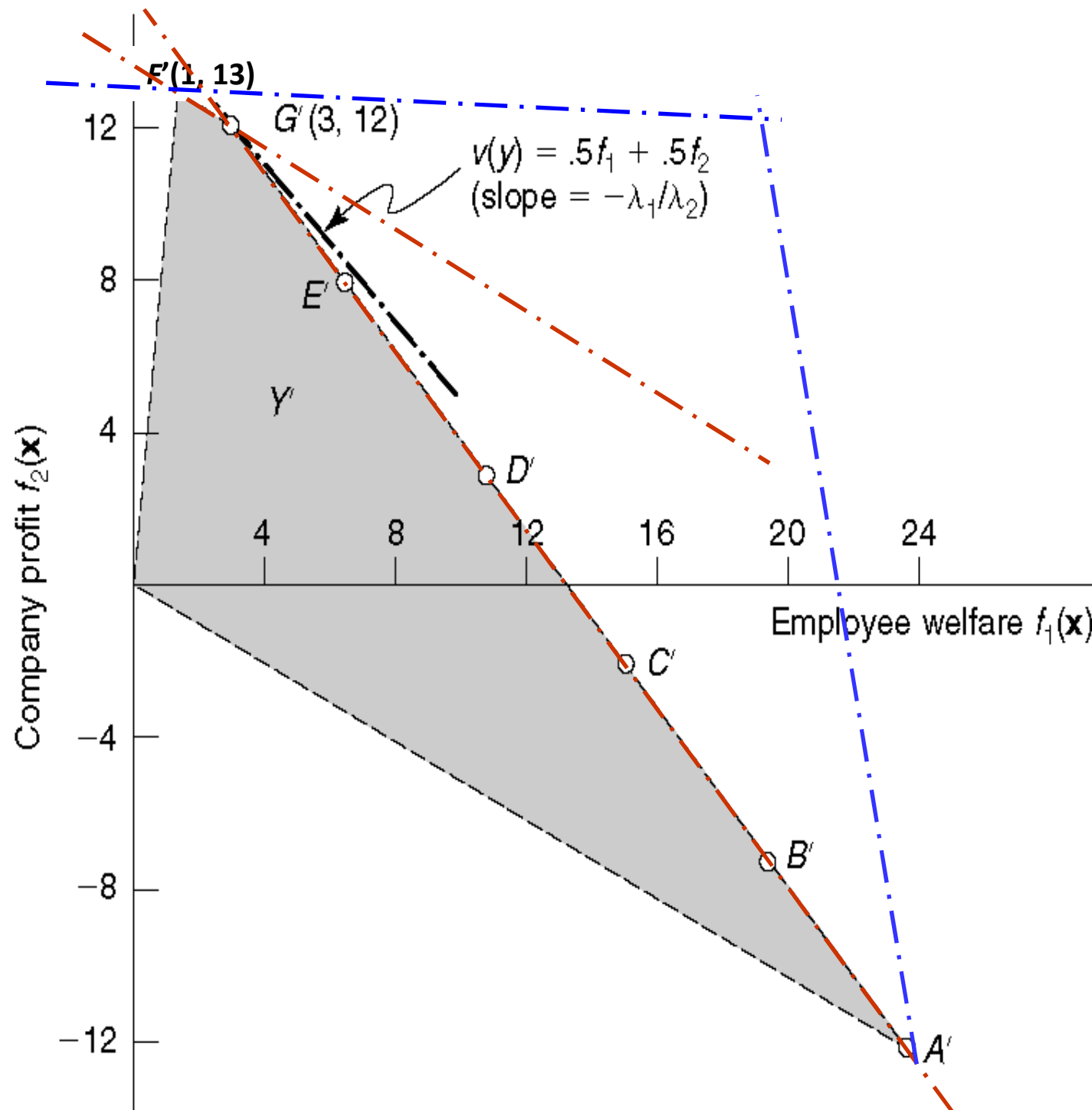


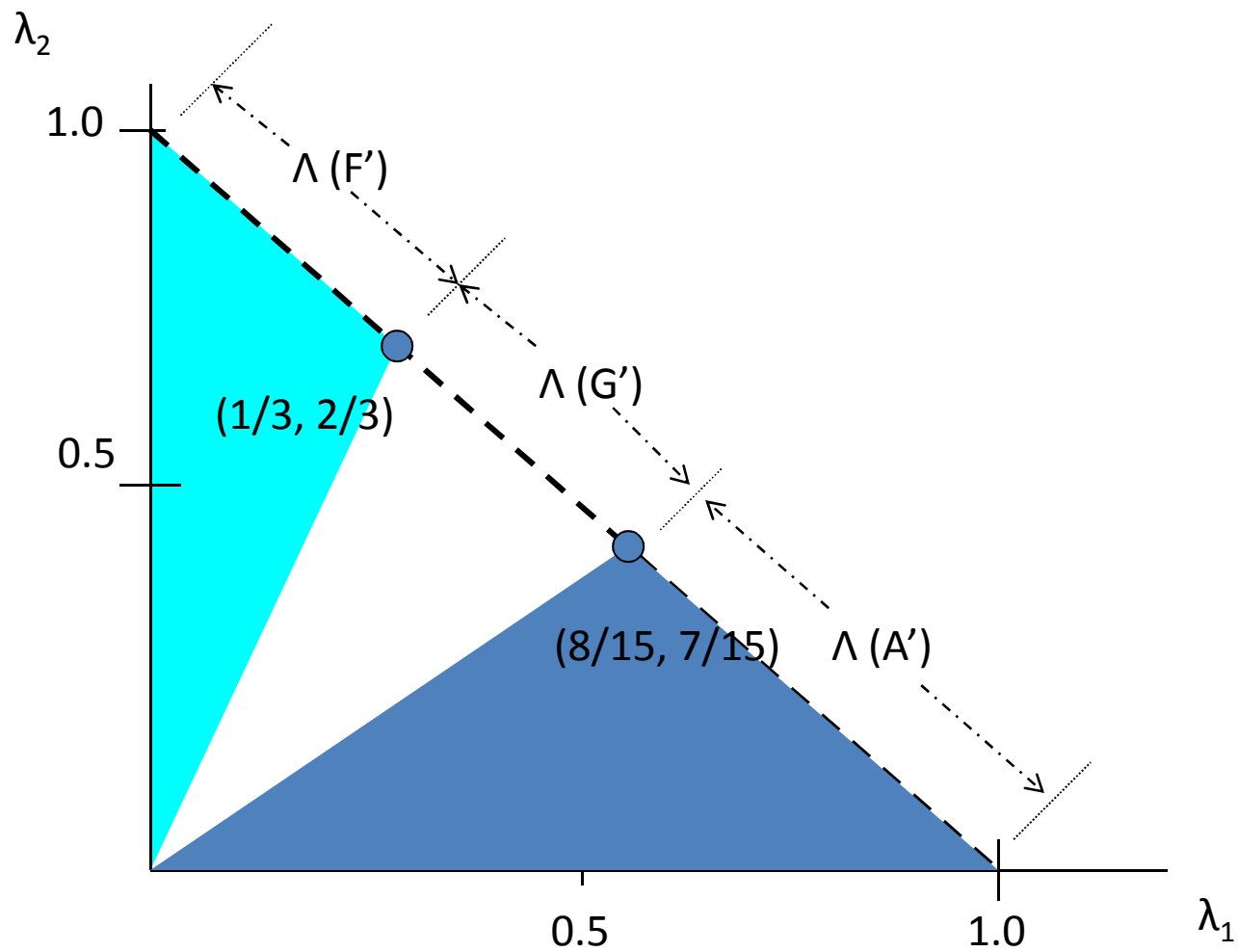
Figure 5.5
The Decision and Outcome Space

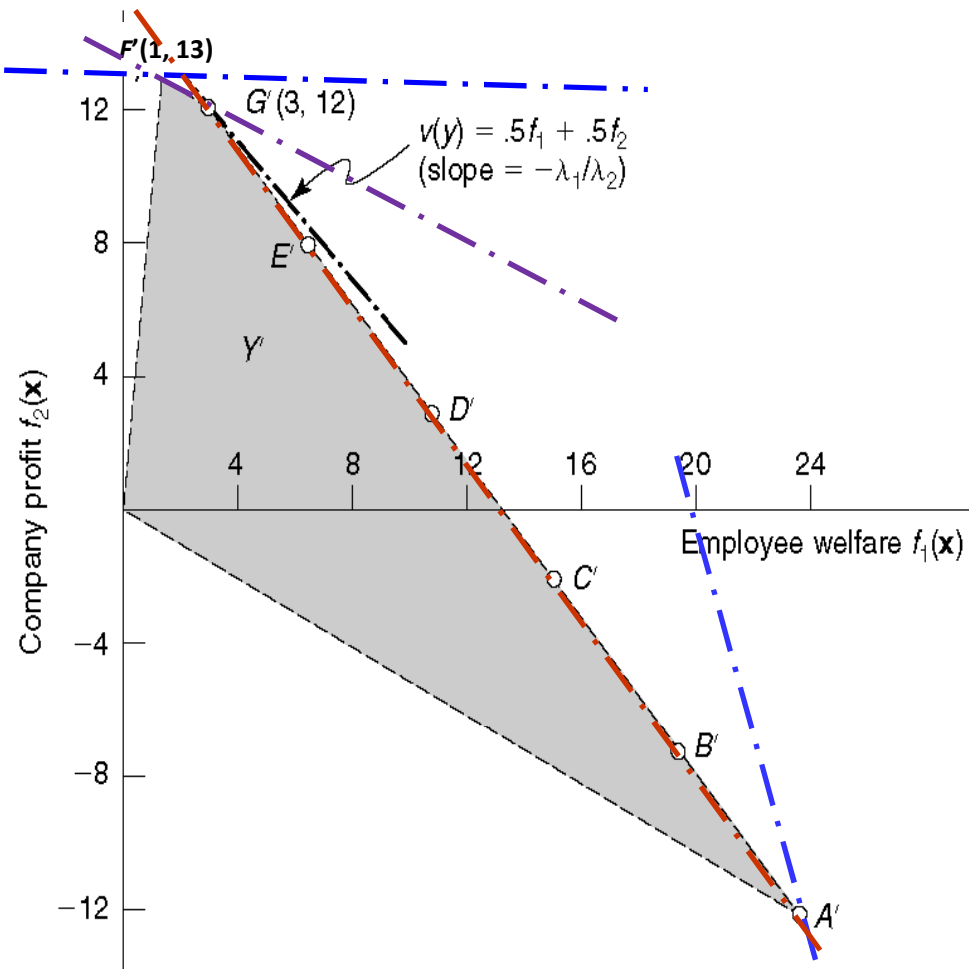


Outcome space



Illustrating convex cones





Convex Cones & MC-Simplex

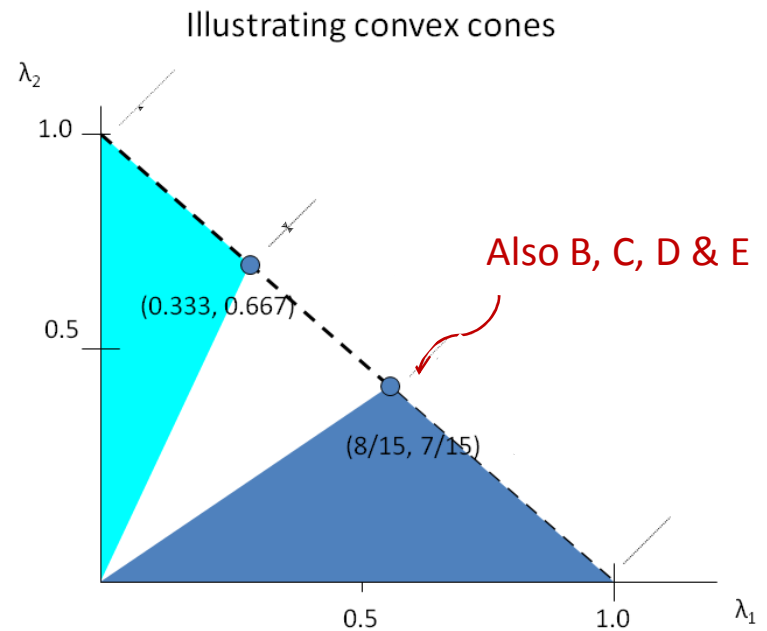


Figure 5.6 MC-linear program – X & Y space

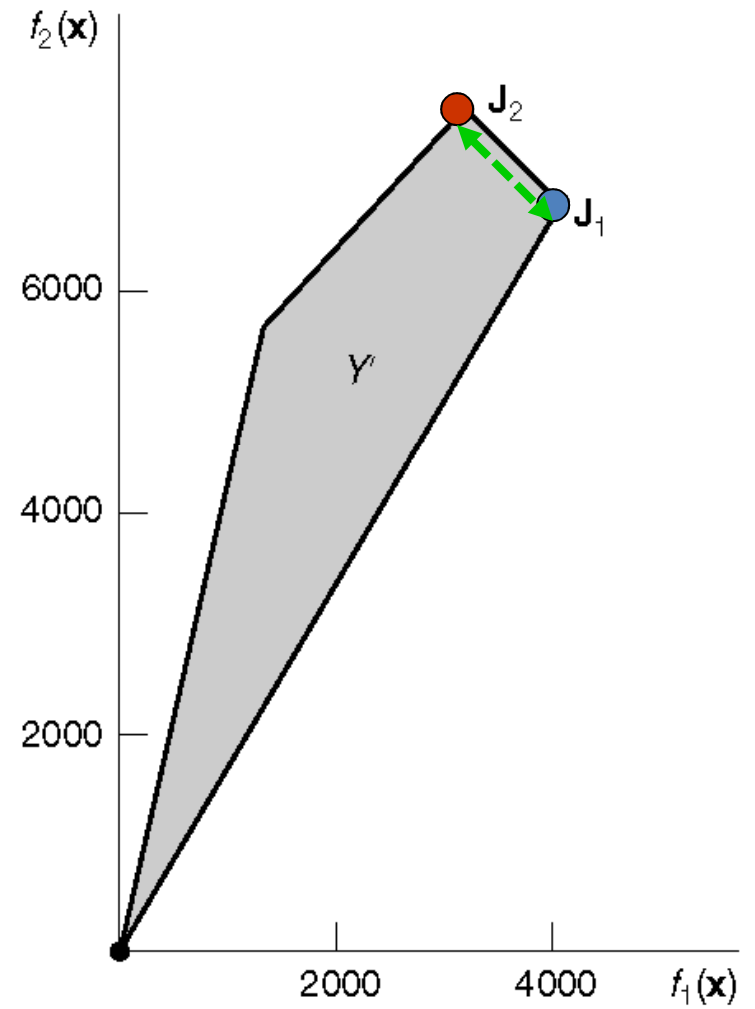
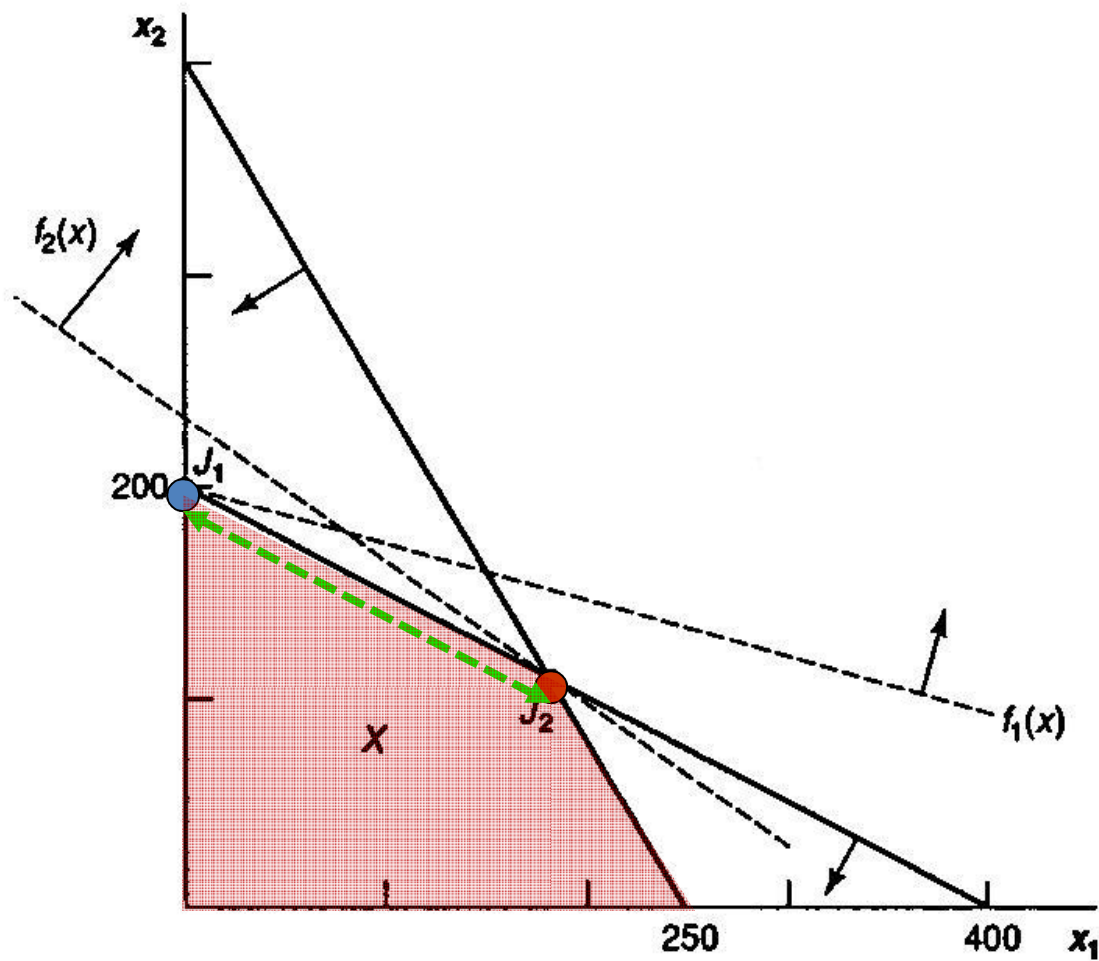


Figure 5.7 Z-space containing the Λ -cones

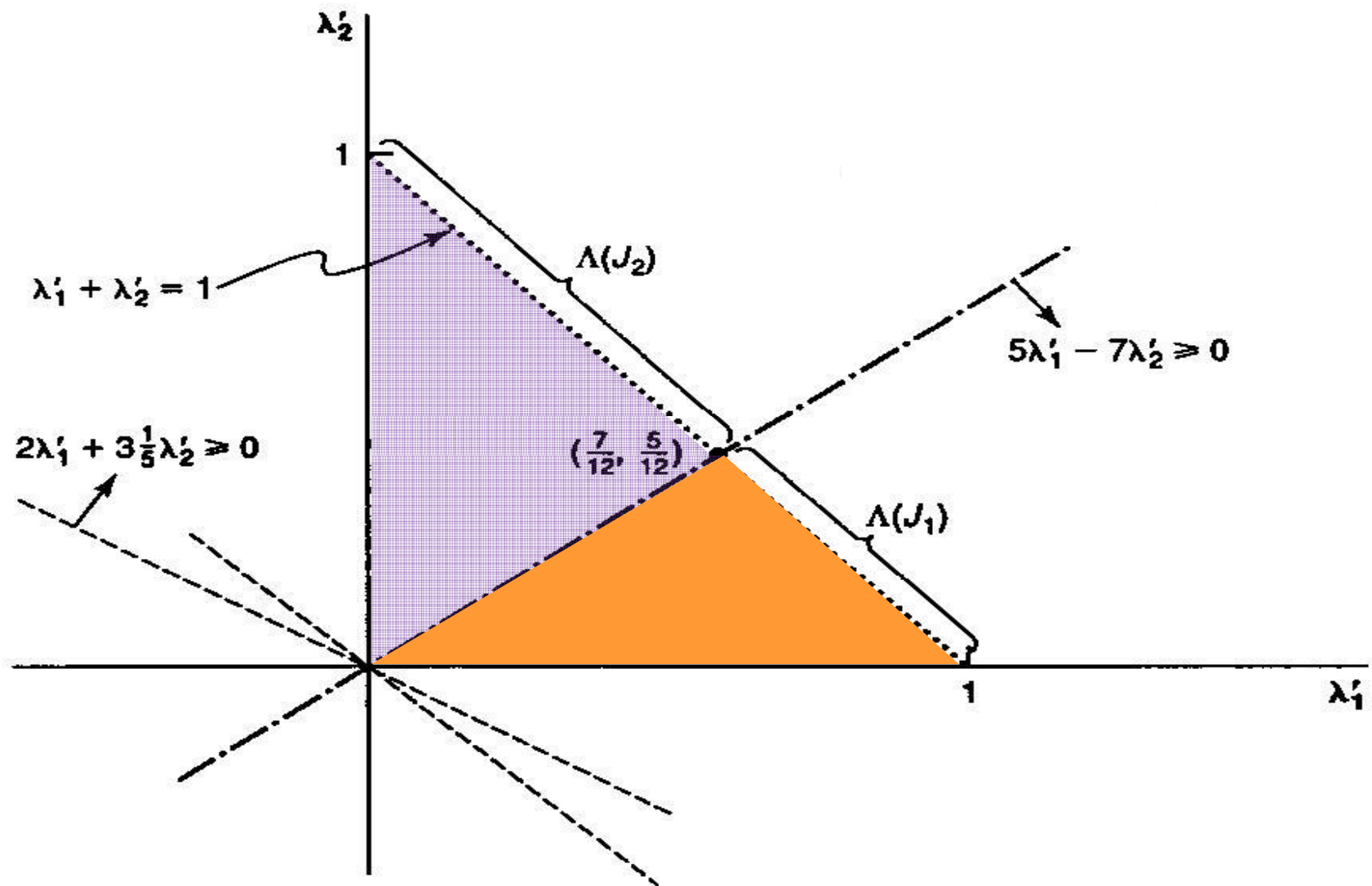


Figure 5.8 More general, nonlinear case

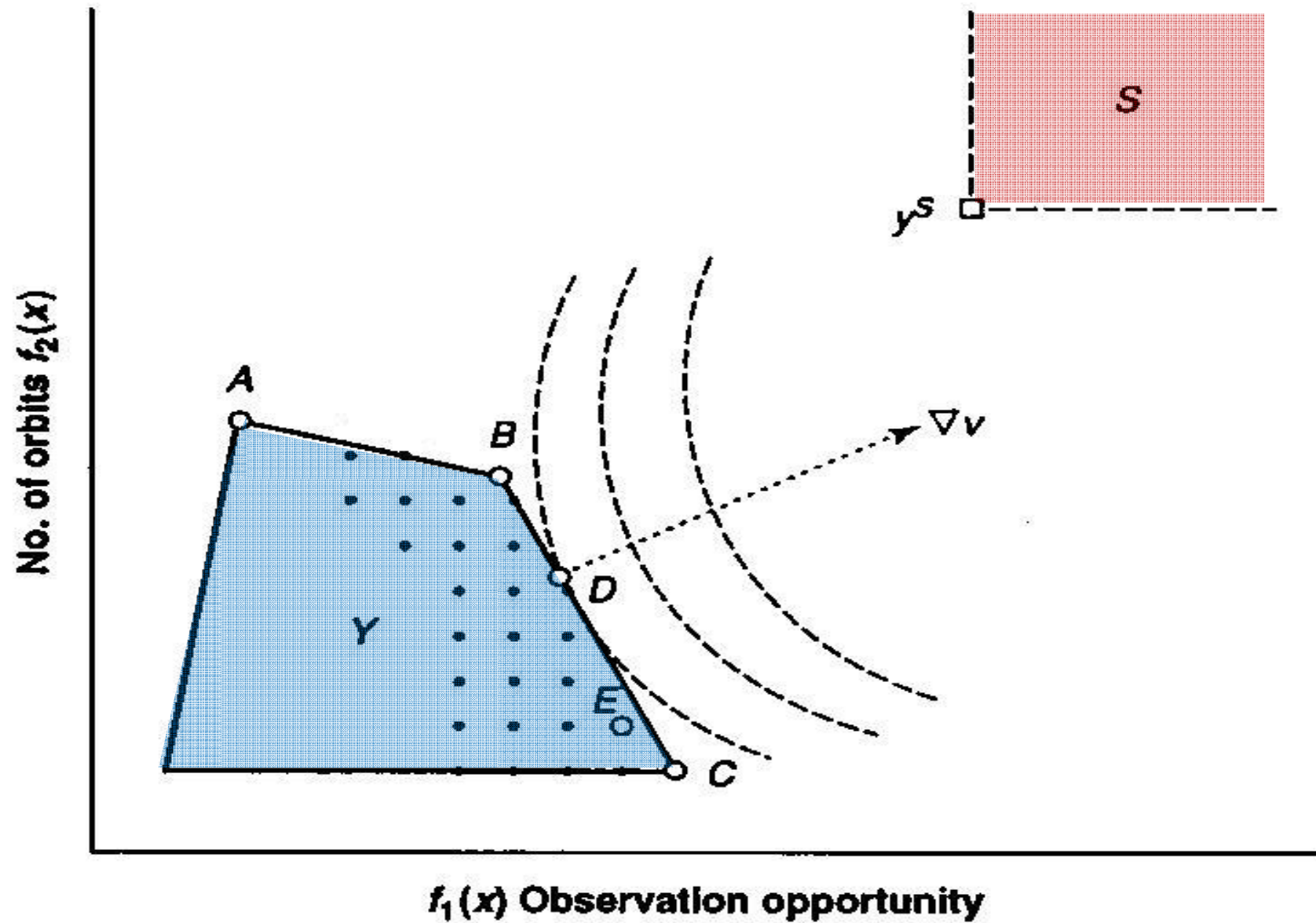


Figure 5.9 Marginal rate of substitution

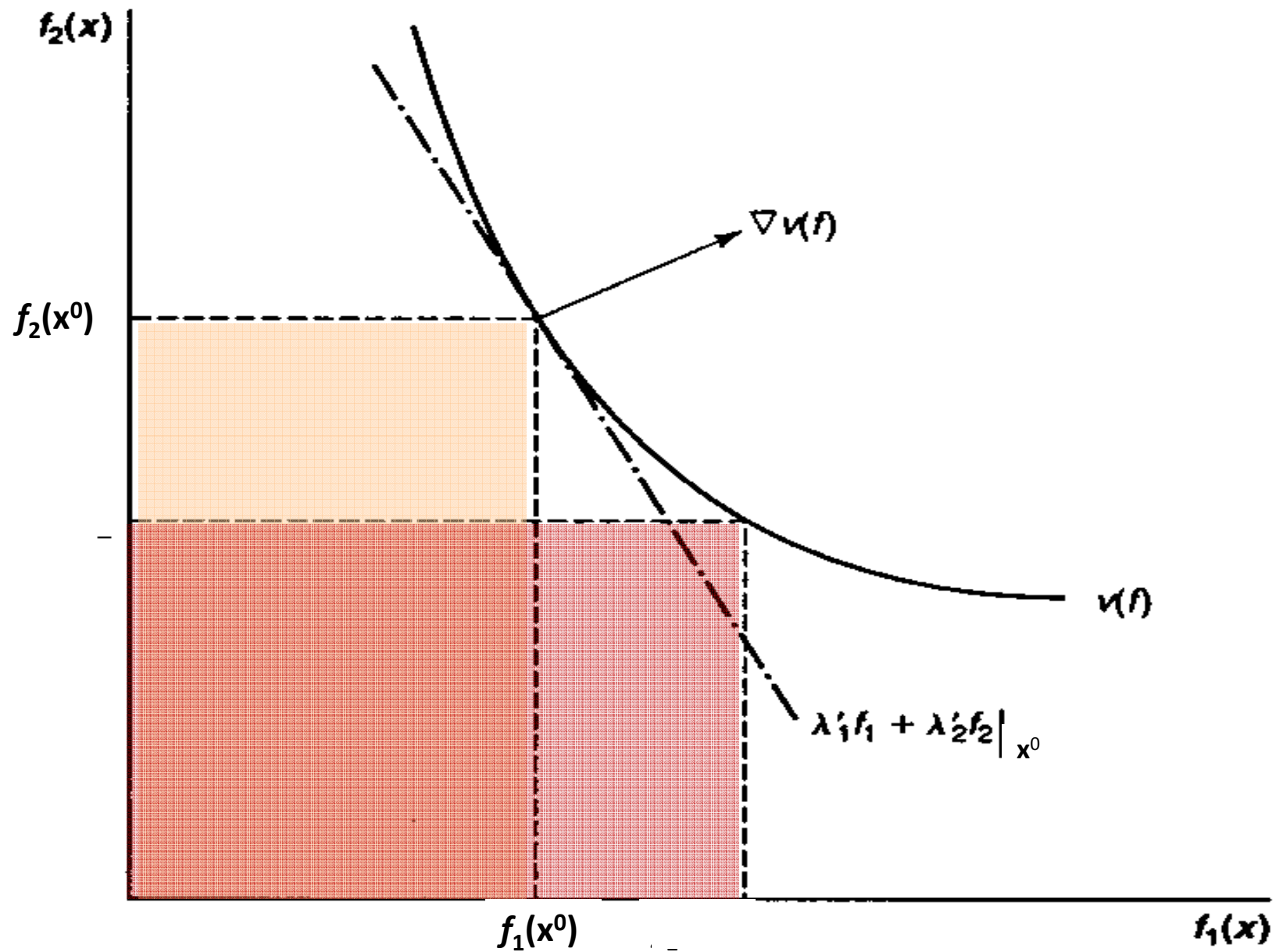


Figure 5.10 Graphical display to determine step size

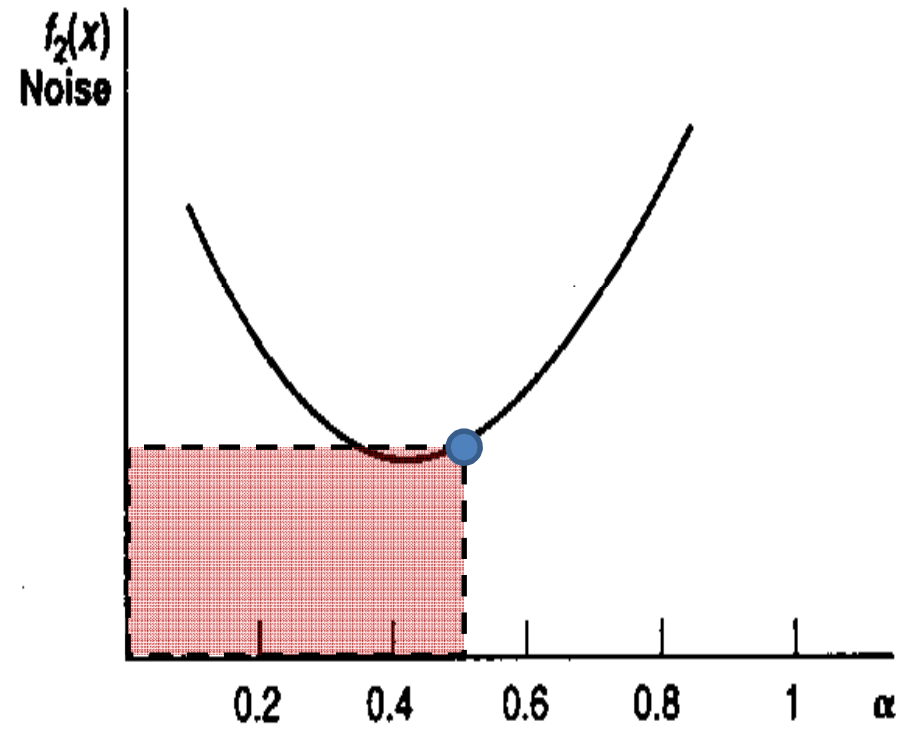
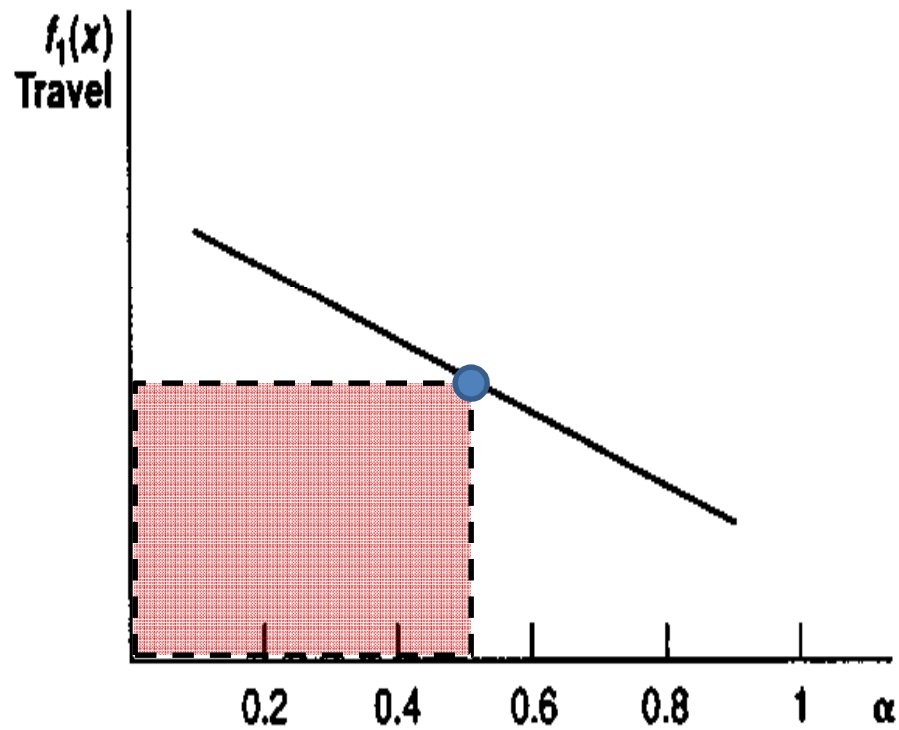


Figure 5.10A Step size determination for travel function

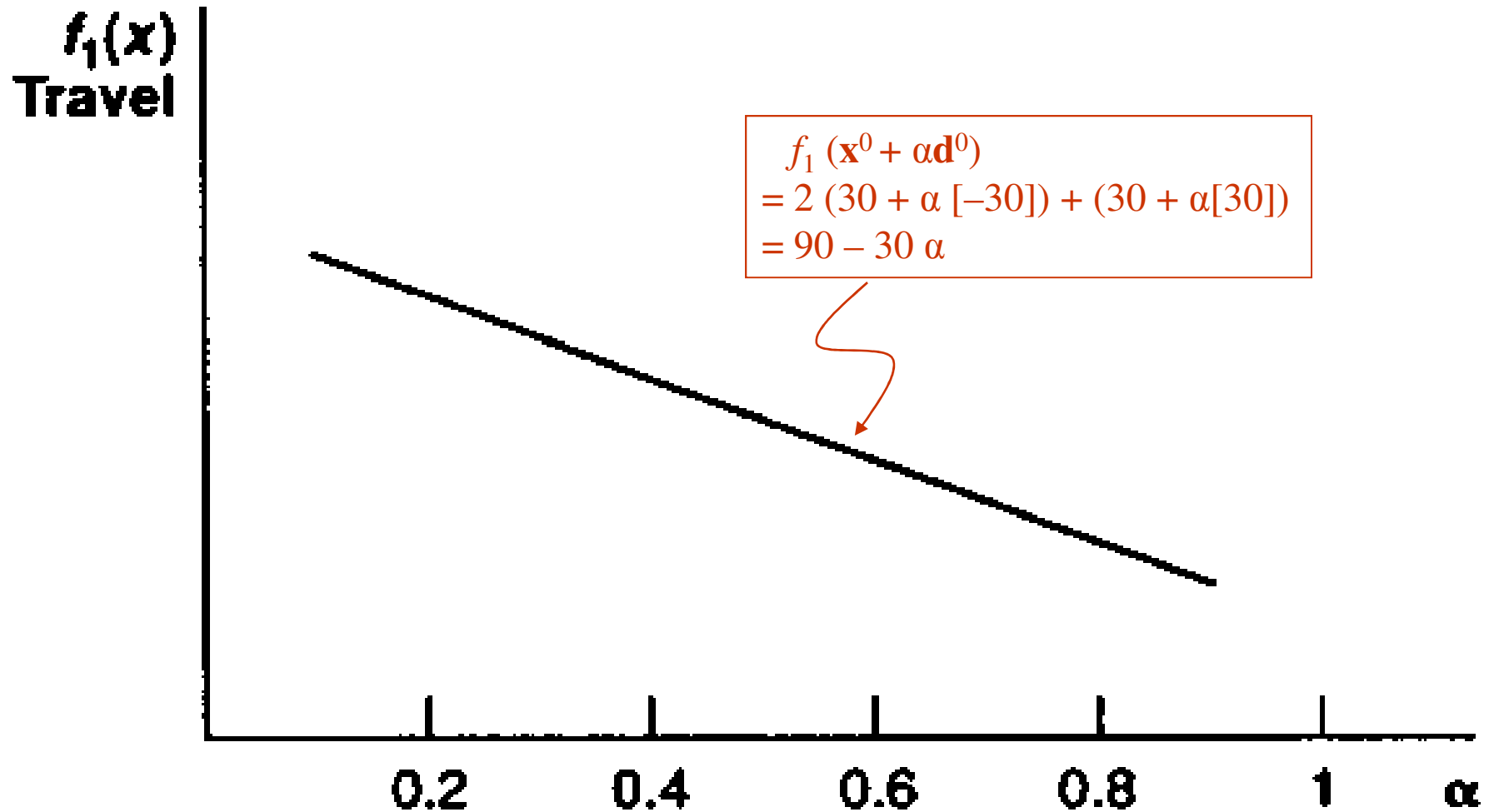
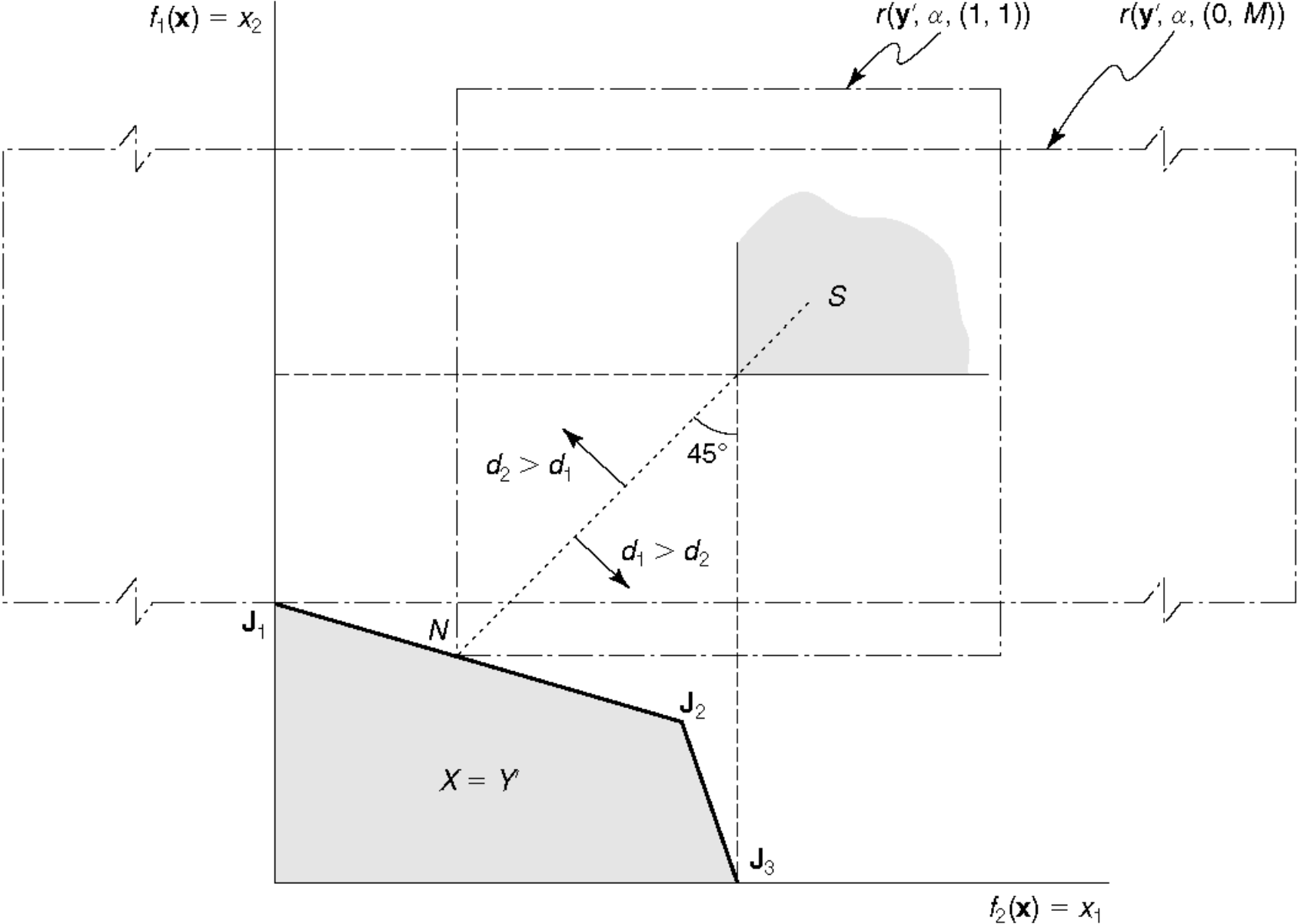


Figure 5.11 GOAL-SETTING EXAMPLE



Expected utility of an alternative $E(v(\mathbf{y}))$

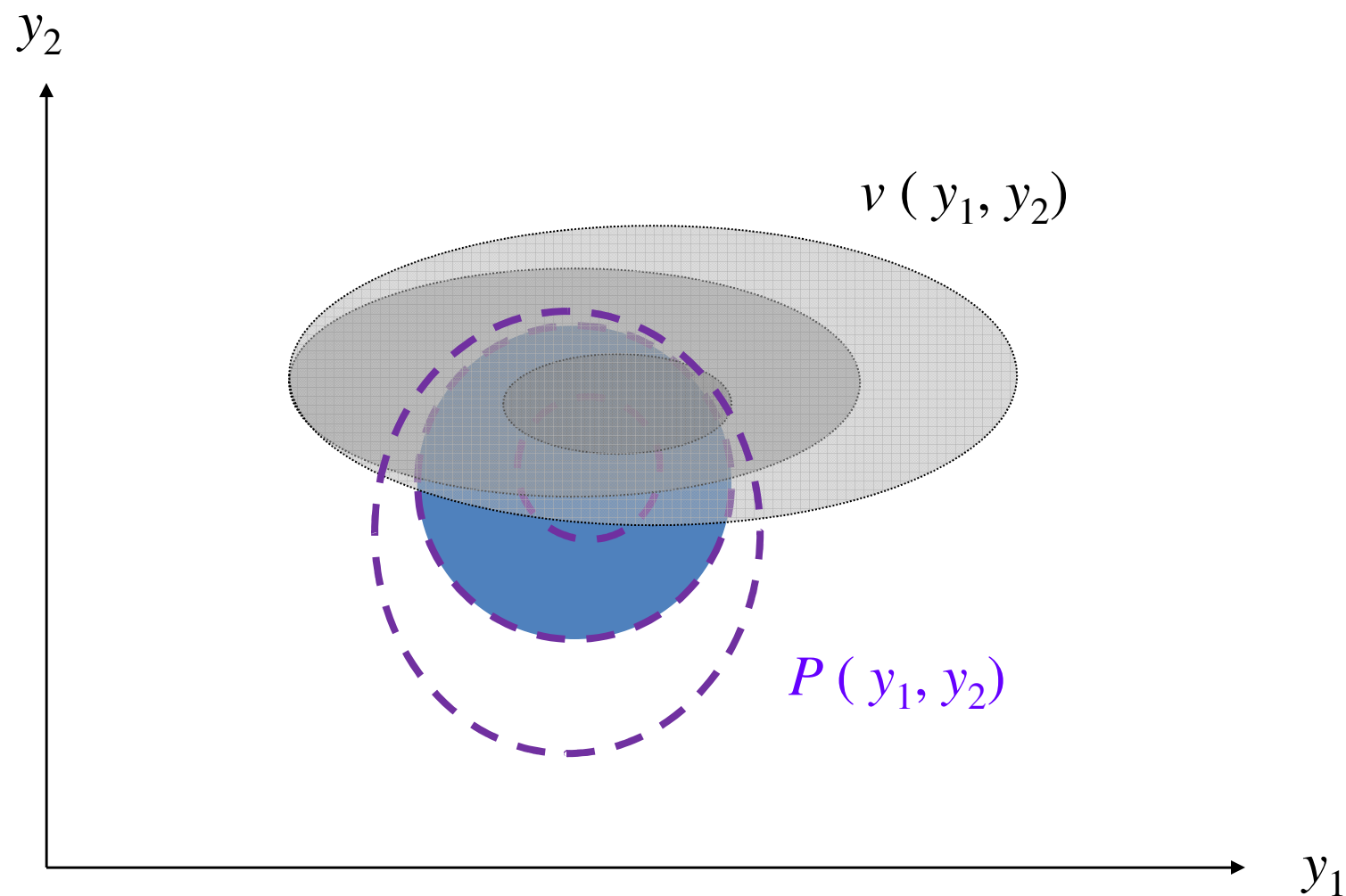


Figure 5.12 Decision tree for univariate utility-function

$$E(v(y)) = \sum_j P^j v(y^j)$$

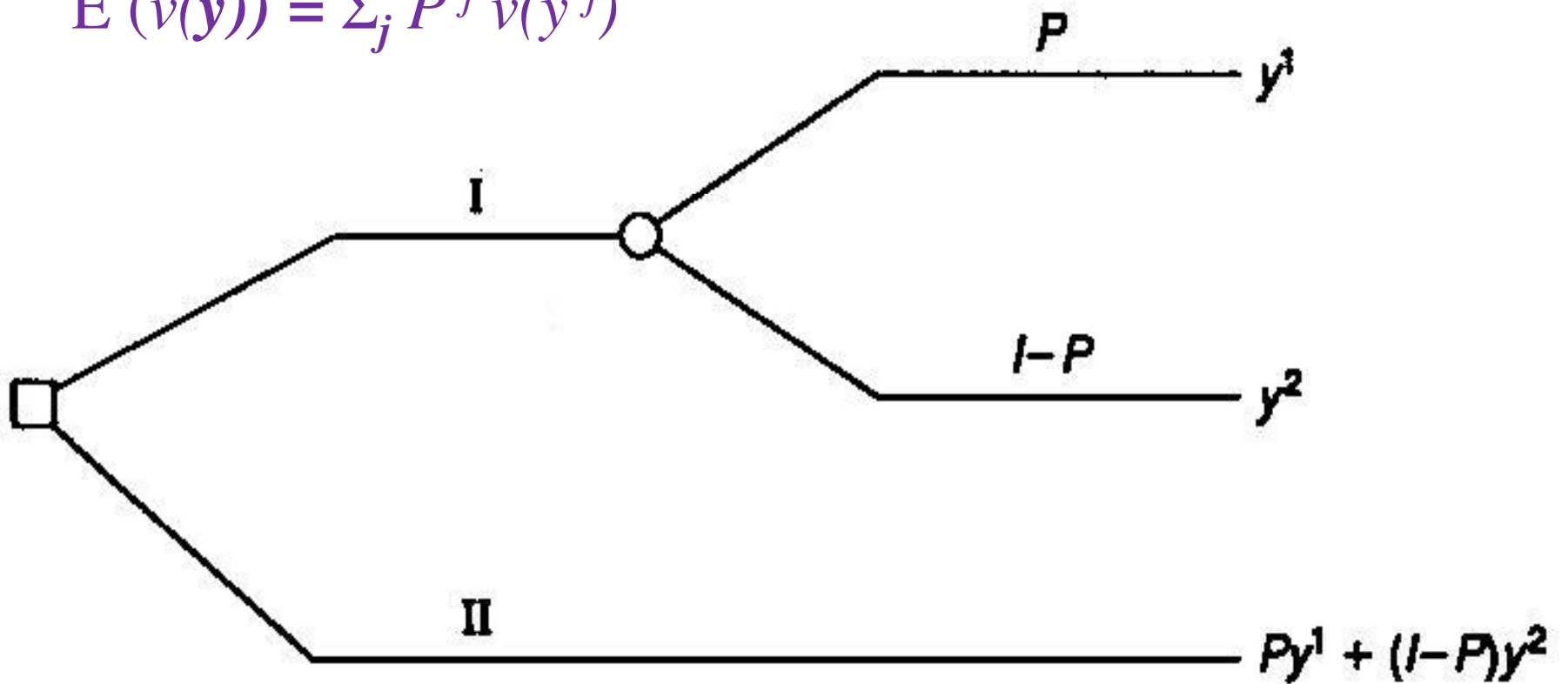


Figure 5.13 A strictly concave utility function

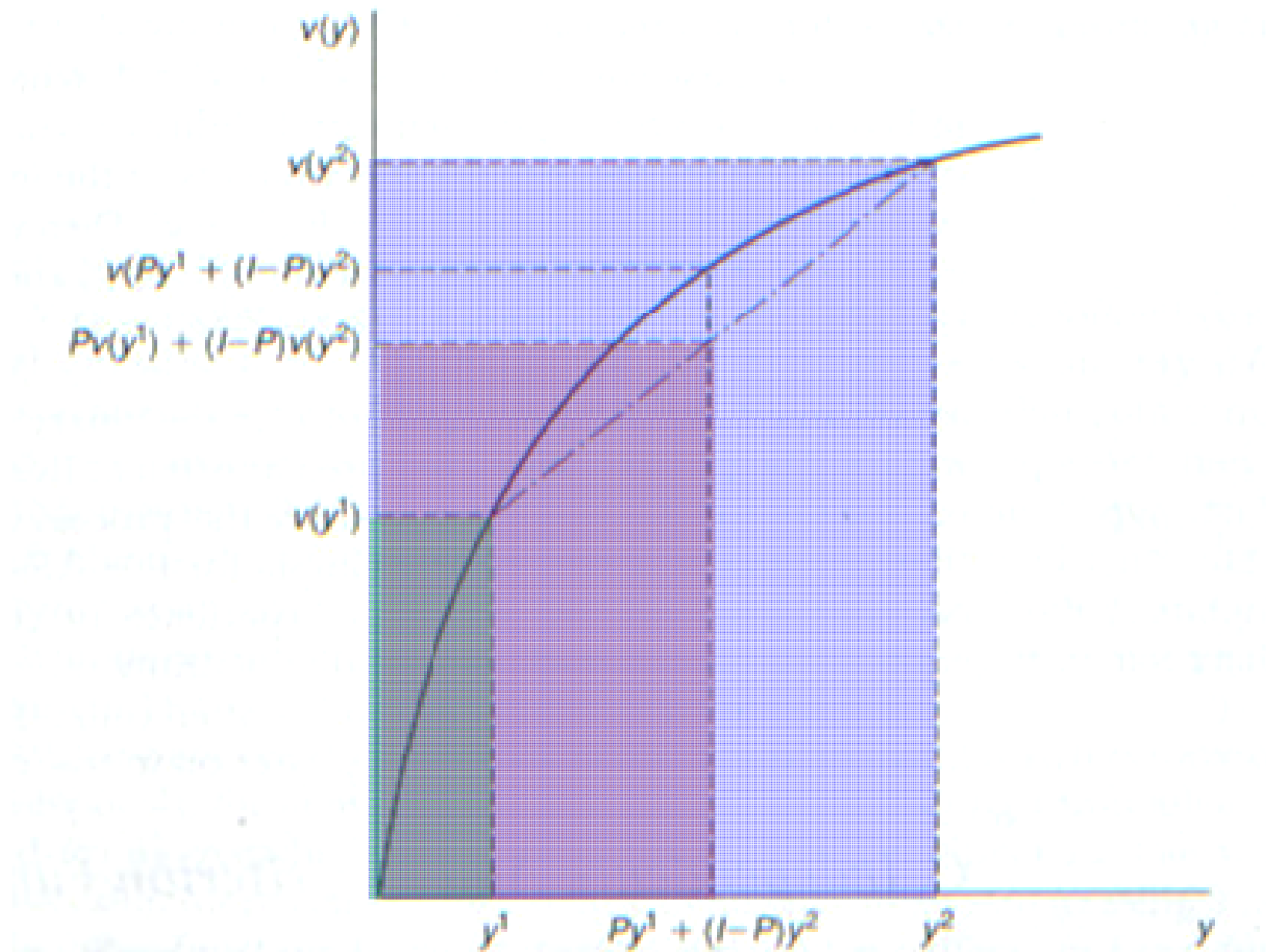


Figure 5.14 A strictly convex utility function

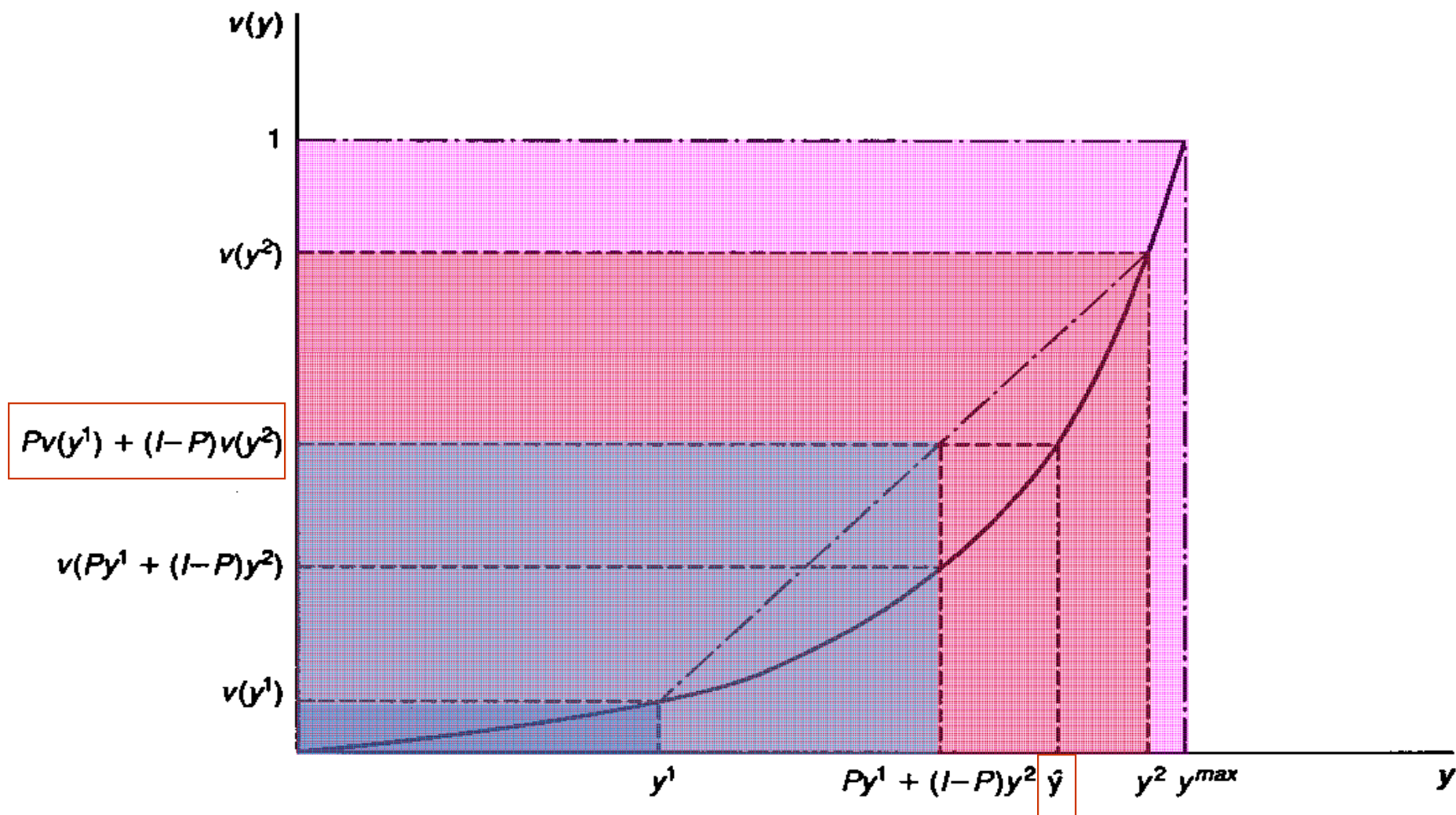


Figure 5.15(a) Fractile method (Step 1)

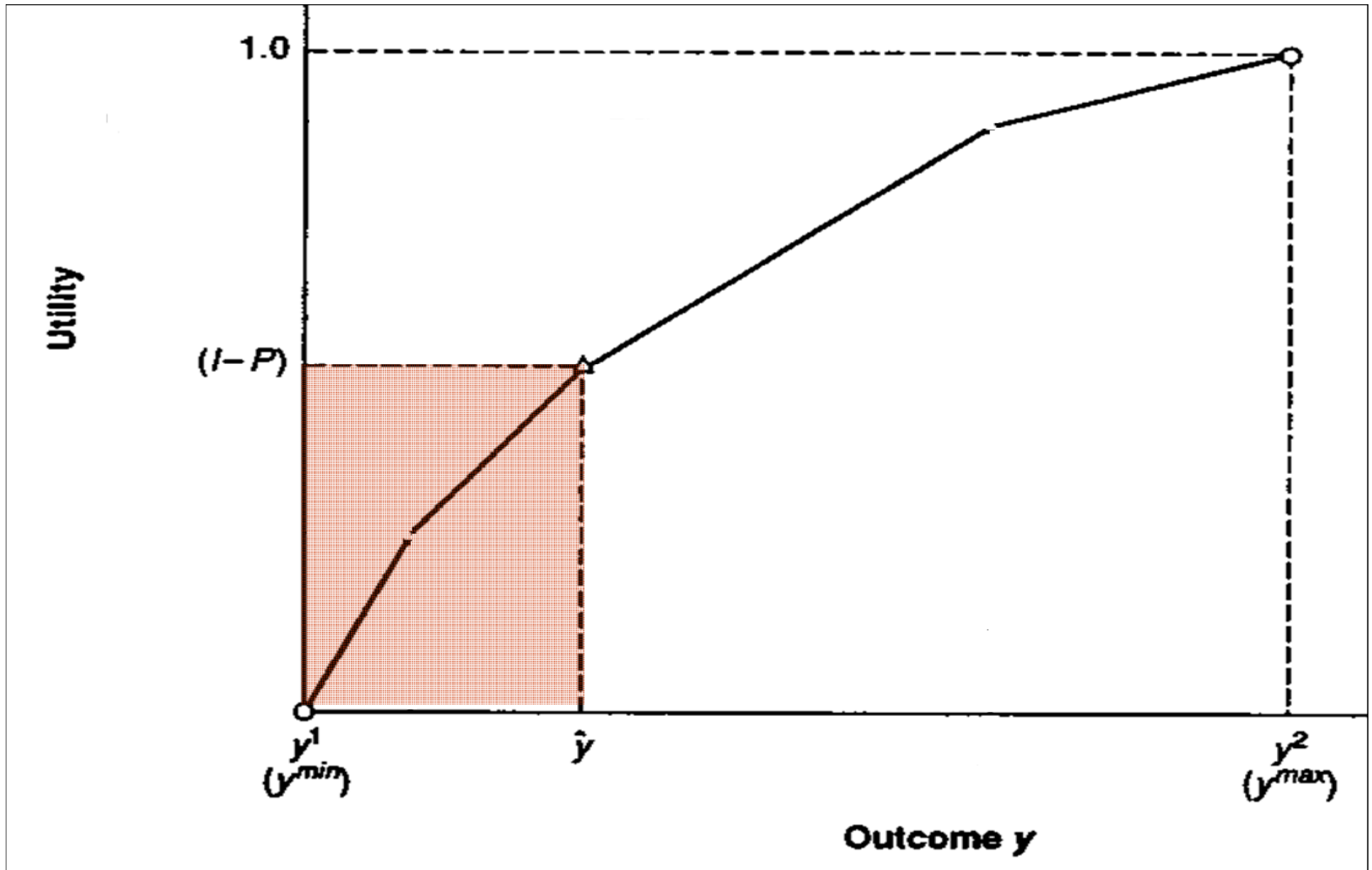


Figure 5.15(b) Fractile method (Step 2)

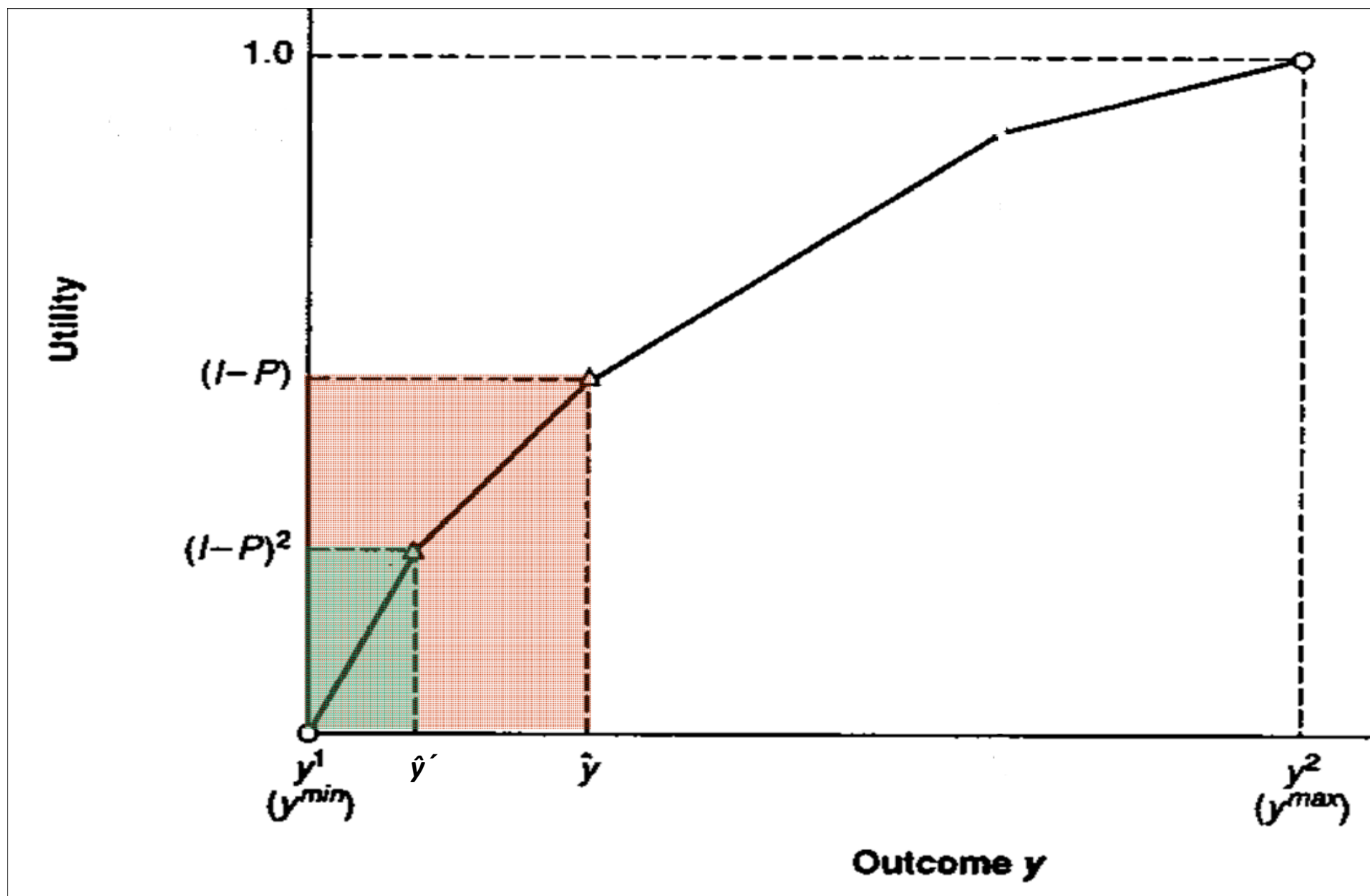


Figure 5.15(c) Fractile method (Step 3)

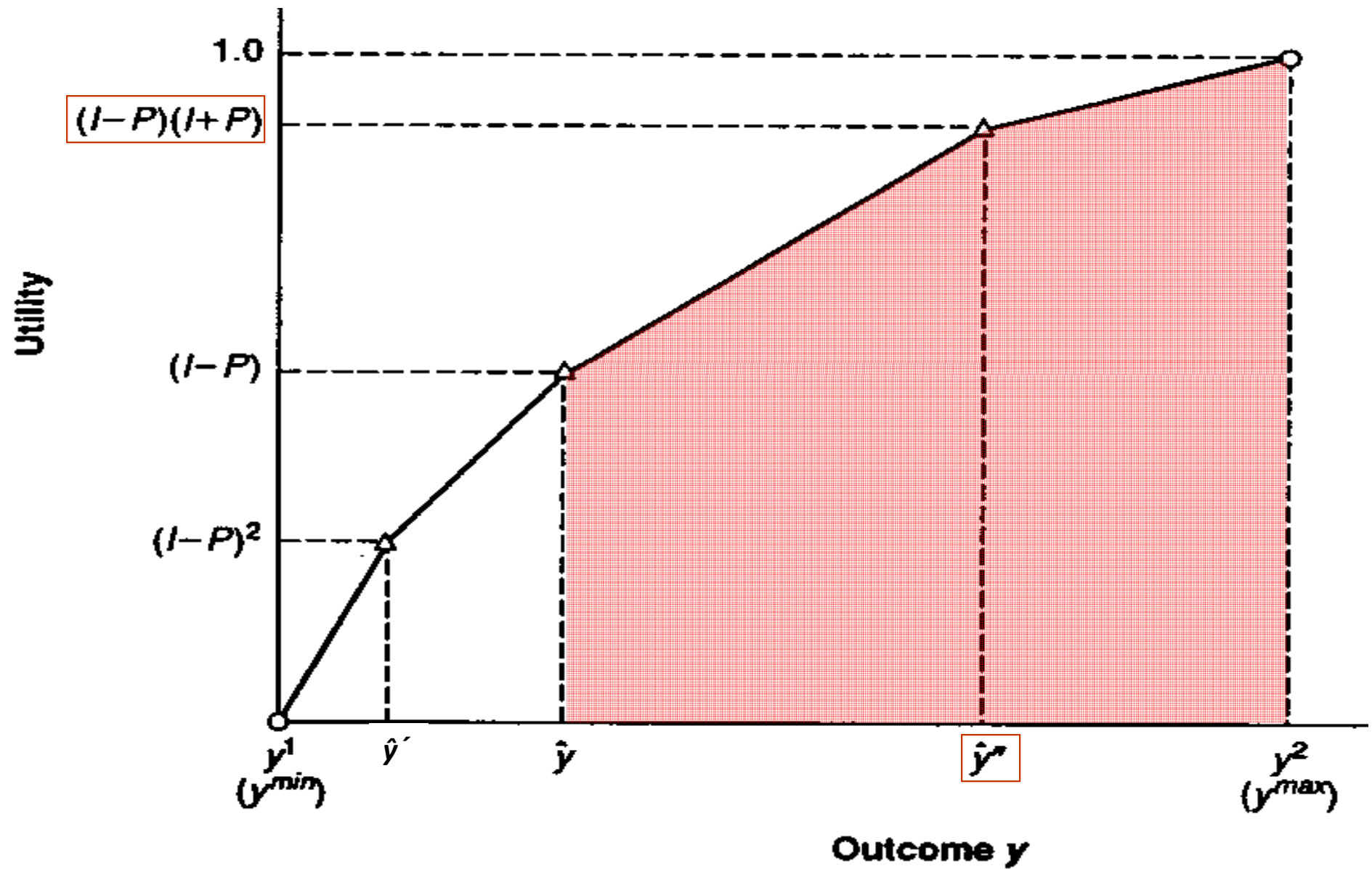


Figure 5.16 TEST OF STATISTICAL INDEPENDENCE AMONG ATTRIBUTES

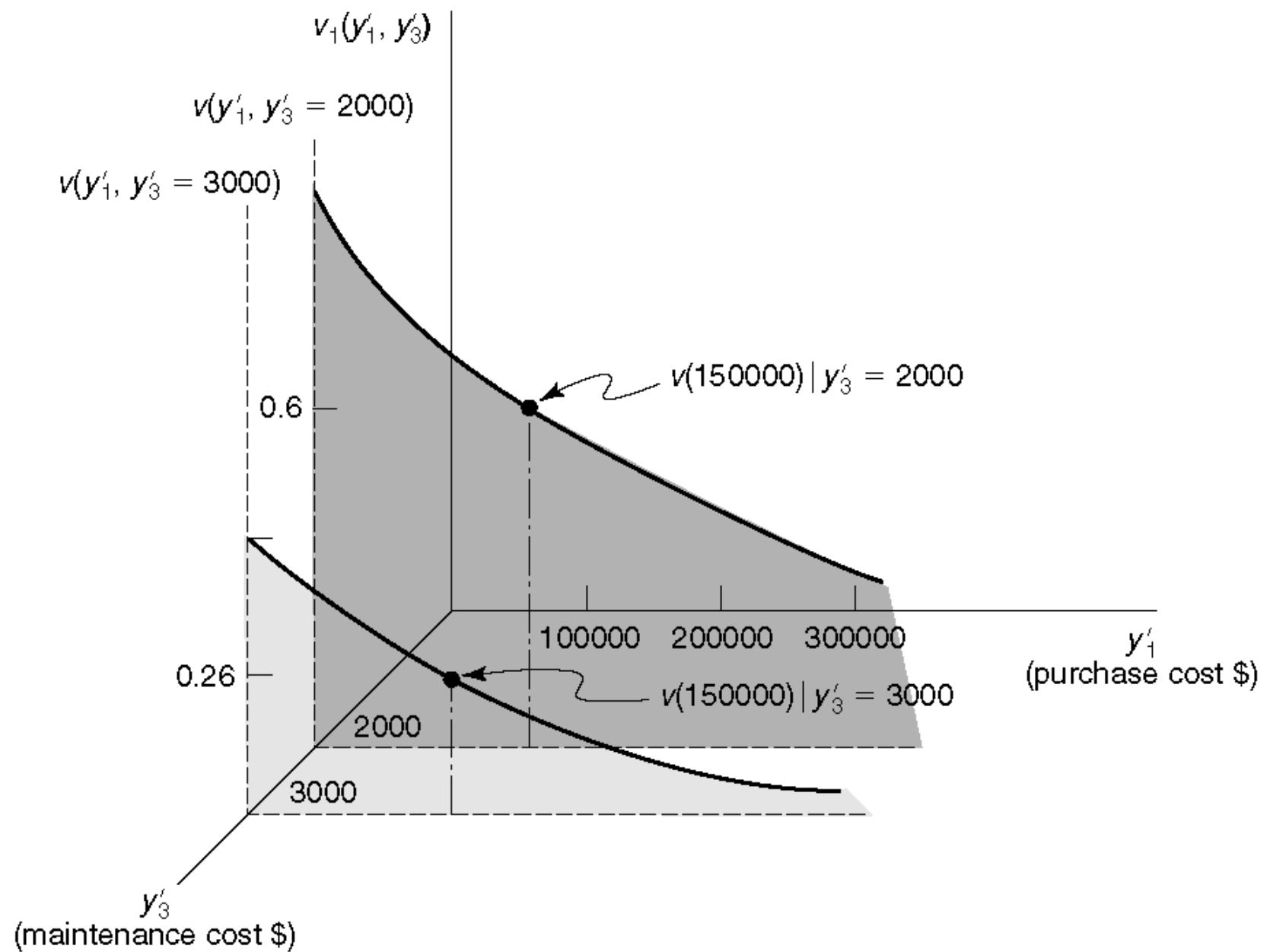
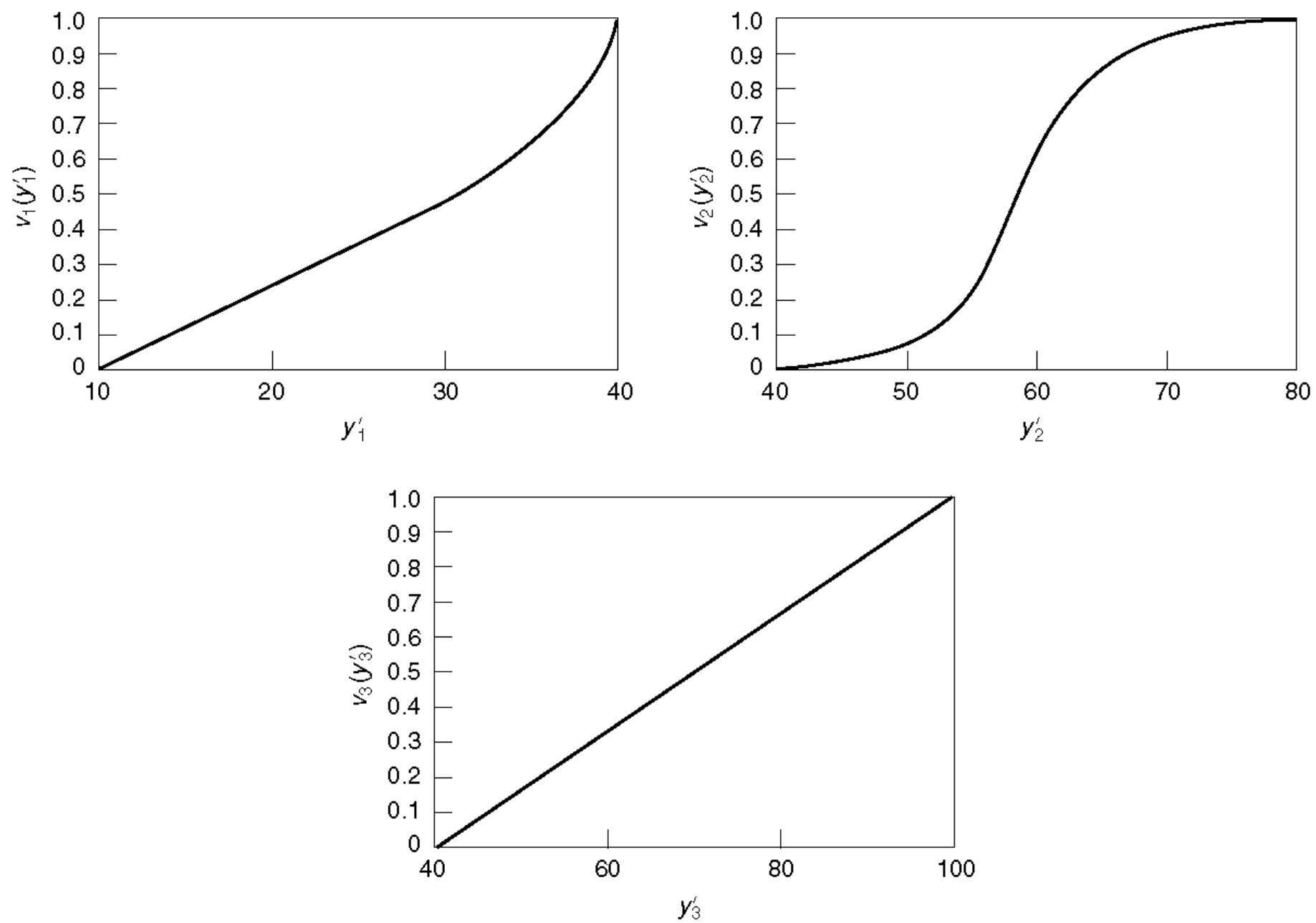
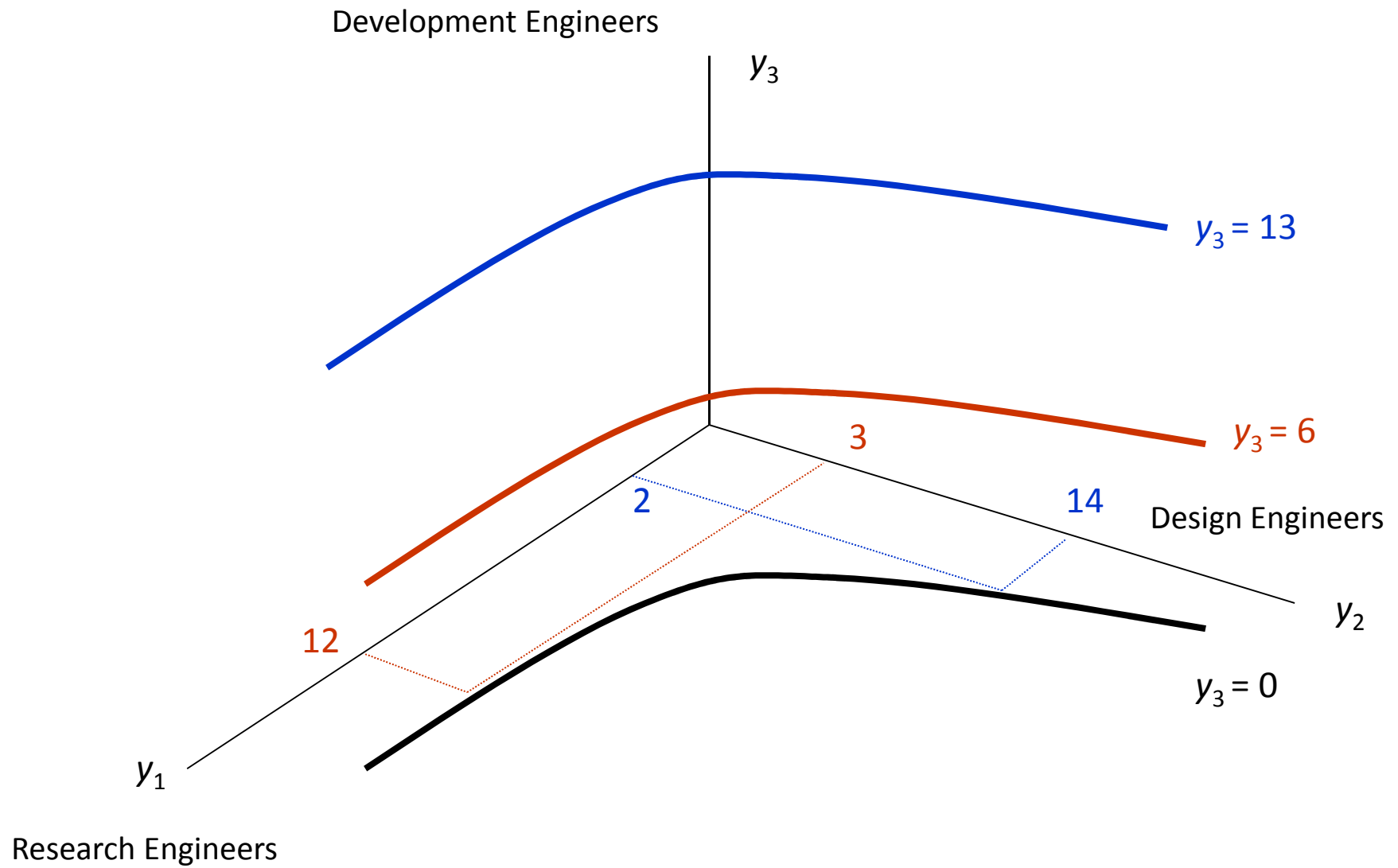


Figure 5.17 EXAMPLE UNIVARIATE UTILITY FUNCTIONS



Illustrating preferential independence



Illustrating utility independence

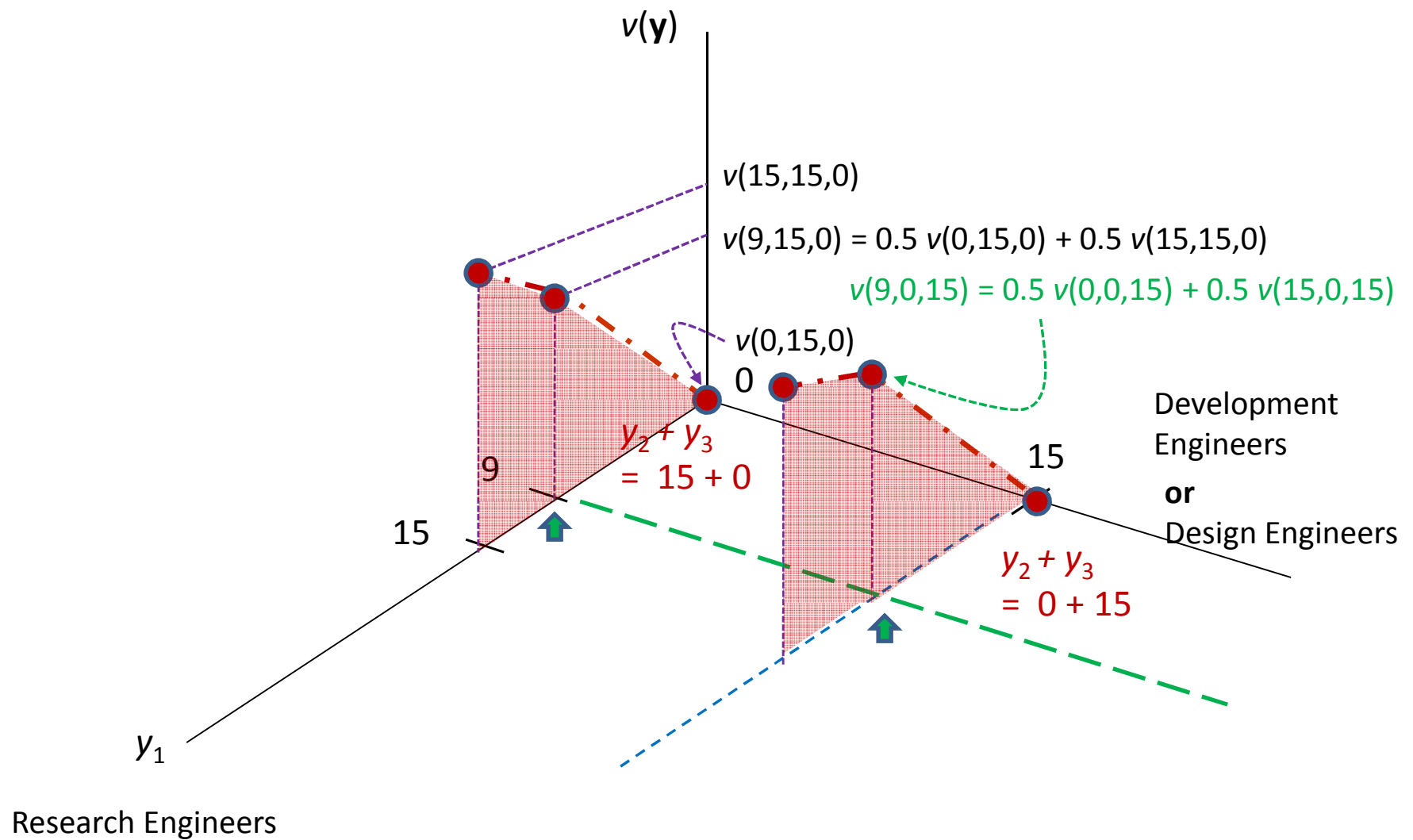


Figure 5.18 ILLUSTRATING UTILITY INDEPENDENCE

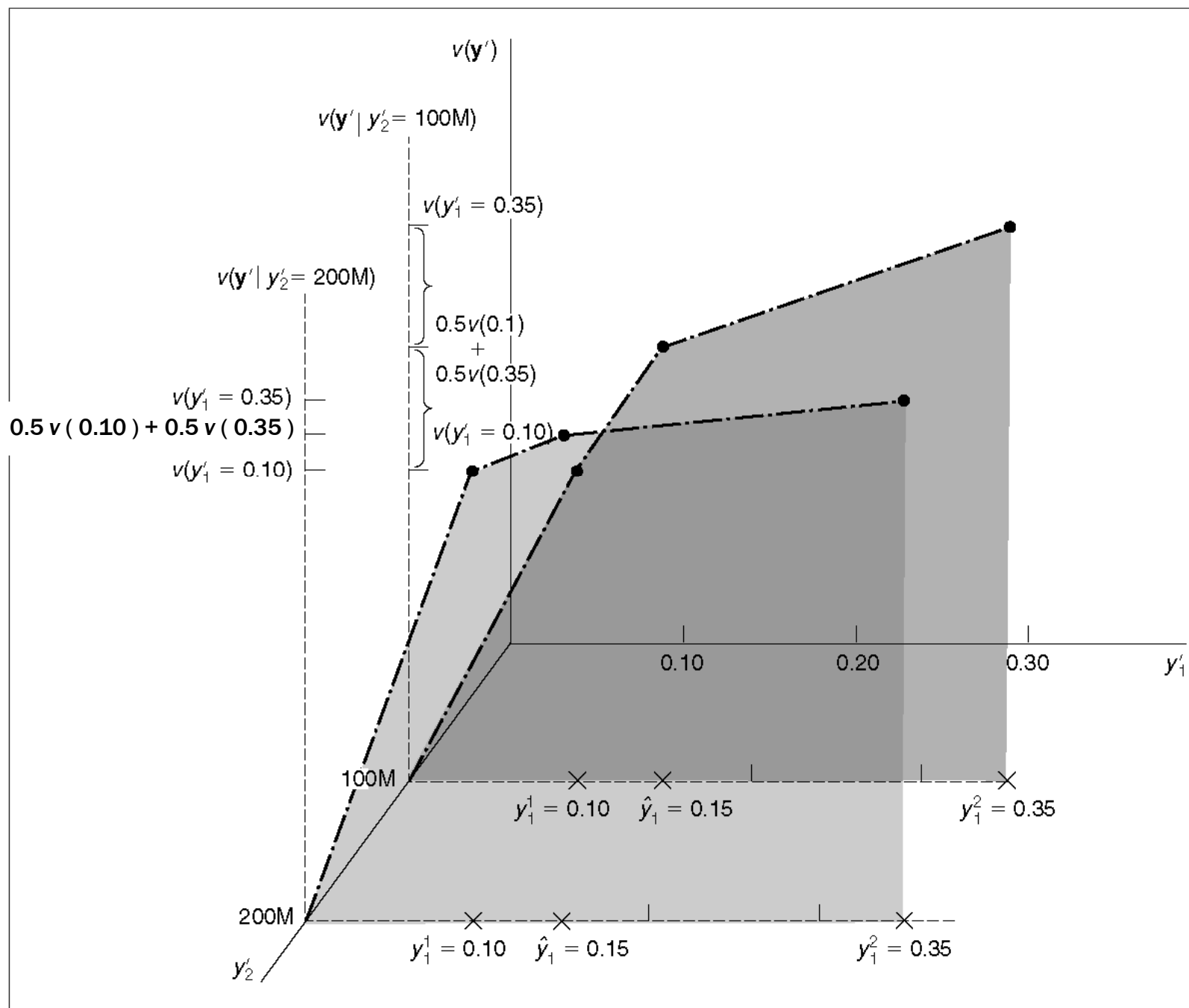


Figure 5.19(a) Univariate functions for 2-attributes

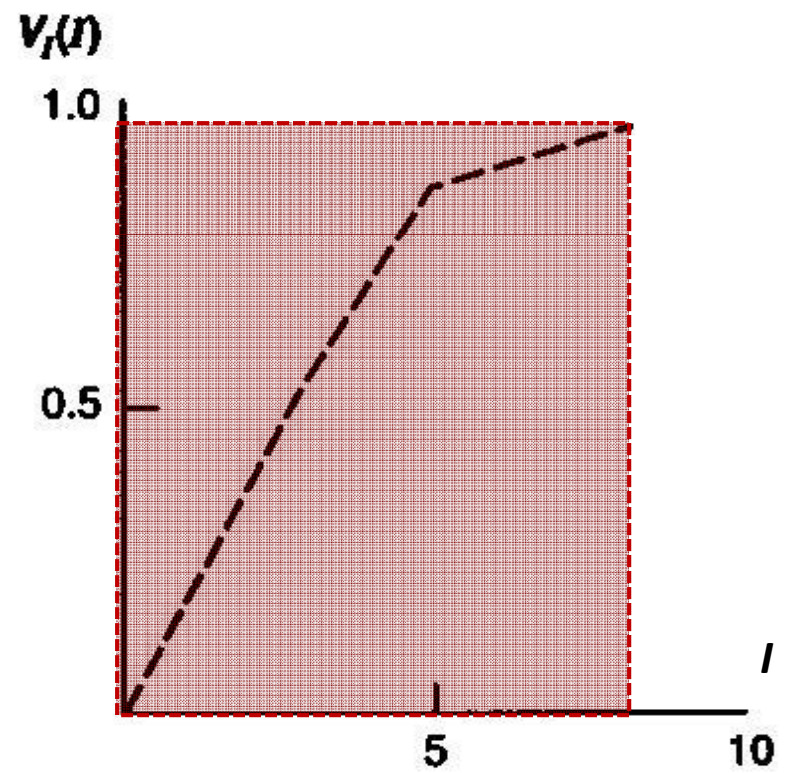
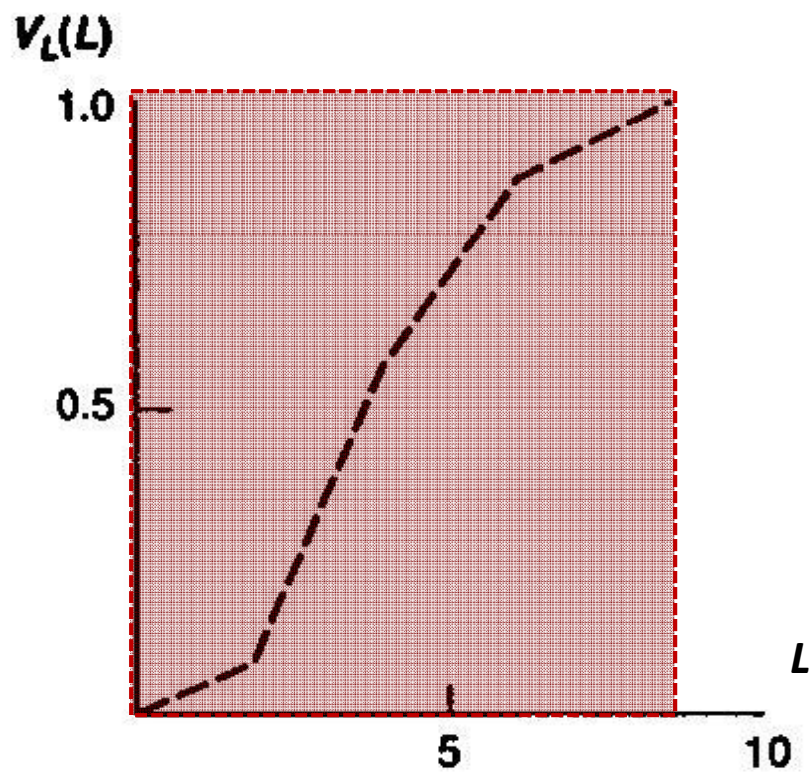


Figure 5.19(b) 2-attribute calibration example

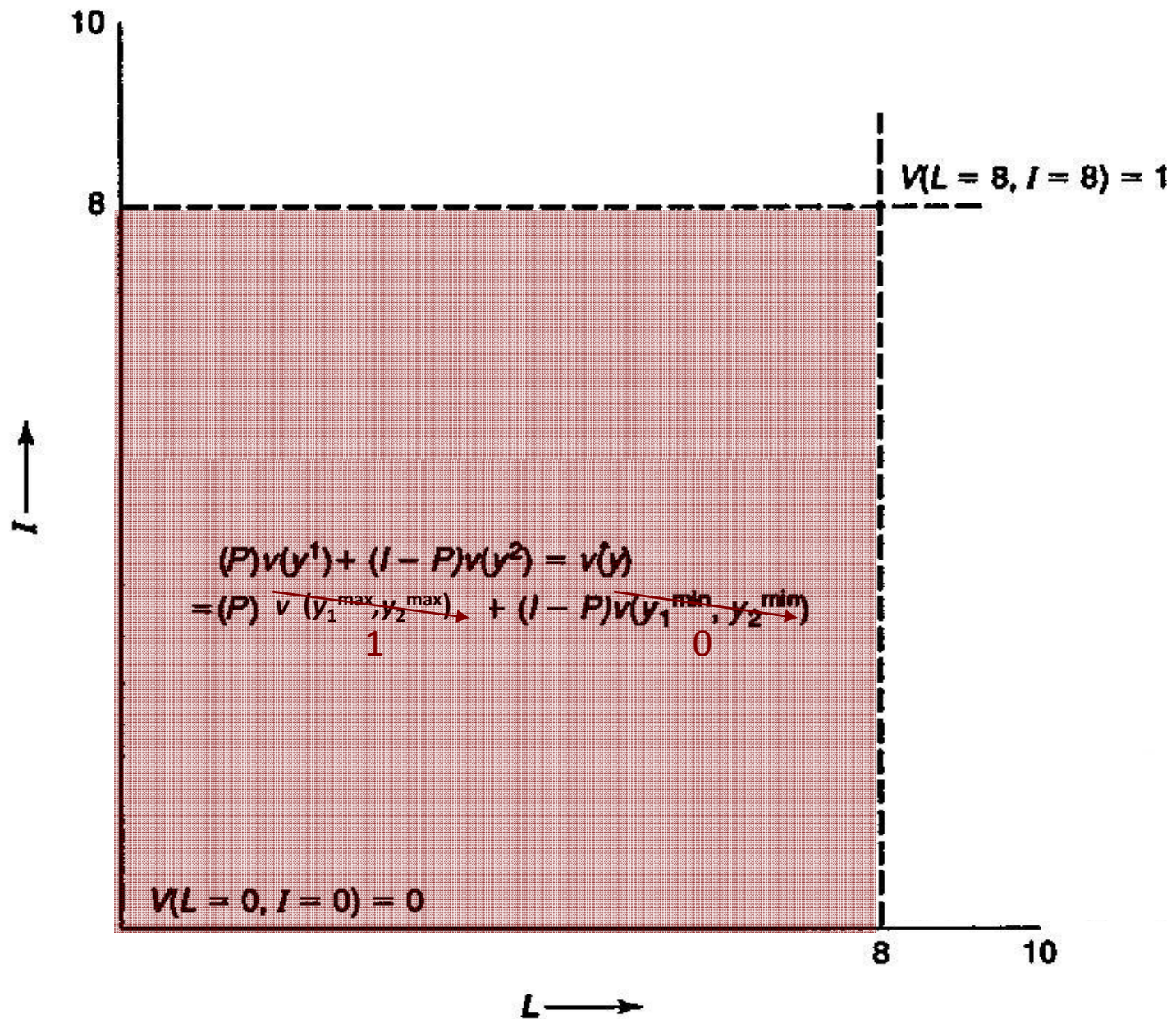


Figure 5.19(c) 2-attribute calibration example (continued)

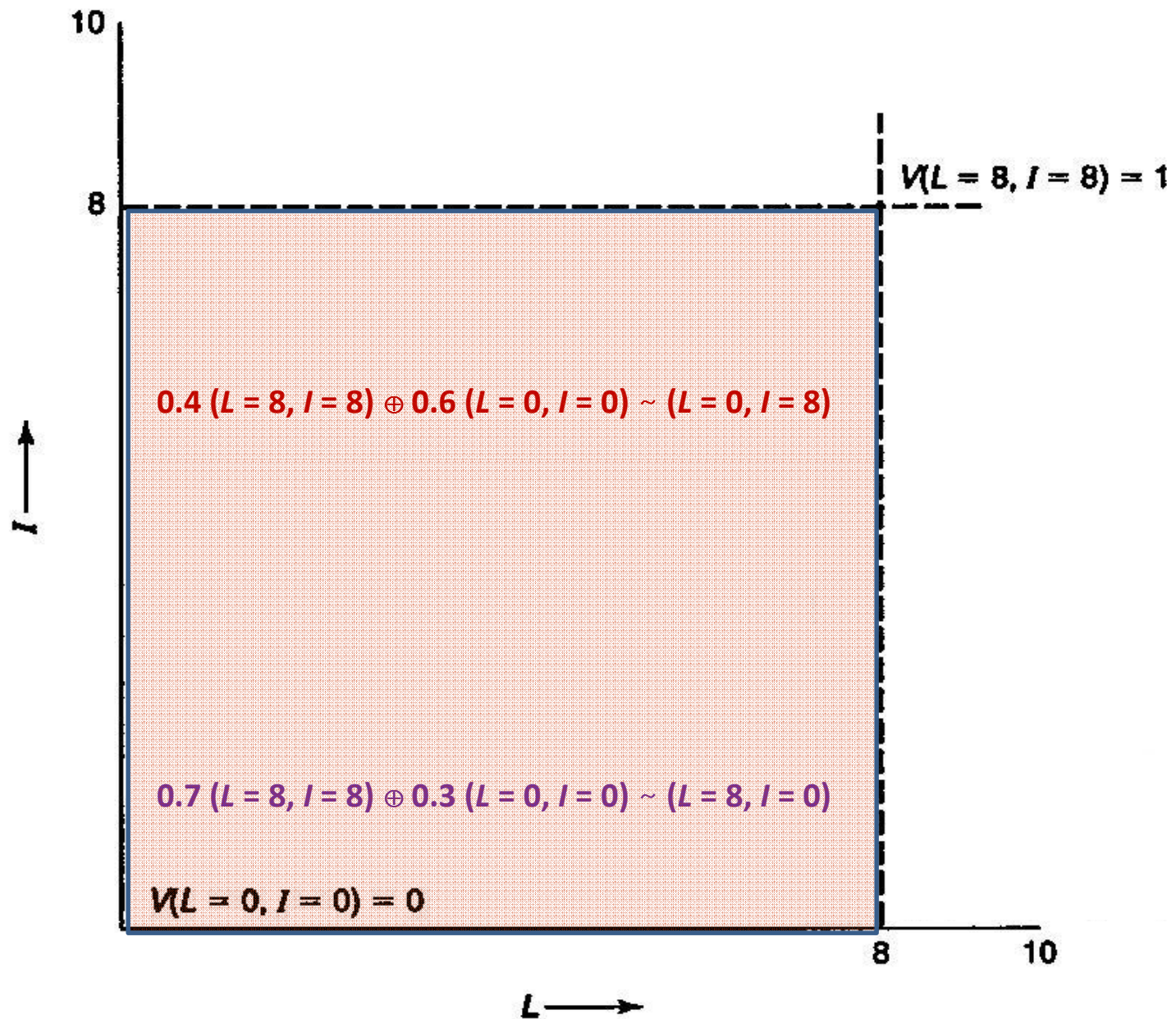


Figure 5.20(a) Univariate utility functions for cost

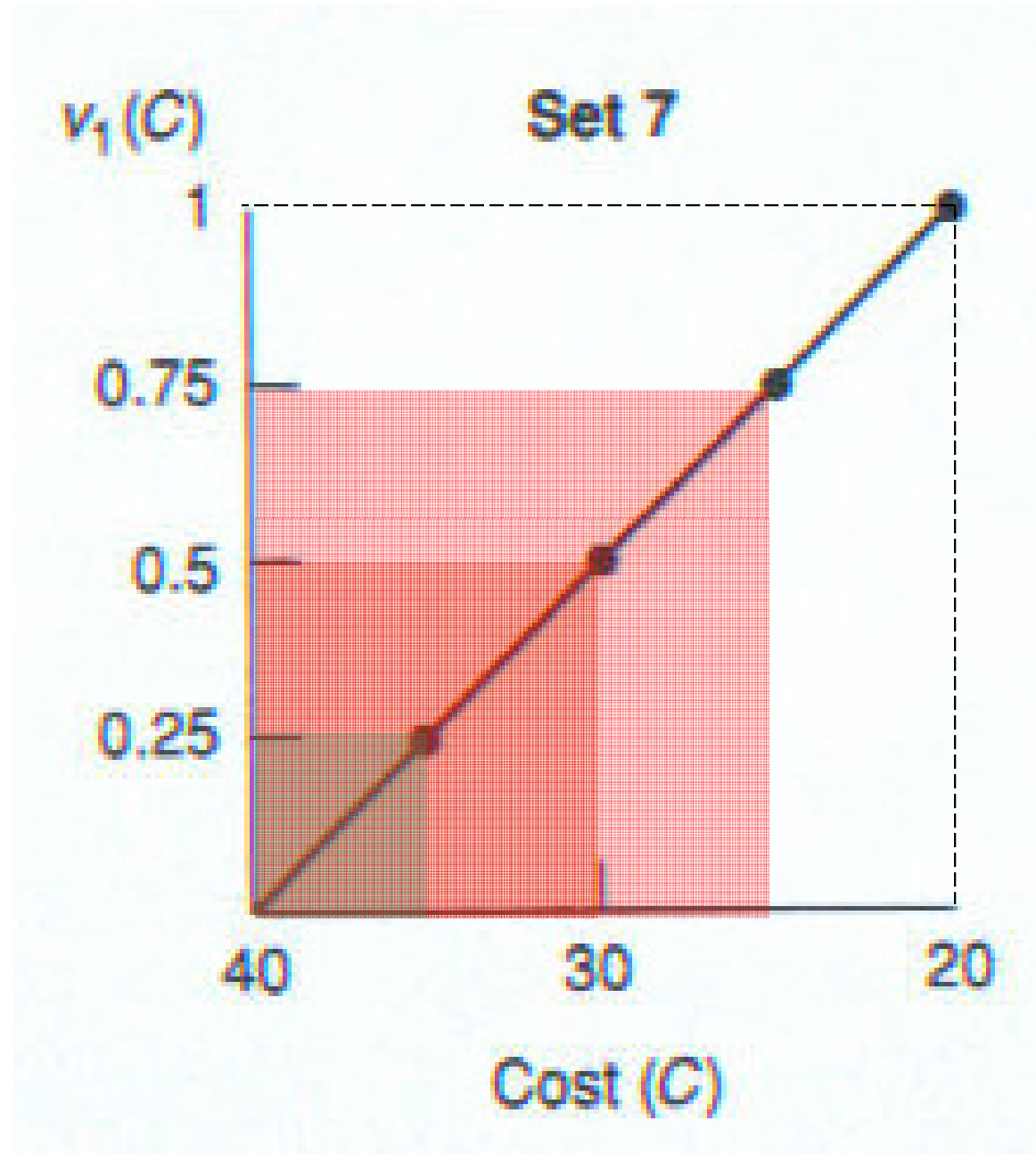


Figure 5.20(b) Univariate utility functions for time

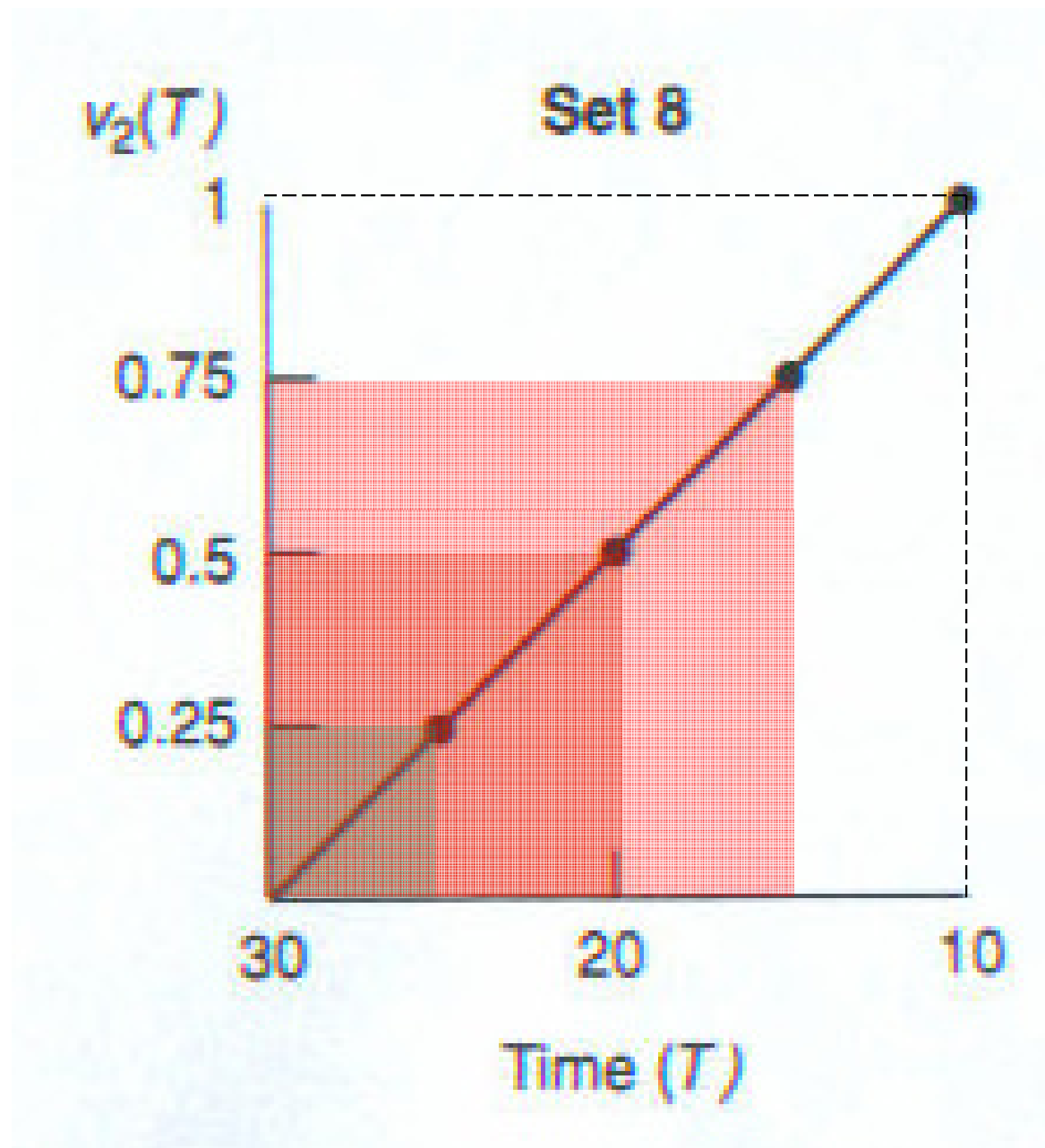
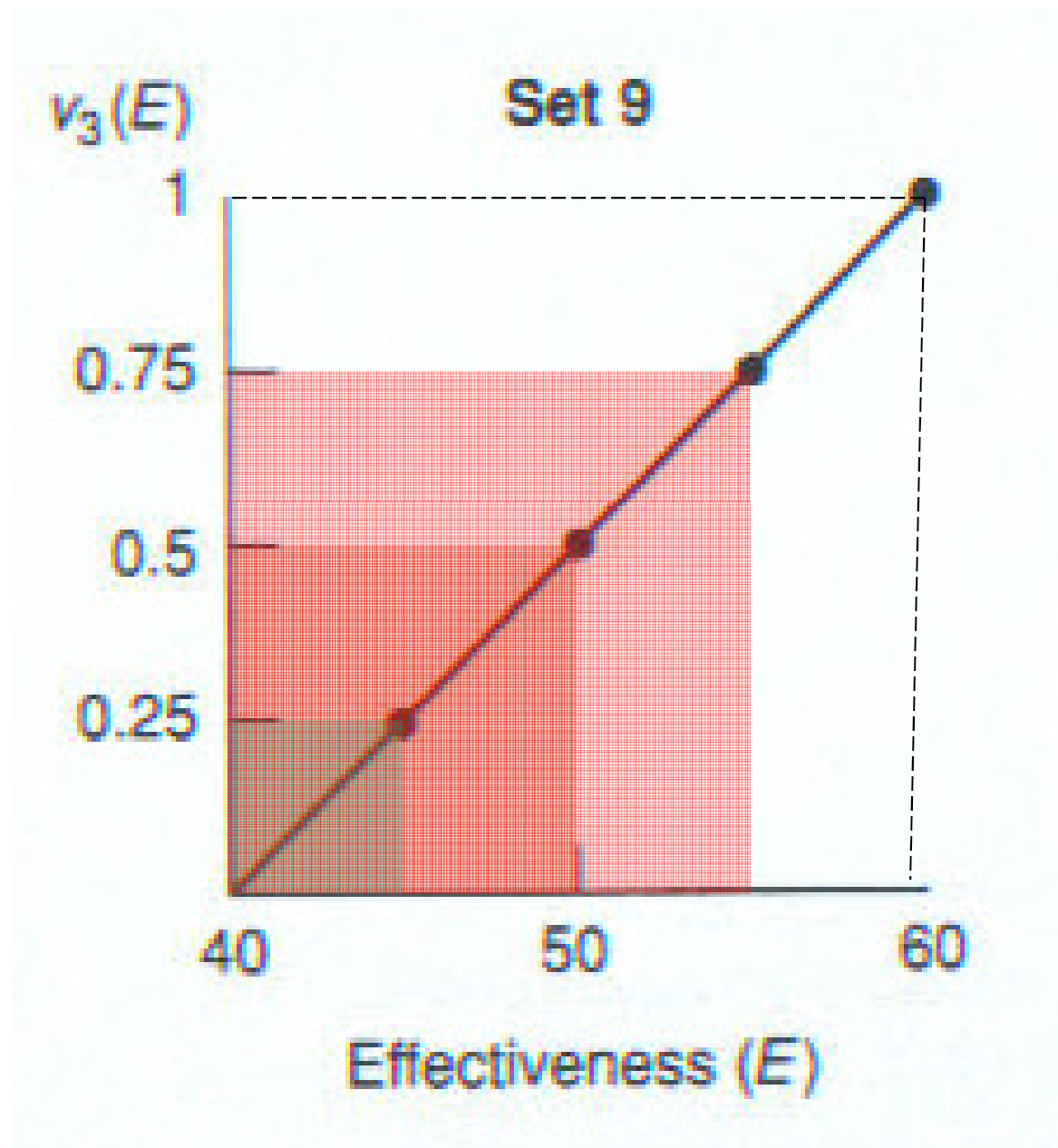
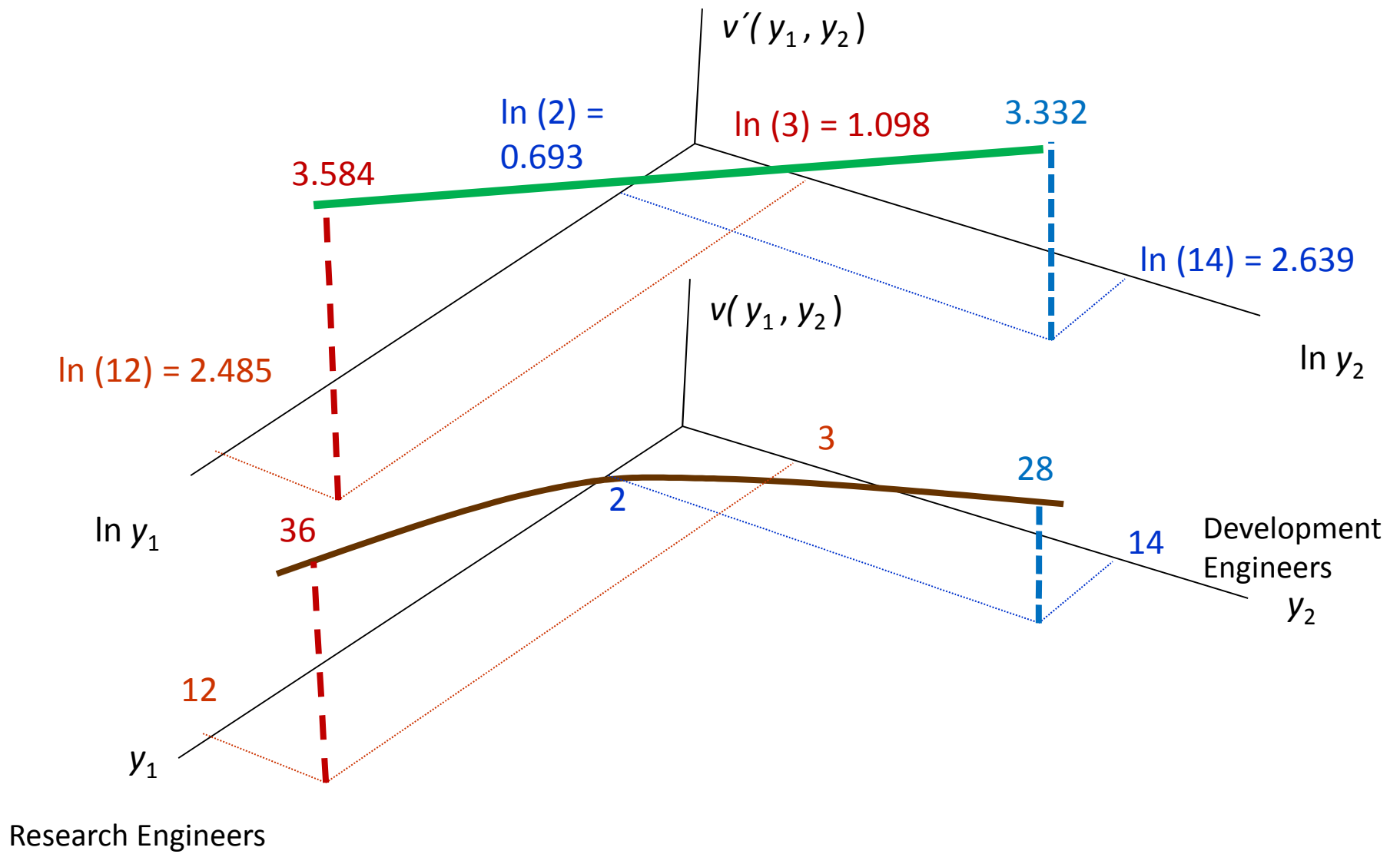


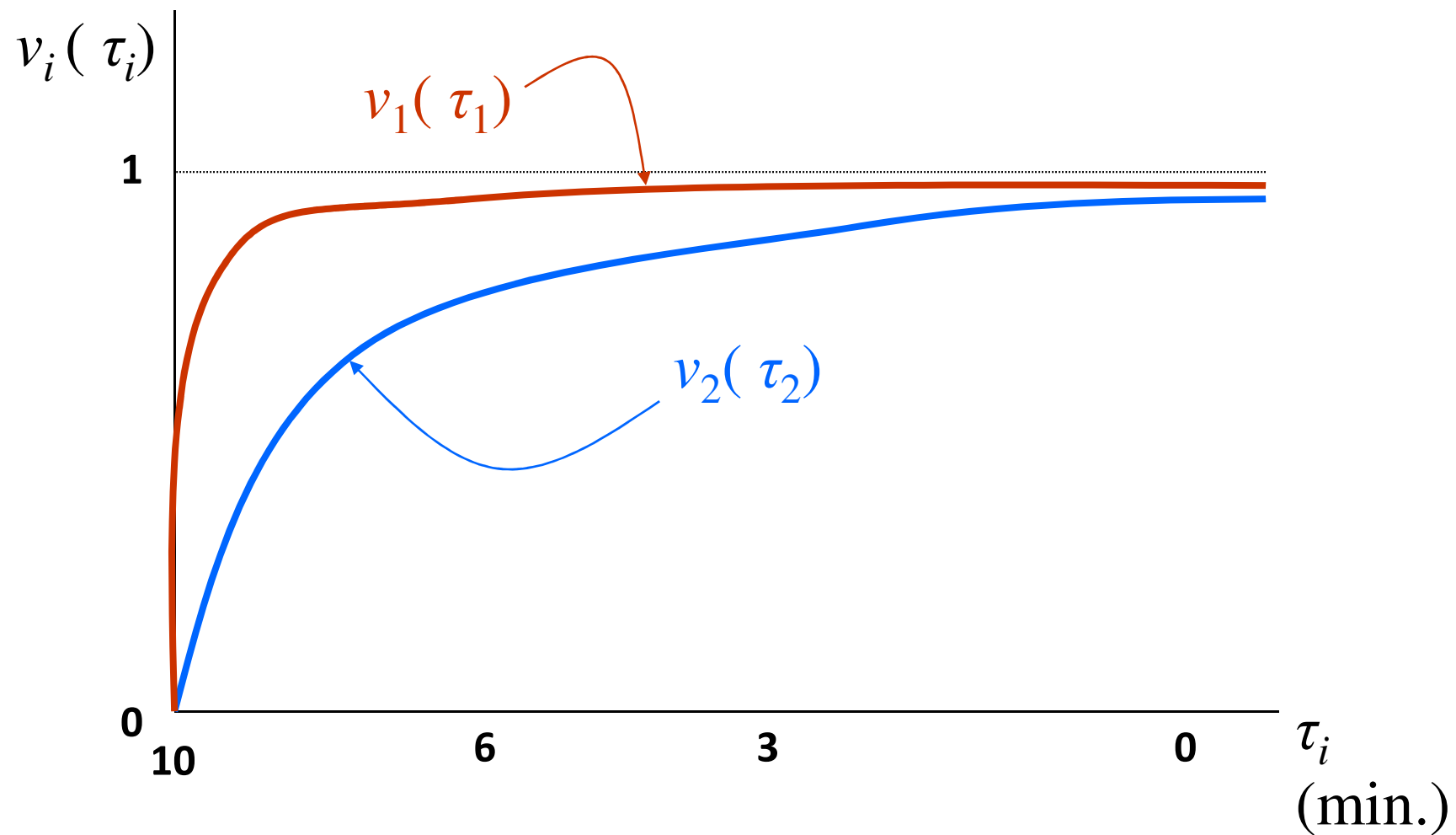
Figure 5.20(c) Univariate utility functions for effectiveness



Illustrating strategic equivalence



Utility functions for fire trucks



Utility surface for fire trucks

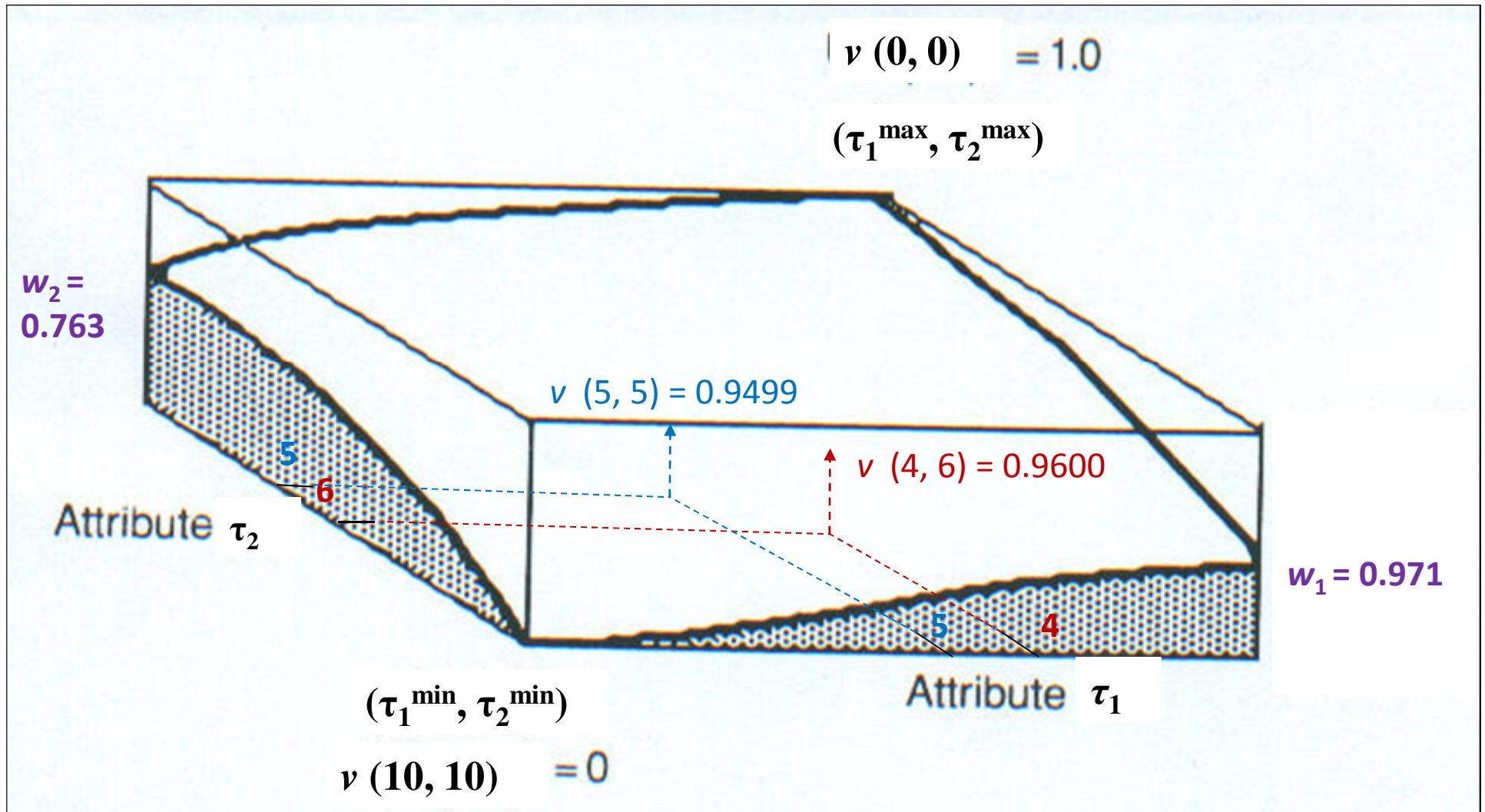


Table 5.1 PERFORMANCE OF PROJECTS FOR HIGH- AND LOW-GROWTH PROFILES⁴

Project	High			Low		
	Cost y_1	Time y_2	Effect y_3	Cost y_1	Time y_2	Effect y_3
<i>A</i>	20	30	40	25	20	40
<i>B</i>	30	10	50	30	15	45
<i>C</i>	25	20	60	30	20	50

Figure 5.21 Hierarchy of criteria and alternatives

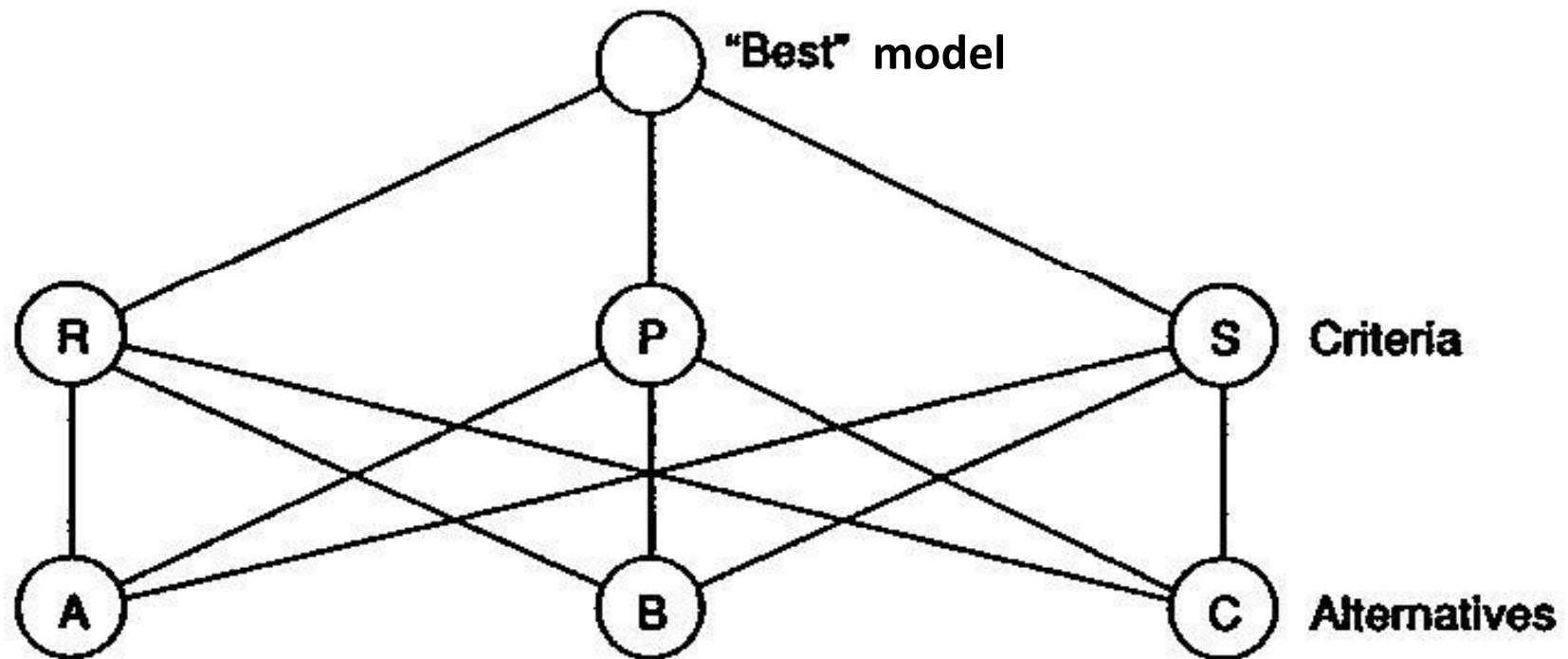
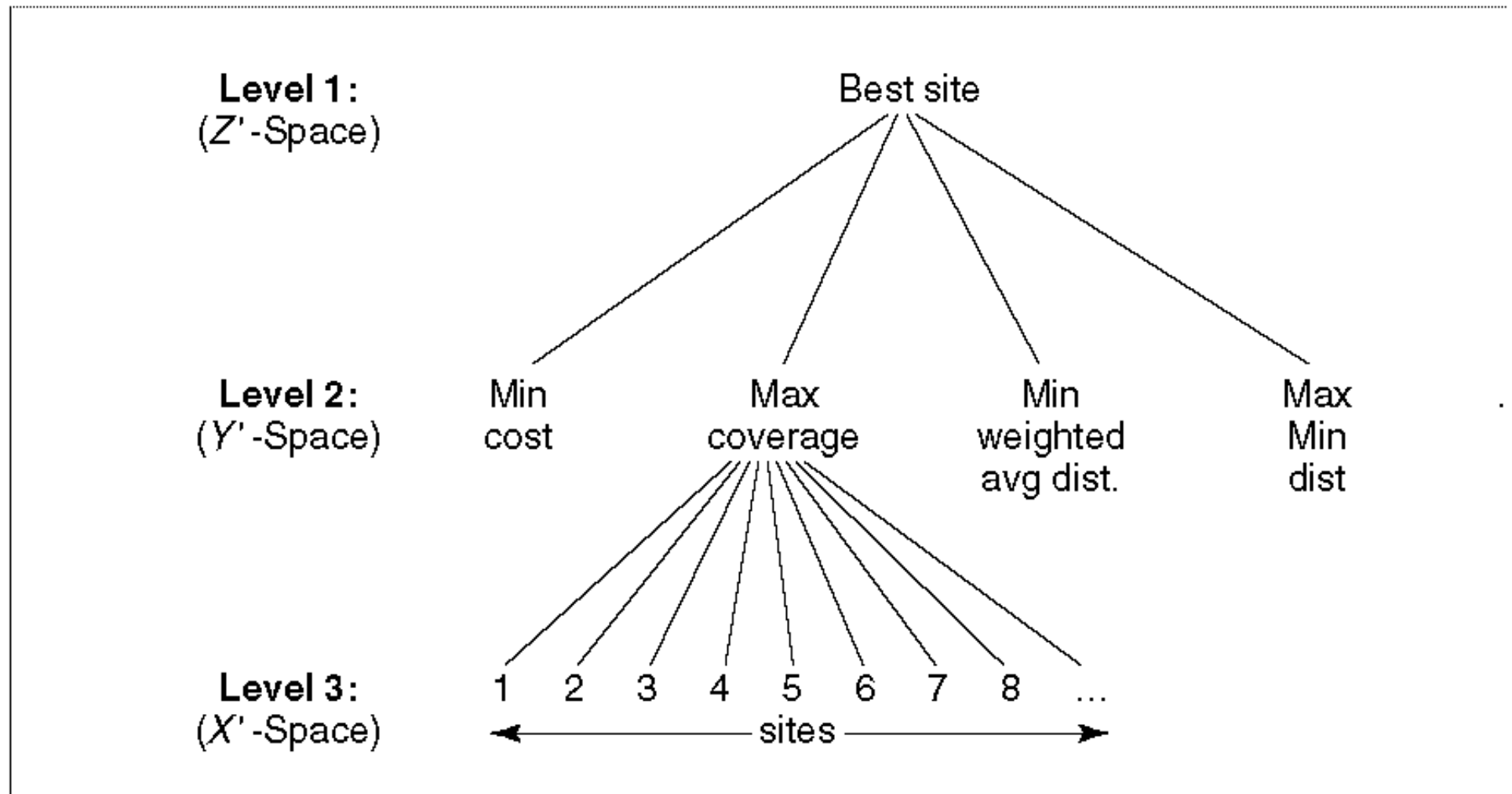


Figure 5.22 LEVELS OF HIERARCHY FOR THE LOCATION PROBLEM



SOURCE: Haghani (1991). Reprinted with permission.

Table 5.2 TAXONOMY OF INTERACTIVE MCDM PROCEDURES

Type of investigation	DM directed	Analyst directed
Phased	Prior articulation of alternatives (DM \leftarrow Analyst)	Prior articulation of preferences (DM \rightarrow Analyst)
Iterative	Progressive articulation of alternatives (DM \rightarrow q \rightarrow analyst) \leftarrow a \rightarrow	Progressive articulation of preferences (DM \leftarrow q \leftarrow analyst) \rightarrow a \rightarrow

Figure 5.23 Weight cone for alternative domination structures

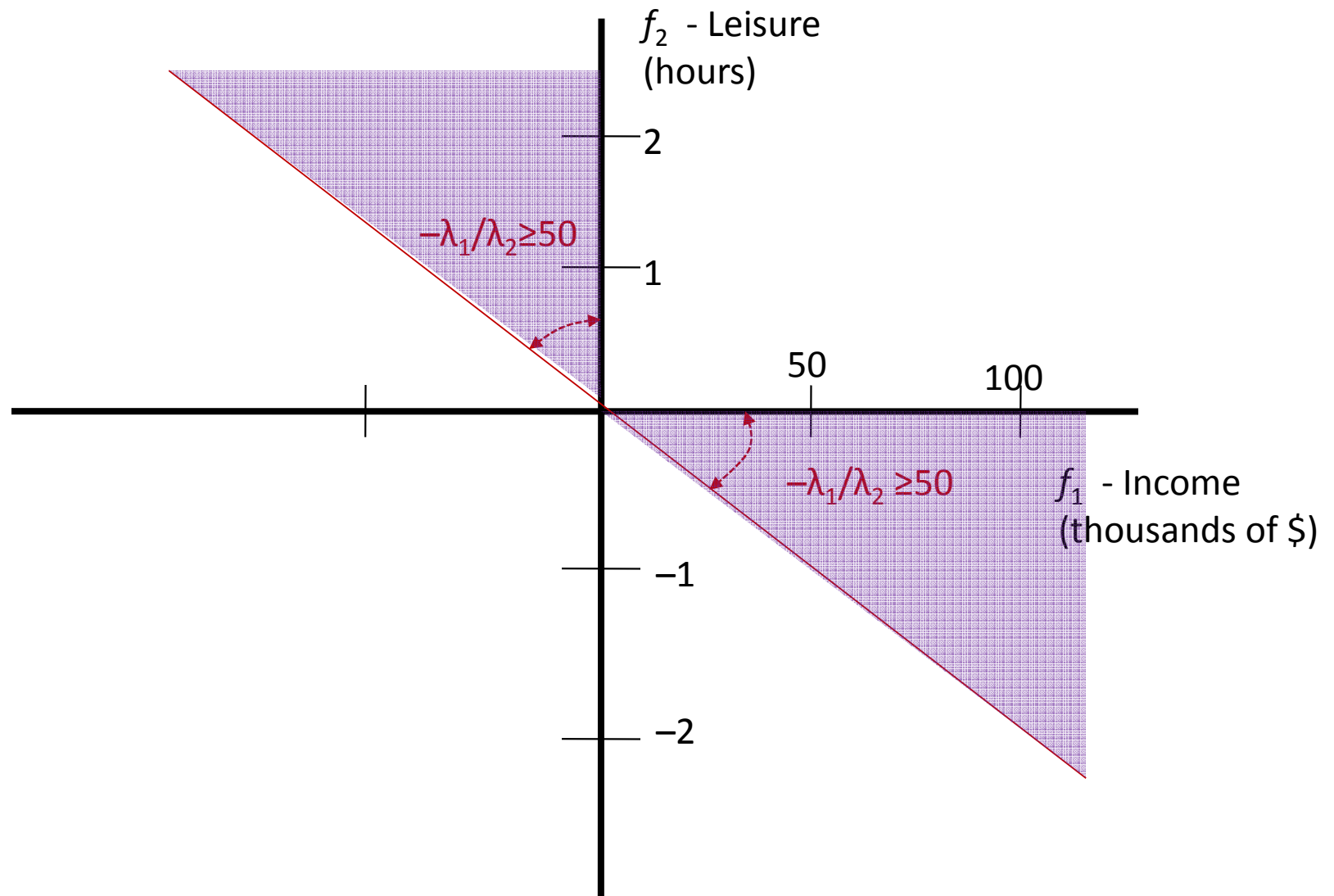


Figure 5.24 Nash equilibrium in a Cournot duopoly

[duopoly]

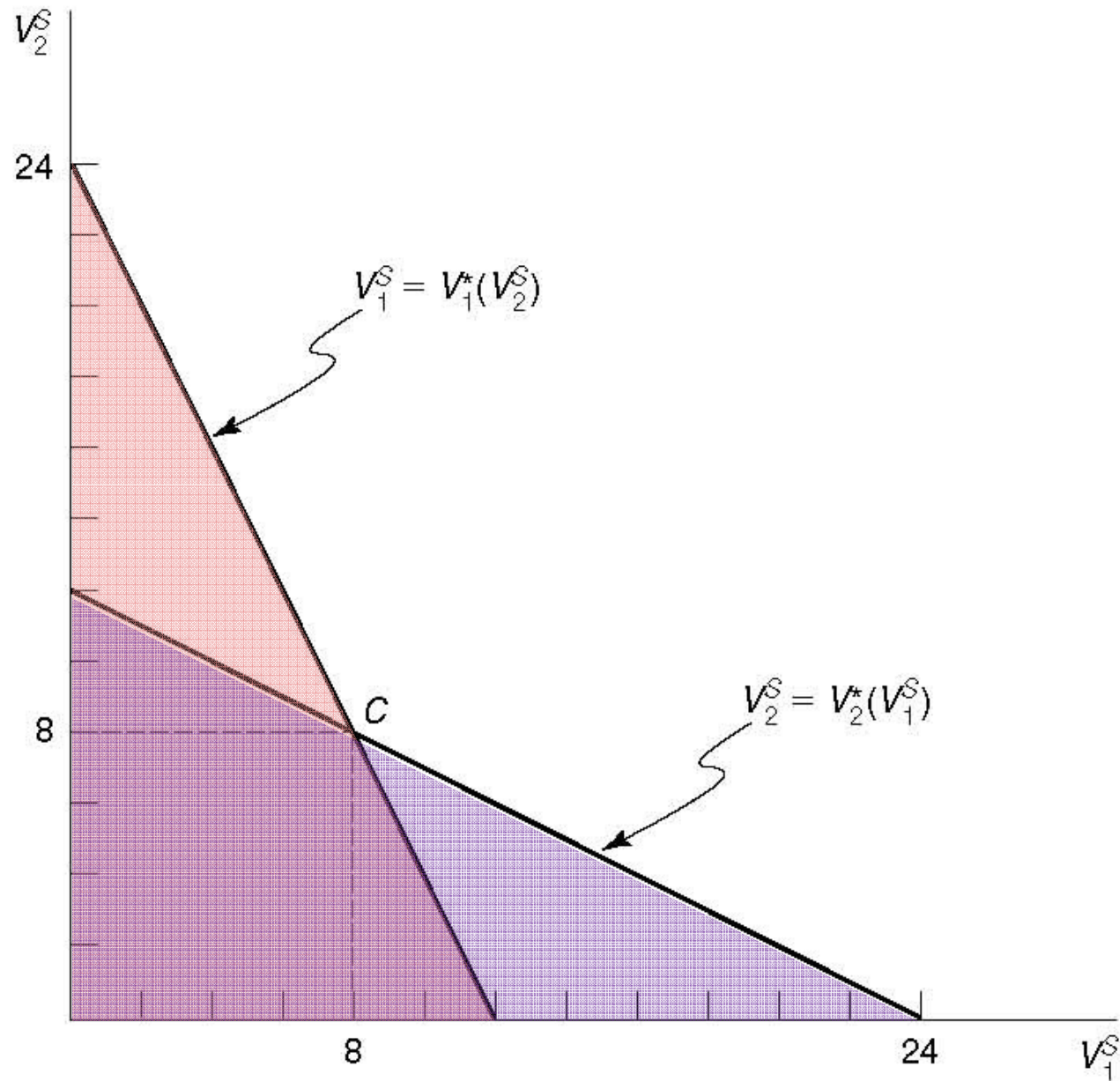


Figure 5.25 Utility production frontier & the GUF

