Numbered Figures for
Prospect Theory
for Risk and Ambiguity

by Peter P. Wakker (2010);
provided on internet July 2013 (with permission of CUP)

The figures were made using 2009 software, mainly the drawing facilities of MS-Word. If no elucidation is added to a figure, then it was made using only facilities of MS Word. Sometimes there are curves “drawn by hand” which means using the curve-mouse-drawing facilities of MS-Word.

Sometimes I used graphs of functions. Those graphs I made using the program Scientific Workplace. I would then turn them into wmf windows metafiles. Those I introduced as picture in the MS Word drawing program. (I actually learned over time that it works better to first introduce pictures in Powerpoint, and then transfer them from powerpoint to MS Word, so this is how I did it.) I would then only take the curve from the wmf file and nothing else, so I would drop all letters, axes, and so on from the wmf file. Those I would all make using MS Word.

Apart from 3 exceptions (added where relevant), I never kept the Sc. Workplace TeX input file, but I could remake those easily.

p. 26:

FIGURE 1.5.1. Arbitrage (a Dutch book)

$$(x_1^1, \ldots, x_n^1) \succcurlyeq (y_1^1, \ldots, y_n^1)$$

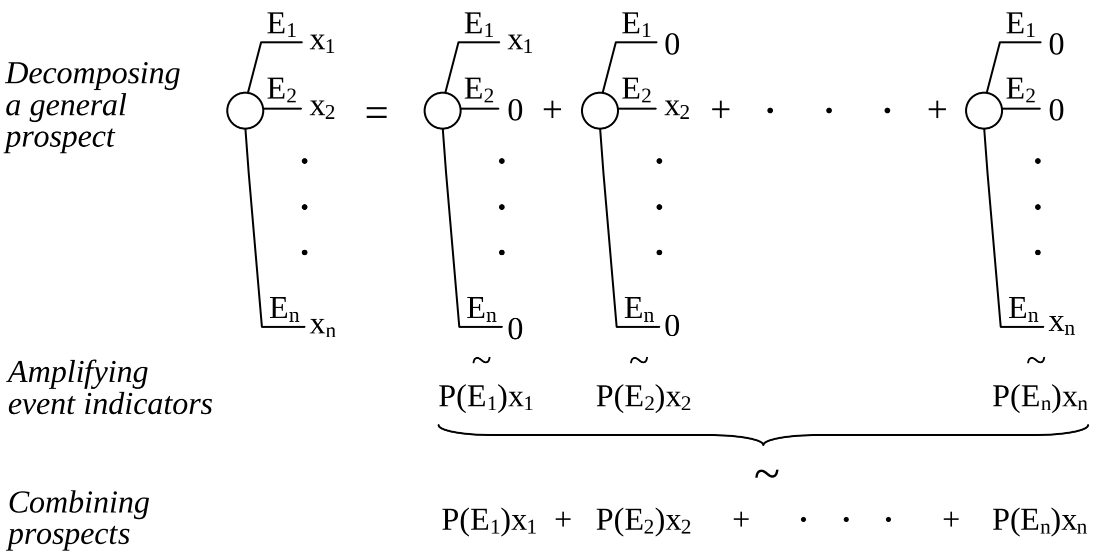
$$\vdots$$

$$(x_1^m, \ldots, x_n^m) \succcurlyeq (y_1^m, \ldots, y_n^m)$$

$$\overset{-\,+}{\sum x_1^j} \;\ldots\; \overset{-\,+}{\sum x_n^j} \qquad \overset{-\,+}{\sum y_1^j} \;\ldots\; \overset{-\,+}{\sum y_n^j}$$

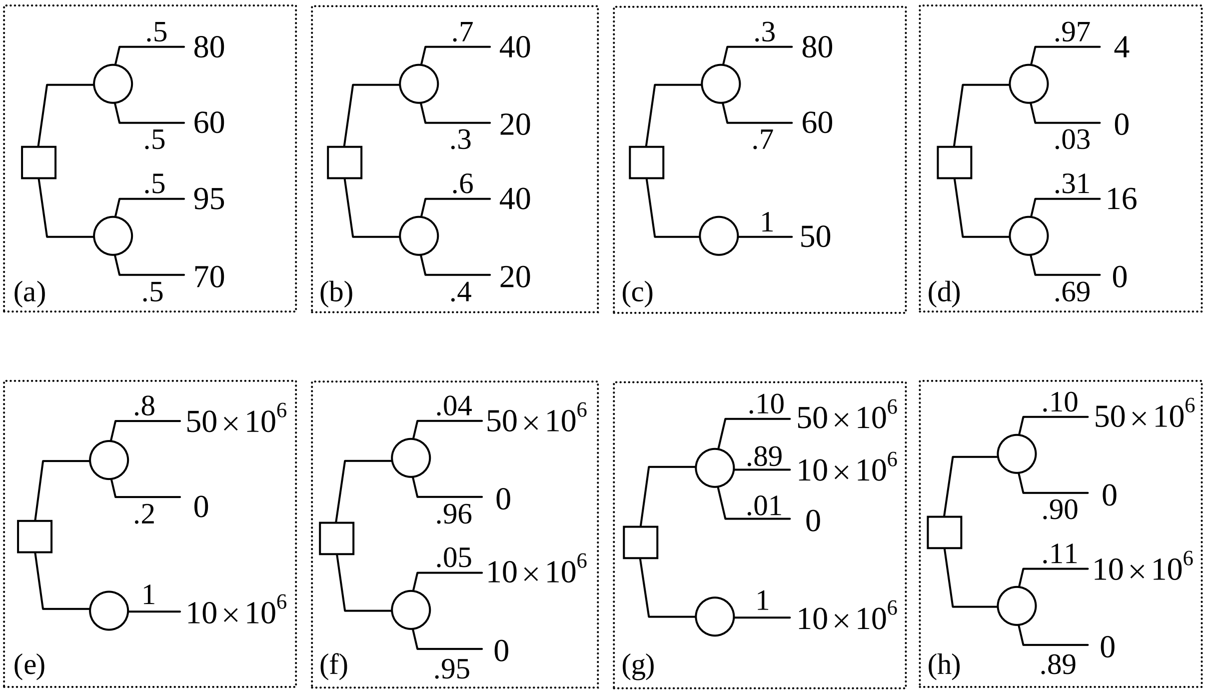
p. 42:

FIGURE 1.11.1. Deriving expected value



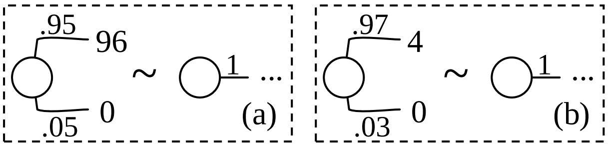
p. 51:

FIGURE 2.4.1.



p. 52:

FIGURE 2.4.2



p. 54:

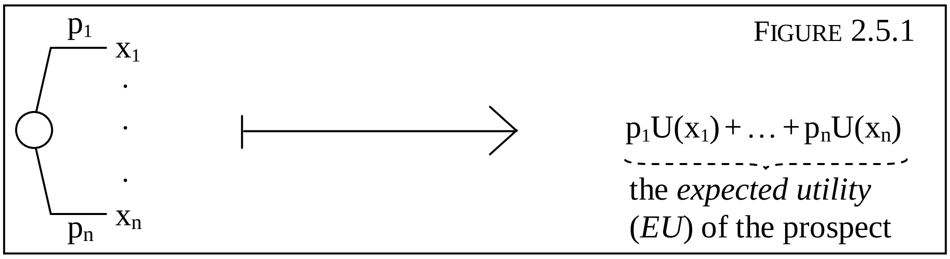
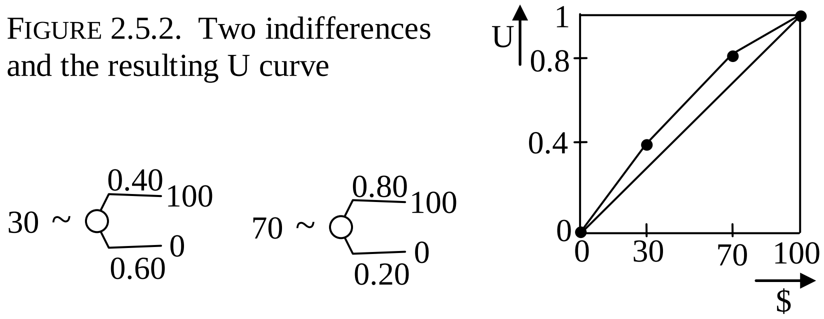


FIGURE 2.5.1

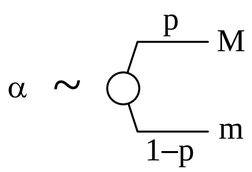
p. 56:

FIGURE 2.5.2. Two indifferences and the resulting U curve



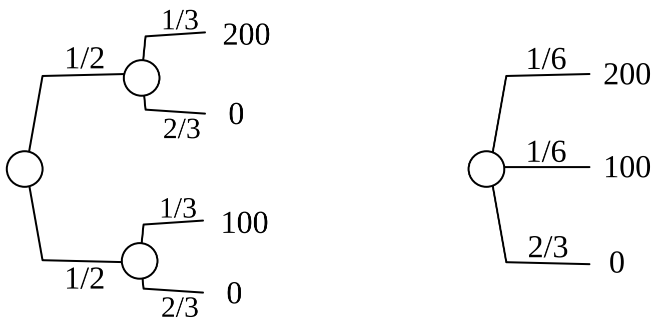
p. 56:

FIGURE 2.5.3. The SG probability p of α



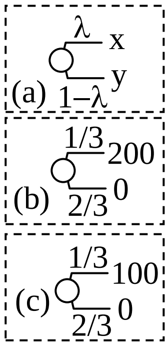
p. 59:

FIGURE 2.6.1.



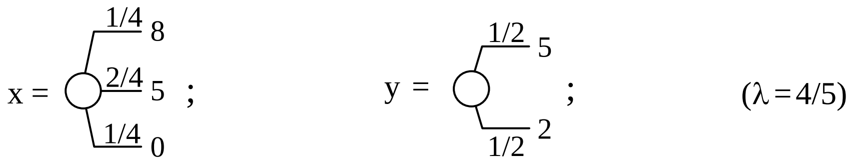
p. 60:

FIGURE 2.6.2

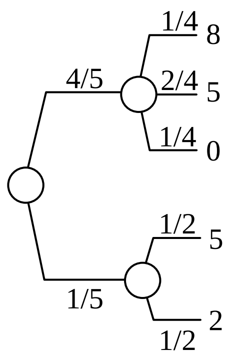


p. 60:

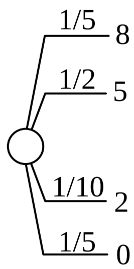
FIGURE 2.6.3.



The mixture $x_{4/5}y$ can be depicted as

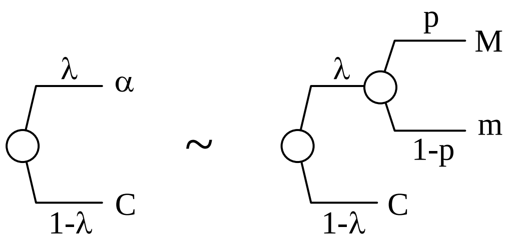


and is equal to



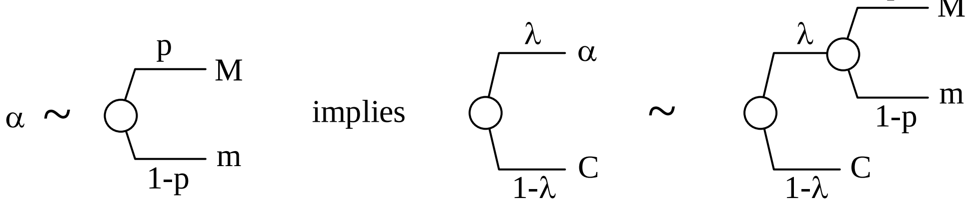
p. 61:

FIGURE 2.6.4. The lottery-equivalent method of McCord & de Neufville (1986) ($\lambda > 0$)



p. 62:

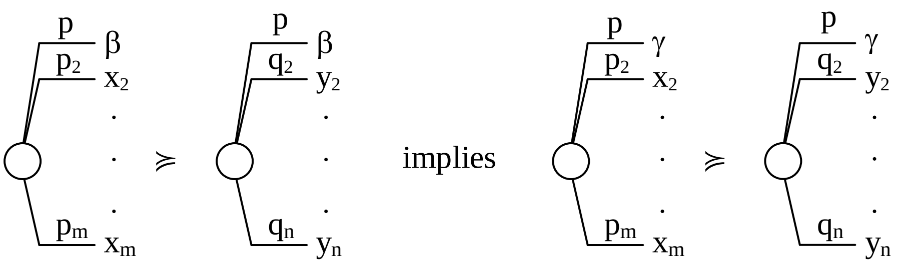
FIGURE 2.6.5. *SG consistency* holds if



for all outcomes α, M, m, all probabilities p and λ, and all prospects C.

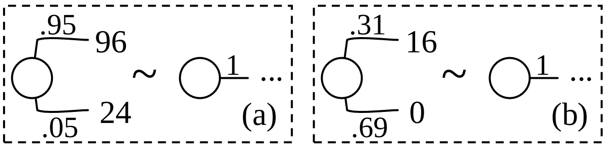
p. 65:

FIGURE 2.7.1. The sure-thing principle for risk



p. 66:

FIGURE 2.8.1



p. 68:

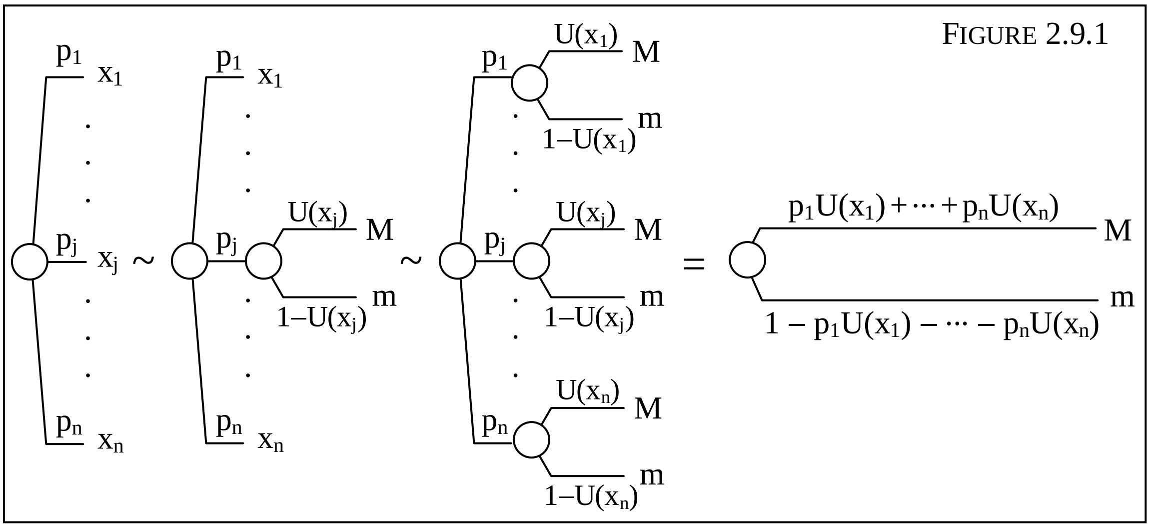
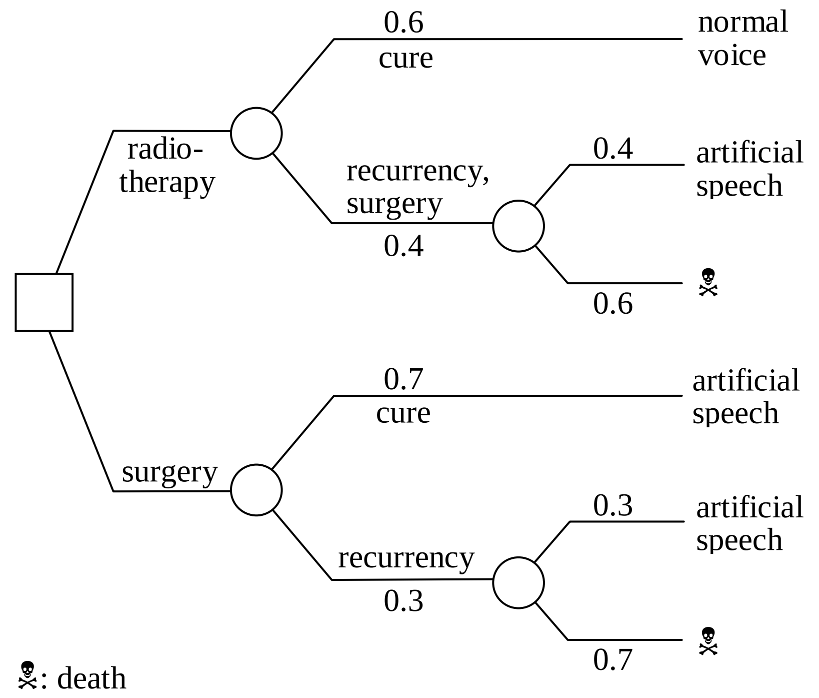


FIGURE 2.9.1
p1 x1
pj xj
pn xn
~
U(xj) M
1–U(xj) m
U(x1) M
1–U(x1) m
U(xn) M
1–U(xn) m
=
p1U(x1) + ··· + pnU(xn) M
1 – p1U(x1) – ··· – pnU(xn) m

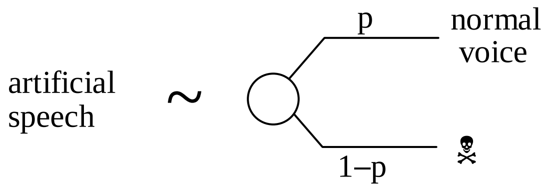
p. 70:

FIGURE 3.1.1. Choice between radio-therapy or surgery for a patient with larynx-cancer (stage T3)



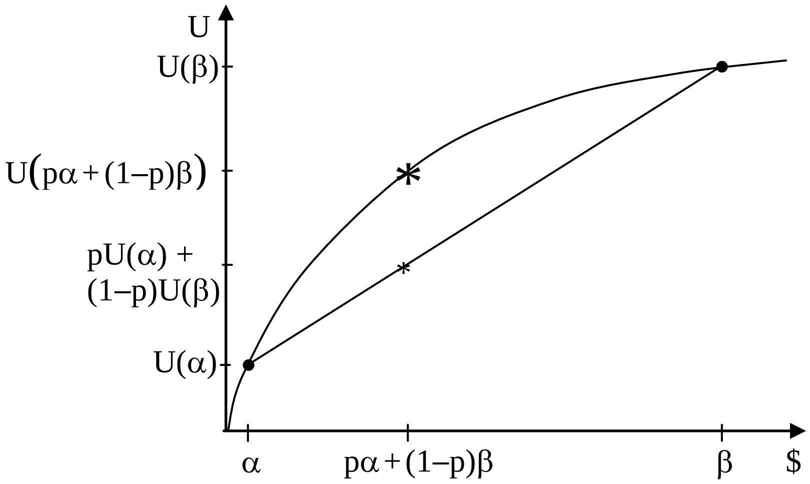
p. 71:

FIGURE 3.1.2. The SG question: For which p is the gamble equivalent to the certain outcome?



p. 72:

FIGURE 3.2.1. Risk aversion

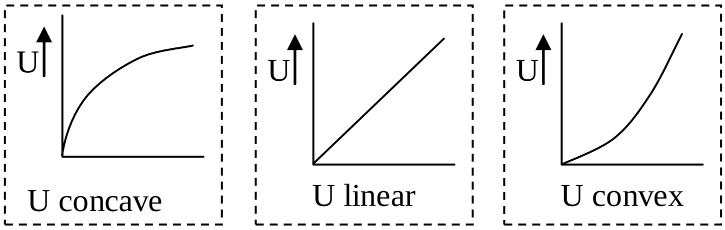


For the prospect $\left\{ \begin{array}{l} \overset{p}{—}\ \alpha \\ \underset{1-p}{—}\ \beta \end{array} \right.$, the expected utility, ∗, is lower than ∗, the utility of the expected value.

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

p. 72:

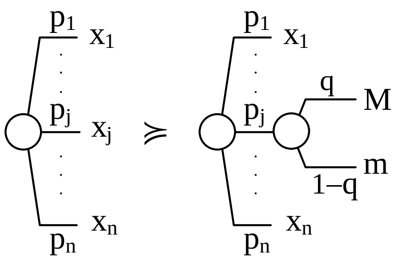
FIGURE 3.2.2. Concavity, linearity, and convexity



ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

p. 75:

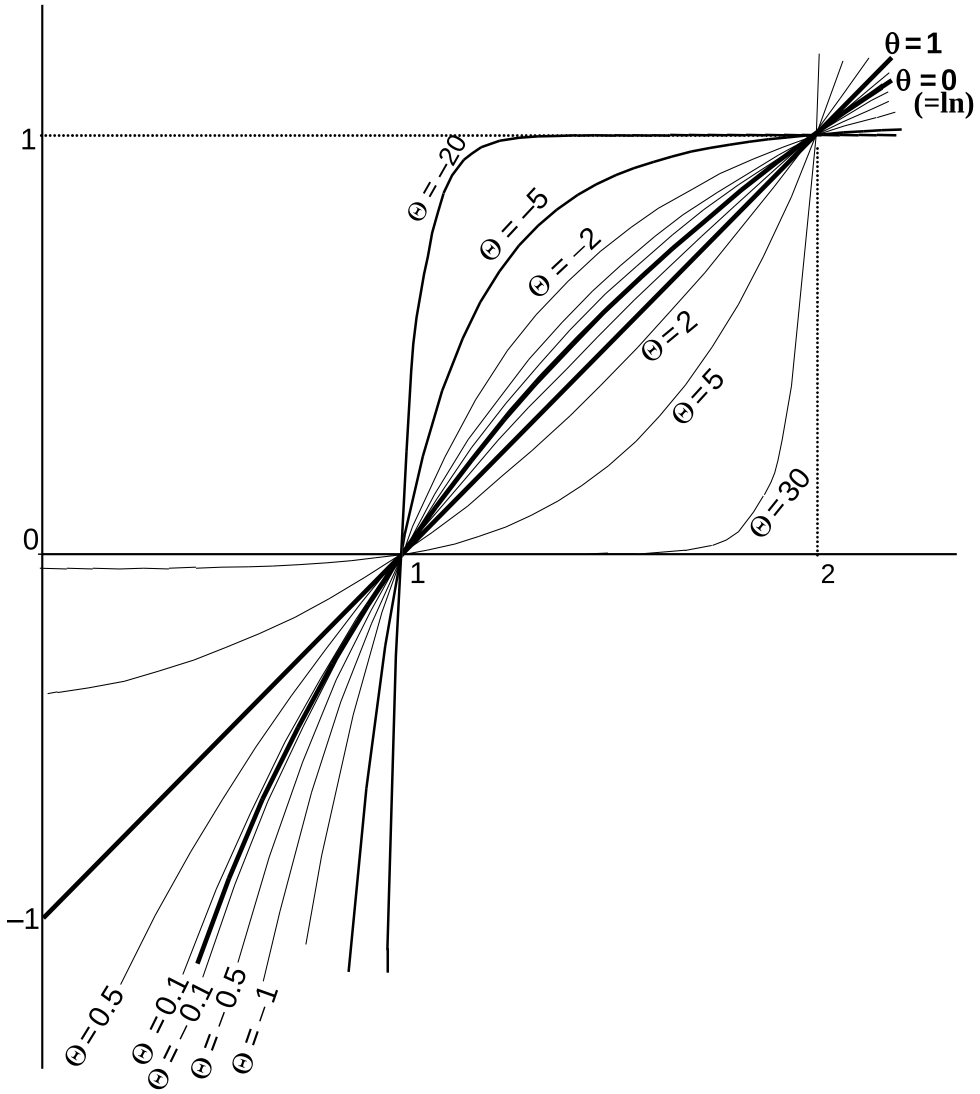
FIGURE 3.3.1. Aversion to elementary mean-preserving spreads



$qM + (1–q)m = x_j$, so that the means are the same.

p. 79:

FIGURE 3.5.1. Power utility curves, normalized at 1 and 2



ELUCIDATION: This Figure contains a graph of the following function, drawn fat, and indicated in the figure by **θ=0**:

$$u(\alpha) = \frac{ln(\alpha) - 1}{ln(2) - 1}$$

, further the function, also drawn fat, and indicated in the figure by **θ=1**:

$u(\alpha) = \alpha - 1$

and further the functions (not drawn fat)

$$u(\alpha) = \frac{\alpha^{\theta} - 1}{2^{\theta} - 1}$$

for the other θ values indicated in the figure (θ = −20, −5, −2, −1, −0.5, −0.1, 0.1, 0.5, 2, 5, and 30).
I made the graphs using Scientific Workplace (did not keep input files) as explained above.

p. 81:

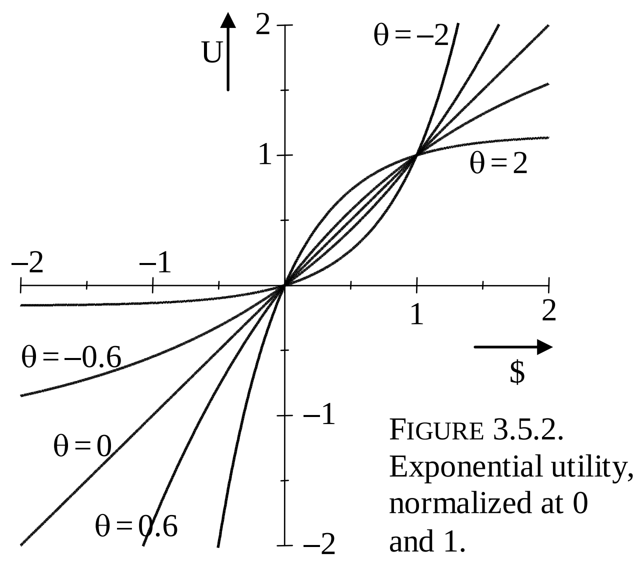


FIGURE 3.5.2. Exponential utility, normalized at 0 and 1.

ELUCIDATION: This Figure contains graphs of the function:

$u(\alpha) = \alpha$ (indicated in the figure by $\theta=0$)

and of the functions

$$u(\alpha) = \frac{1 - exp(-\theta\alpha)}{1 - exp(-\theta)}$$

for the other θ's as indicated (θ = −2. −0.6, 6, and 2).

I made the graphs using Scientific Workplace (did not keep input files) as explained above.

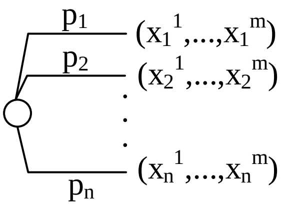
p. 86:

FIGURE 3.7.1. *SG invariance*

$$(Q,T) \sim \begin{cases} p\text{ — } & (Q,M) \\ 1-p\text{ — } & (Q,0) \end{cases} \quad \Rightarrow \quad (H,T) \sim \begin{cases} p\text{ — } & (H,M) \\ 1-p\text{ — } & (H,0) \end{cases}$$

p. 87:

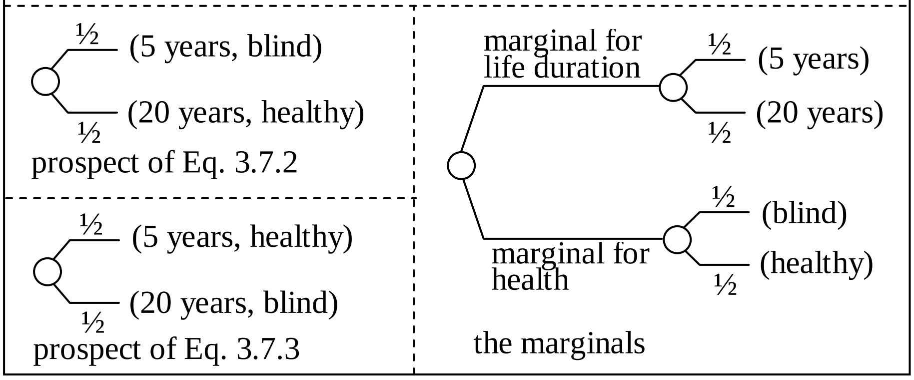
FIGURE 3.7.2. A prospect with multiattribute outcomes and its expected utility



$$\rightarrow \quad p_1U(x_1^1,\ldots,x_1^m) + \cdots + p_nU(x_n^1,\ldots,x_n^m)$$

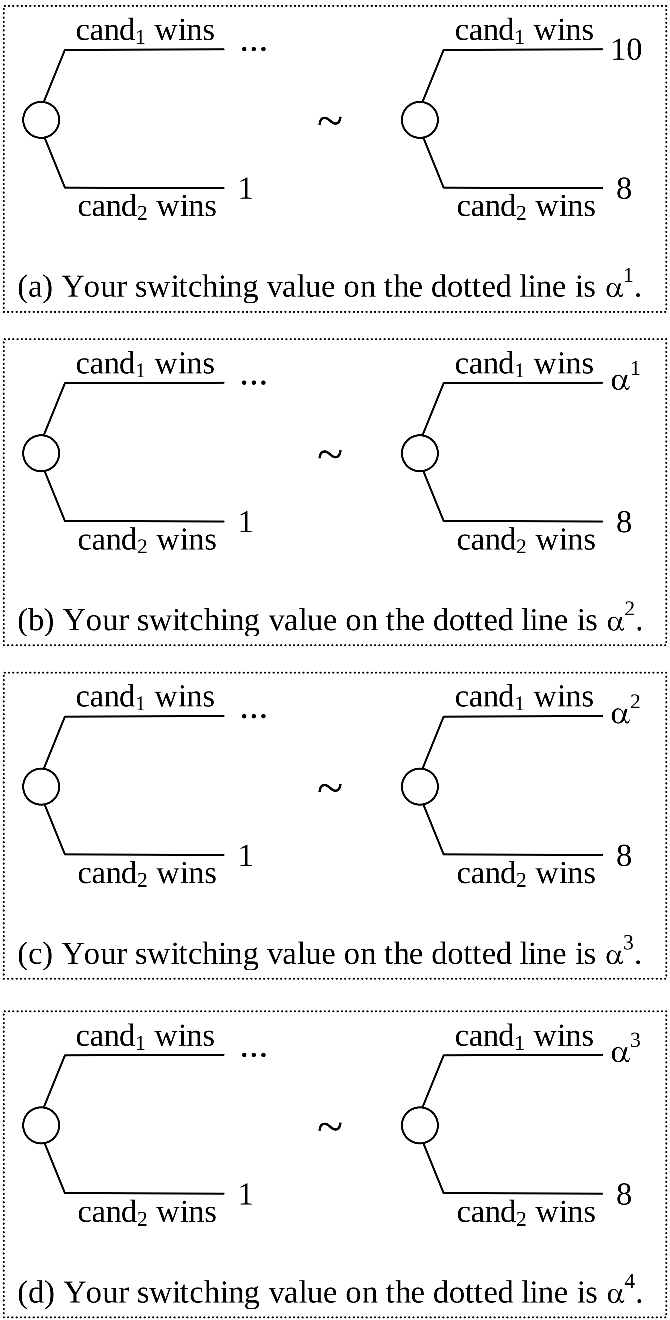
p. 88:

FIGURE 3.7.3. Two prospects with the same marginals



p. 96:

FIGURE 4.1.1 [*TO Upwards*]. Eliciting $\alpha^1 \dots \alpha^4$ for unknown probabilities



(a) Your switching value on the dotted line is α^1.

(b) Your switching value on the dotted line is α^2.

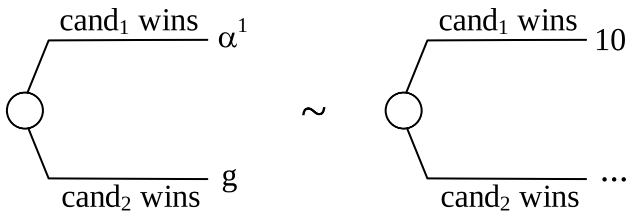
(c) Your switching value on the dotted line is α^3.

(d) Your switching value on the dotted line is α^4.

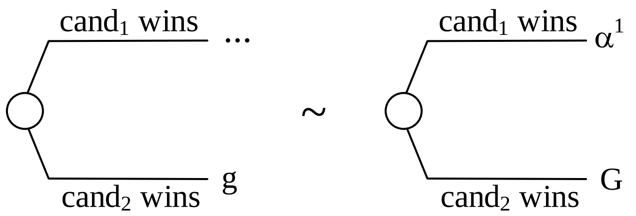
Indicate in each Fig. which outcome on the dotted line ⋯ makes the two prospects indifferent (the switching value).

p. 97:

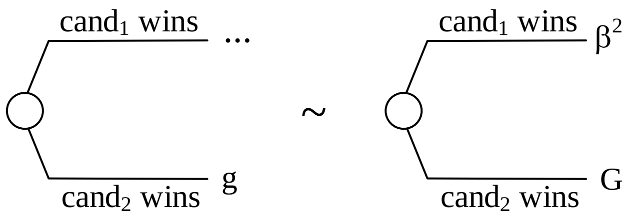
FIGURE 4.1.2 [*2nd TO Upwards*]. Eliciting β^2, β^3, β^4



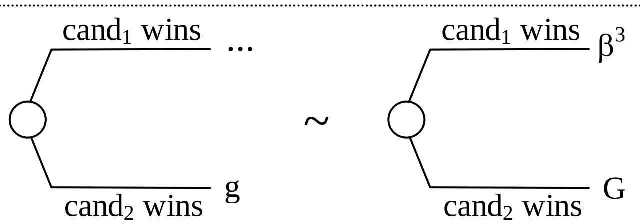
(a) Your switching value on the dotted line is G.



(b) Your switching value on the dotted line is β^2.



(c) Your switching value on the dotted line is β^3.

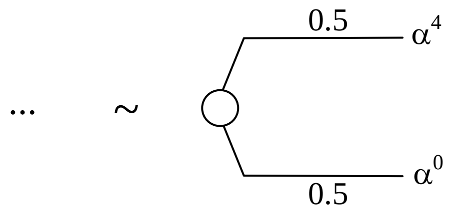


(d) Your switching value on the dotted line is β^4.

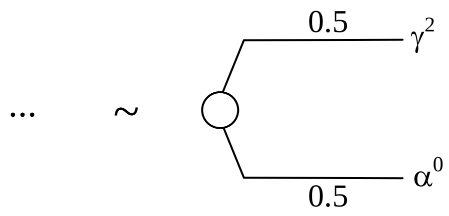
Indicate in each fig. which outcome on the dotted line ⋯ makes the two prospects indifferent (the switching value).

p. 98:

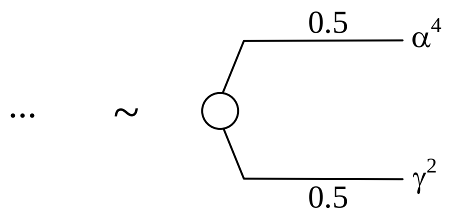
FIGURE 4.1.3 [*CEs*]. Eliciting $\gamma^2,\gamma^1,\gamma^3$



(a) Elicitation of γ^2.



(b) Elicitation of γ^1.

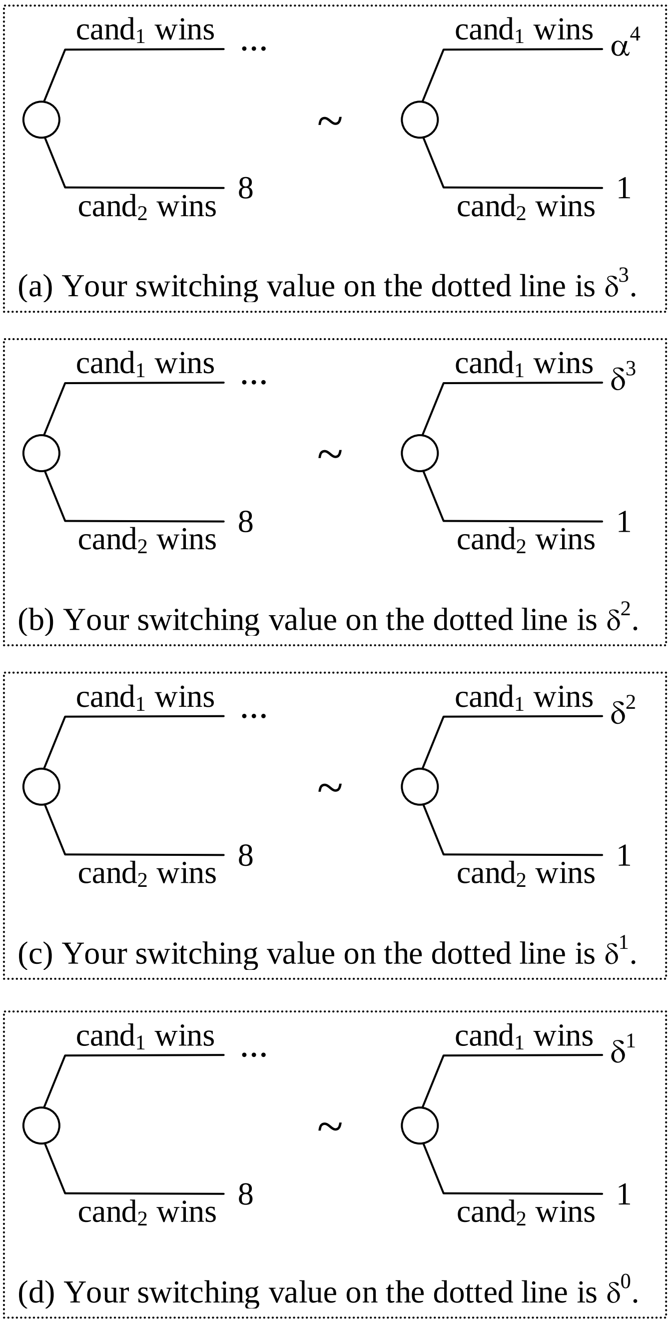


(c) Elicitation of γ^3.

Indicate in each Fig. which outcome on the dotted line ⋯, if received with certainty, is indifferent to the prospect.

p. 99:

FIGURE 4.1.4 [*TO Downwards*]. Eliciting $\delta^3 \ldots \delta^0$



(a) Your switching value on the dotted line is δ^3.

(b) Your switching value on the dotted line is δ^2.

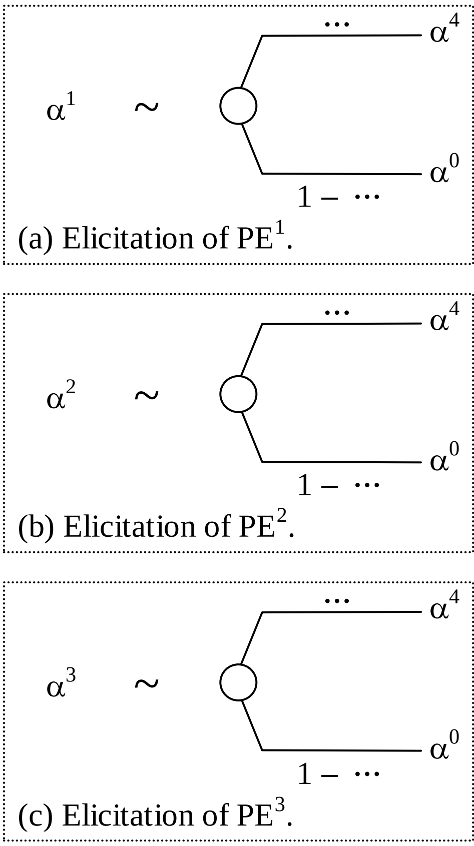
(c) Your switching value on the dotted line is δ^1.

(d) Your switching value on the dotted line is δ^0.

Indicate in each fig. which outcome on the dotted line ⋯ makes the two prospects indifferent (the switching value).

p. 100:

FIGURE 4.1.5 [*PEs*]. Eliciting PE^1, PE^2, PE^3



(a) Elicitation of PE^1.

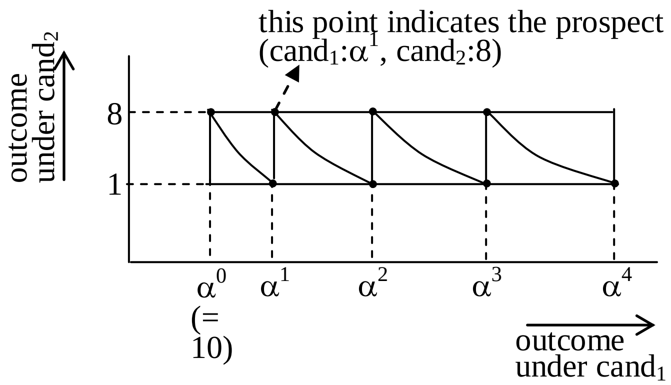
(b) Elicitation of PE^2.

(c) Elicitation of PE^3.

Indicate in each Fig. which probability on the dotted lines $\cdots$ makes the prospect indifferent to receiving the sure amount to the left.

p. 104:

FIGURE 4.3.1. Your indifferences in Figure 4.1.1

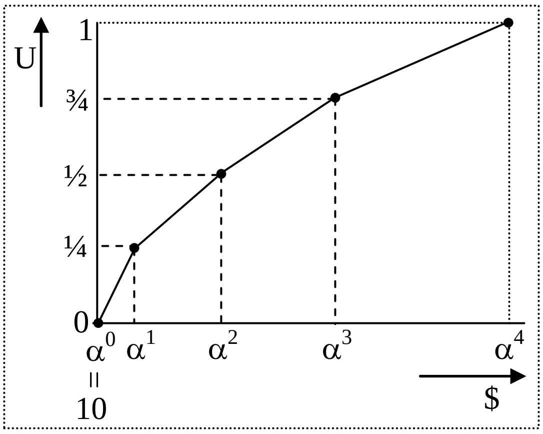


Curves designate indifference.

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

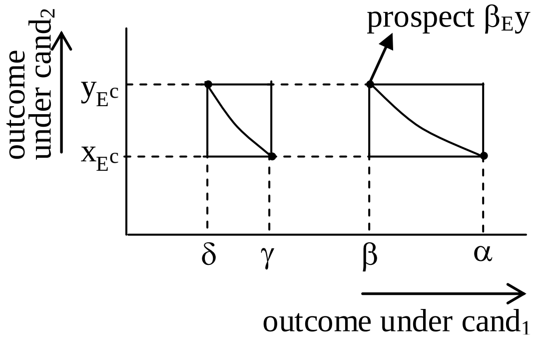
p. 104:

FIGURE 4.3.2. Utility graph derived from Figure 4.1.1



p. 109:

FIGURE 4.5.1. $\alpha \ominus \beta \sim^t \gamma \ominus \delta$

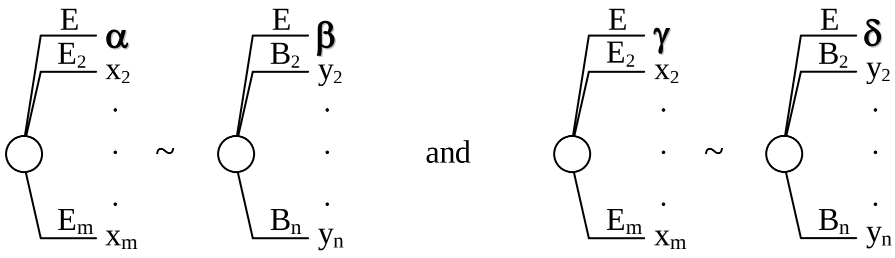


Curves designate indifference. α instead of β apparently offsets y_{E^c} instead of x_{E^c}, and so does γ instead of δ.

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

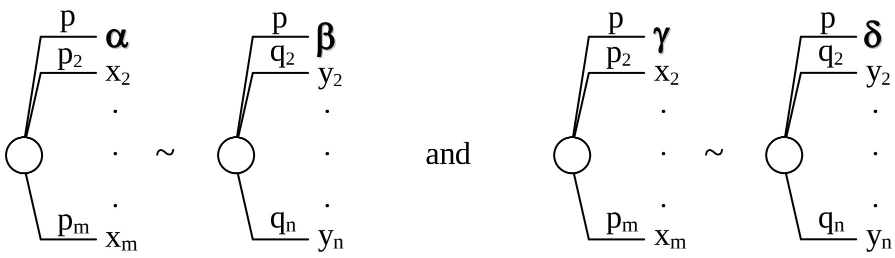
p. 114:

FIG. 4.7.1a. $\alpha \ominus \beta \sim^t \gamma \ominus \delta$ for uncertainty



$E_2, \ldots, E_m$: outcome events of x beyond E;
$B_2, \ldots, B_n$: outcome events of y beyond E.
E is nonnull.

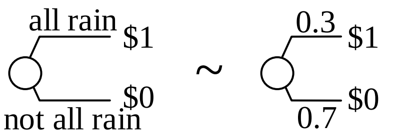
FIG. 4.7.1b. $\alpha \ominus \beta \sim^t \gamma \ominus \delta$ for risk



$p_2, \ldots, p_m$: outcome probabilities of x beyond p;
$q_2, \ldots, q_n$: outcome probabilities of y beyond p.
$p > 0$.

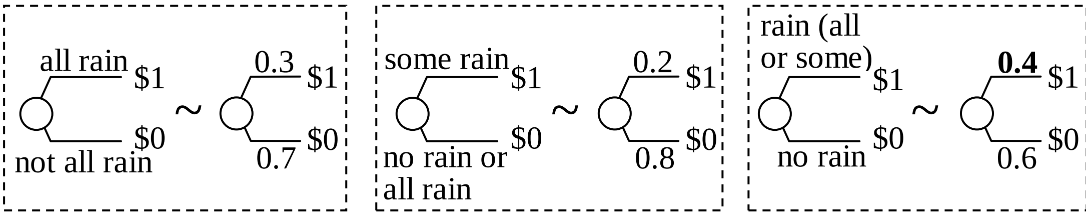
p. 120:

FIGURE 4.9.1. Matching probability of all rain (tomorrow) is 0.3.



p. 121:

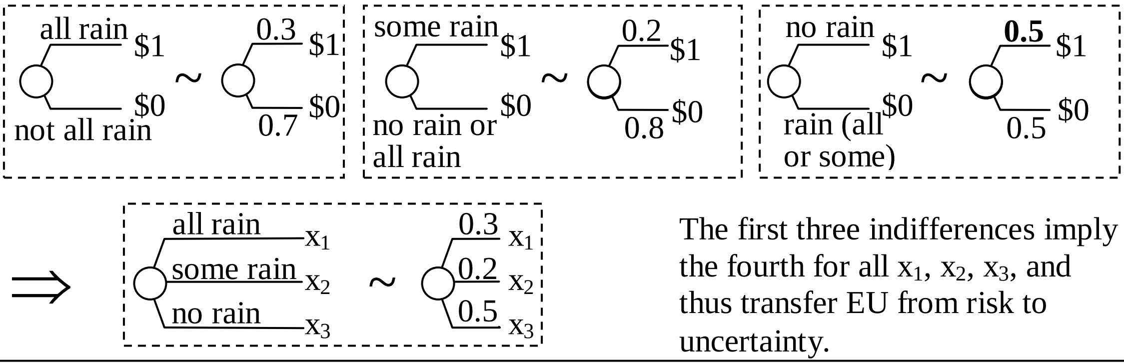
FIGURE 4.9.2. Violation of additivity (Raiffa 1968 §4)



For additivity to hold, the bold probability 0.4 should have been 0.3 + 0.2 = 0.5.

p. 121:

FIGURE 4.9.3. Probabilistic matching



The first three indifferences imply the fourth for all x_1, x_2, x_3, and thus transfer EU from risk to uncertainty.

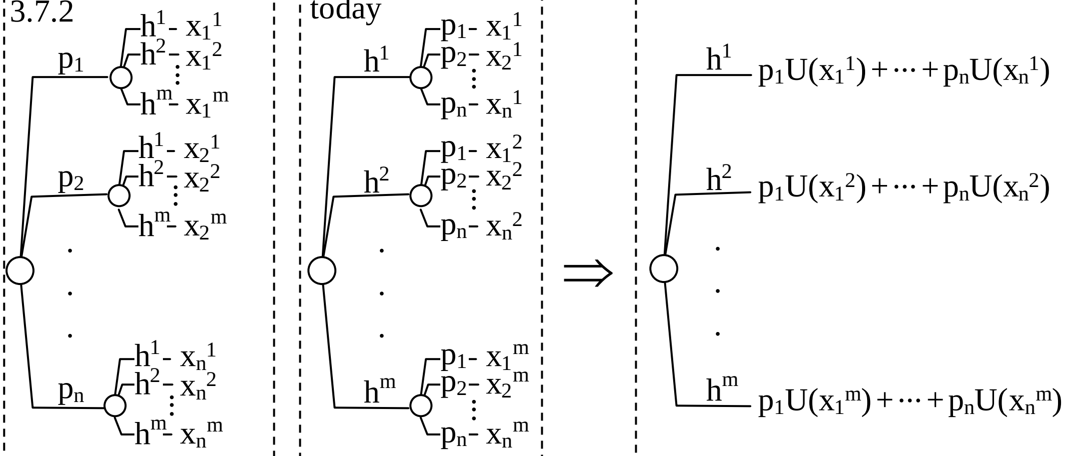
p. 123:

FIGURE 4.9.4. Different presentations and evaluations of multi-stage prospects

FIG. 4.9.4a. An analog of the multiattribute utility prospect of Figure 3.7.2

FIG. 4.9.4b. Anscombe & Aumann's model as mostly used today

FIG. 4.9.4c. A step in the evaluation of prospects in Anscombe & Aumann's model



$\Downarrow$

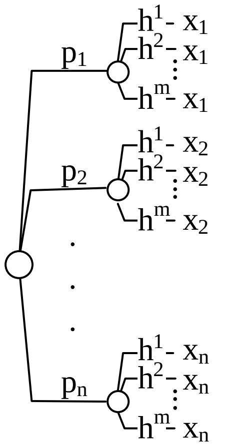
$\sum_{j=1}^{n} p_j \left(\sum_{i=1}^{m} q^i u(x_j^i)\right)$: the evaluation by Eq. 3.7.7.

$\Downarrow$

$\sum_{i=1}^{m} q^i \left(\sum_{j=1}^{n} p_j u(x_j^i)\right)$: A rewriting of Eq. 3.7.7.

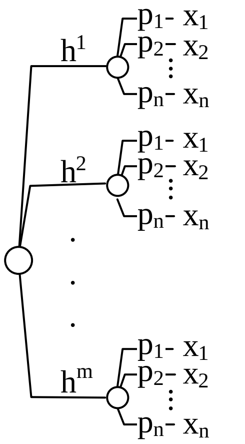
p. 126:

FIG. 4.9.5. (p_1:x_1, …, $p_n x_n$) in the roulette-horse Example 4.9.6



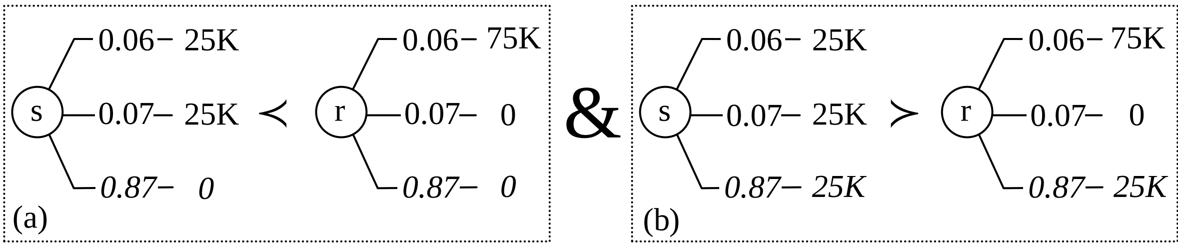
p. 126:

FIG. 4.9.6. (p_1:x_1, …, $p_n x_n$) in the horse-roulette Example 4.9.7



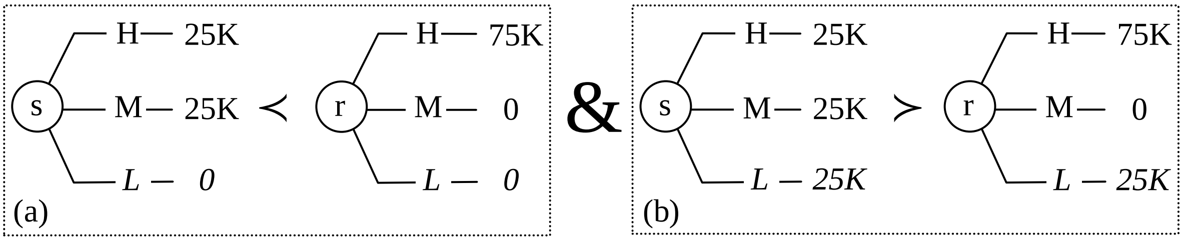
p. 134:

FIGURE 4.12.1. An example of the Allais paradox for risk



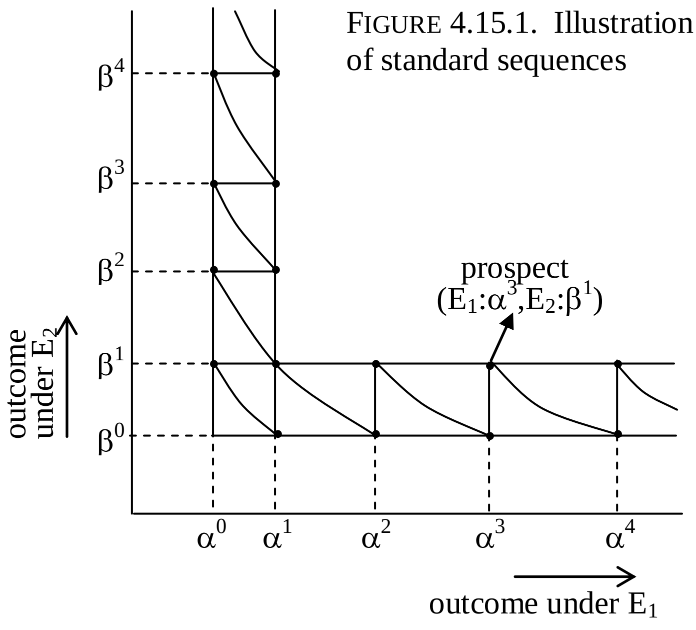
p. 134:

FIGURE 4.12.2. The certainty effect (Allais paradox) for uncertainty



p. 140:

FIGURE 4.15.1. Illustration of standard sequences

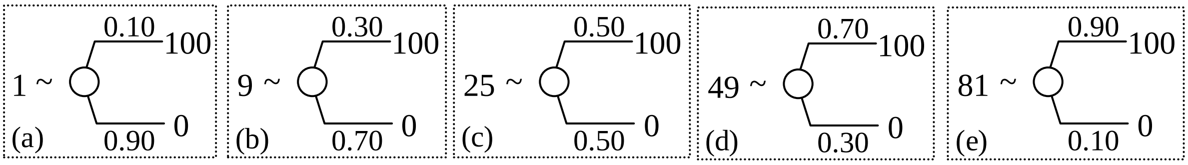


Curves designate indifference.

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

p. 146:

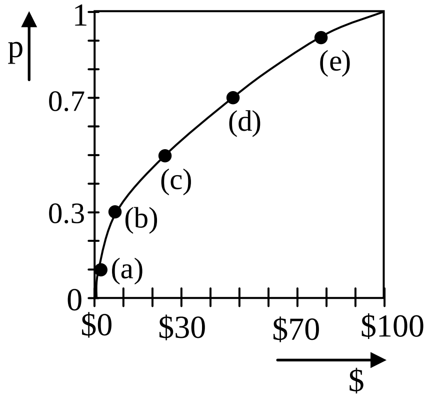
FIGURE 5.1.1. Five SG observations



p. 146:

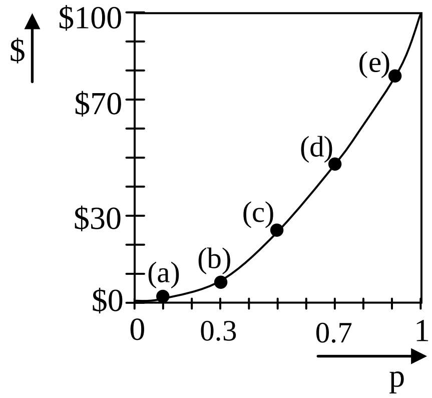
FIGURE 5.1.2. Two pictures to summarize the data of Figure 5.1.1

FIG. a. A display of the data



Under expected utility, the curve can be interpreted as the utility function, normalized at the extreme amounts.

FIG. b. An alternative way to display the same data

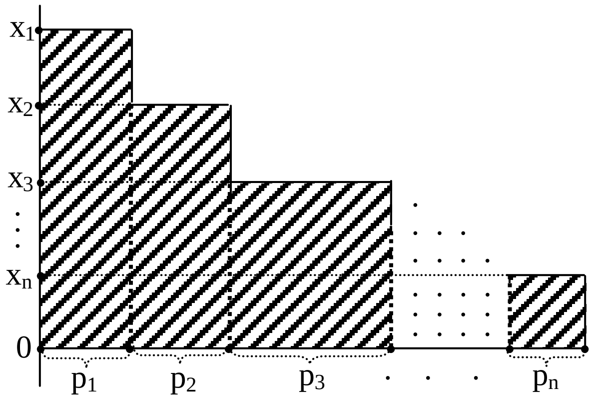


Under Eq. 5.1.2, the curve can be interpreted as the probability weighting function w, to be normalized at the extreme amounts (w = 0 at $0 and w = 1 at $100).

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand. The right curve should be obtained from the left one by rotating left and flipping horizontally.

p. 150:

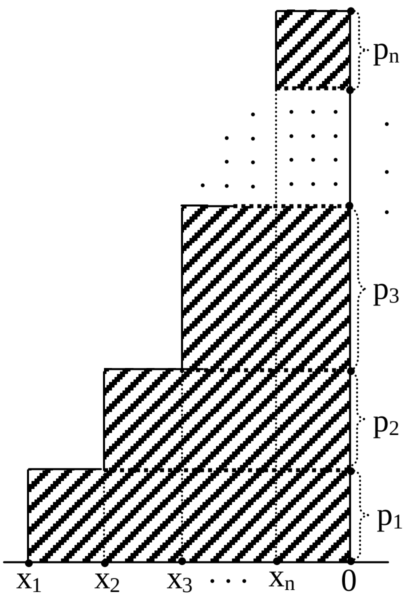
FIGURE 5.2.1. Expected value



The area shaded by ▨ is the expected value $p_1x_1 + p_2x_2 + \cdots + p_nx_n$.

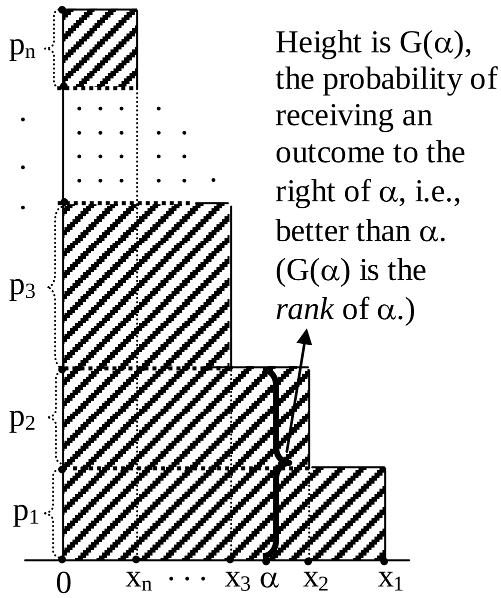
p. 150:

FIG. 5.2.2a. Expected value after rotating left



The area shaded by is the expected value.

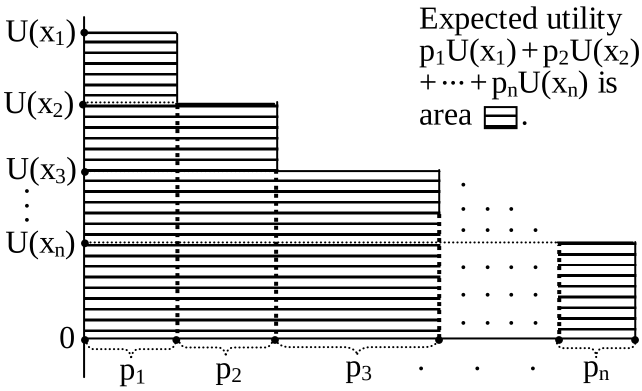
FIG. 5.2.2b. Expected value after (rotating left and) flipping horizontally



The area shaded by is the expected value.

p. 151:

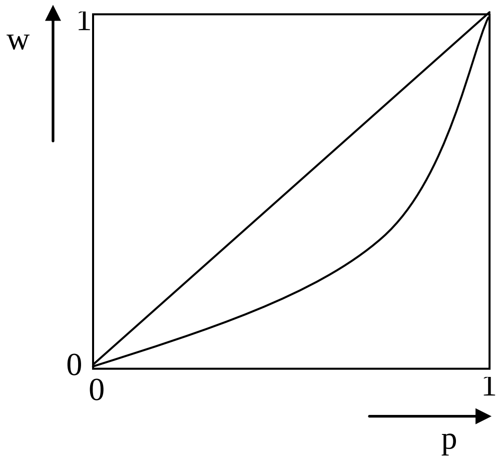
FIGURE 5.2.3. Expected utility



To calculate expected utility, the distance from x_j ("all the way") down to the x-axis has been transformed into the distance $U(x_j)$, for all j.

p. 152:

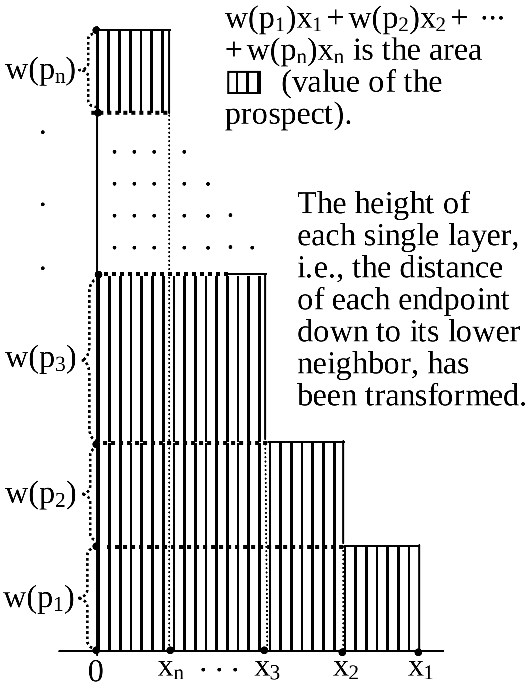
FIGURE 5.2.4. A probability weighting function



ELUCIDATION: This Figure was made using only MS Word. I drew the curve by hand.

p. 152:

FIGURE 5.2.5. Transforming probabilities of fixed outcomes (the "old" model)



p. 154:

FIGURE 5.3.1. Eq. 5.2.1 violates stochastic dominance

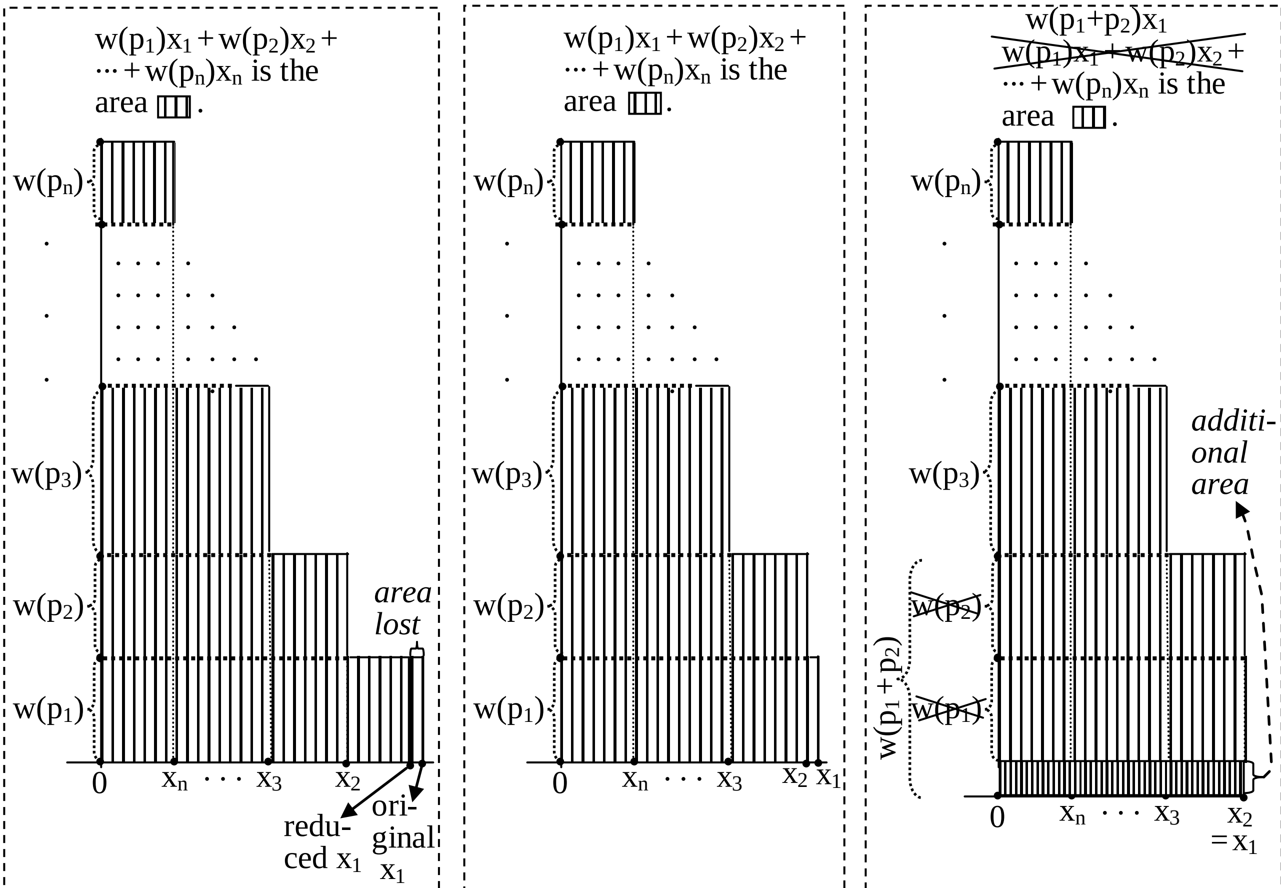


FIG. 5.3.1a. Reducing x_1 somewhat.

FIG. 5.3.1b. Reducing x_1 further.

FIG. 5.3.1c. x_1 hits x_2.

p. 157:

FIGURE 5.4.1. The usefulness of ranks

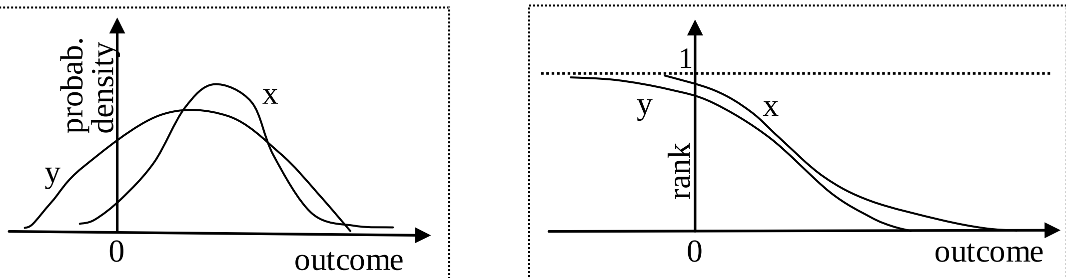


FIG. a. Probability densities, the continuous analogs of outcome probabilities

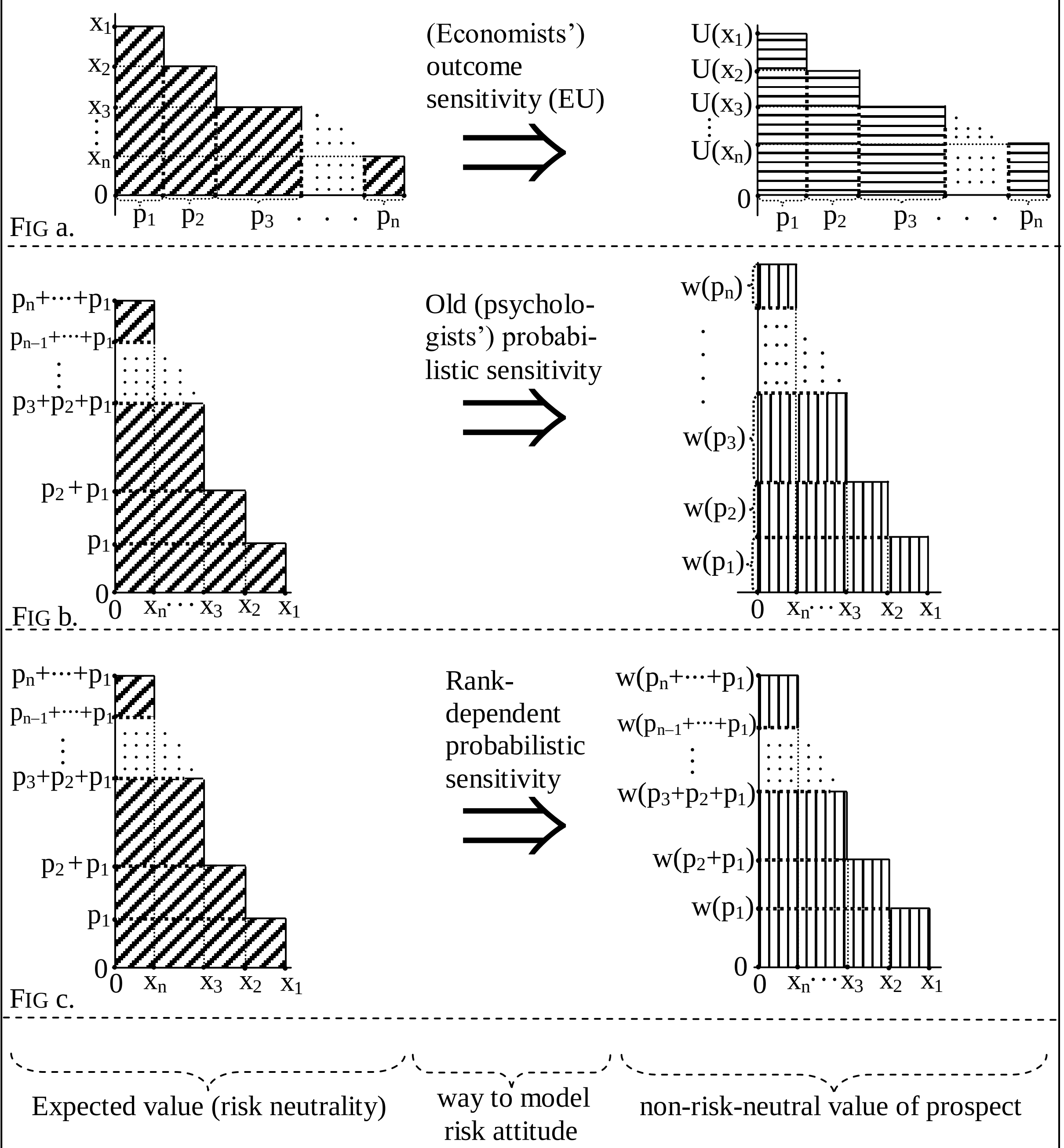
FIG. b. Ranks, being 1 minus the distribution function

Fig. b displays the same prospects as Fig. a, but now in terms of ranks, i.e., the probability of receiving a strictly better outcome, which is 1 minus the usual "distribution function."

ELUCIDATION: This Figure was made using only MS Word. I drew the curves by hand.

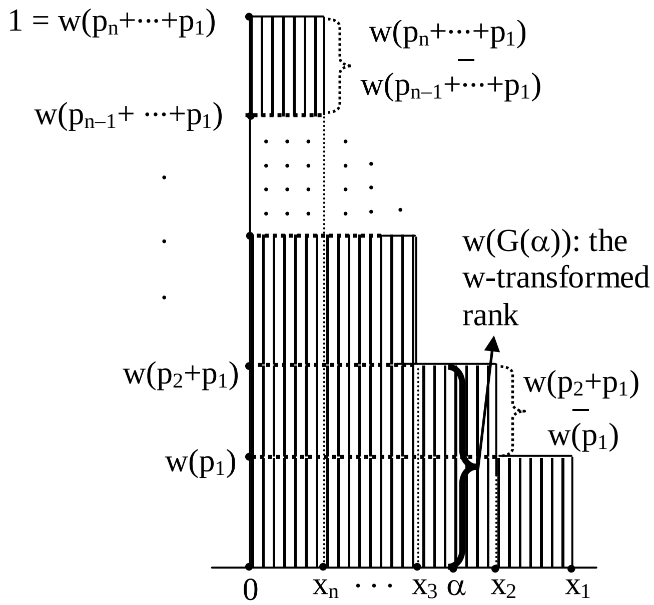
p. 162:

FIGURE 5.5.1. Combination of preceding figures, with rank dependence as an application of an economic technique to a psychological dimension.



p. 163:

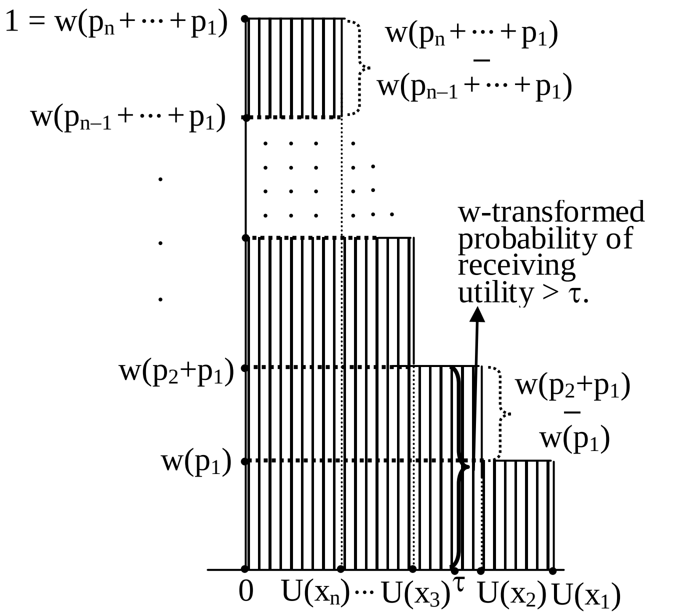
FIGURE 5.5.2. Rank-dependent utility with linear utility



The area shaded by ▥ is the value of the prospect. Distances of endpoints of layers ("all the way") down to the x-axis are transformed, similar to Figure 5.2.3. The endpoint of the last layer now remains at a distance of 1 from the x-axis, reflecting normalization of the bounded probability scale.

p. 164:

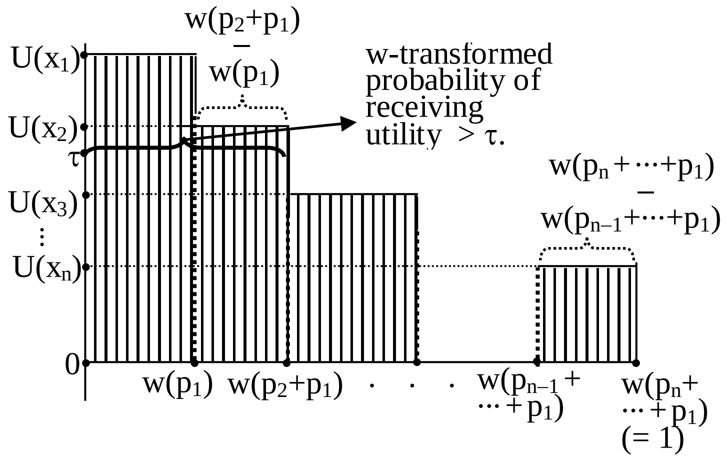
FIGURE 5.5.3. Rank-dependent utility with general utility



For points on the y-axis ("endpoints of layers"), their distance down to the x-axis are transformed using w. For points on the x-axis ("endpoints of columns"), their distances leftwards to the y-axis are transformed using U.

p. 164:

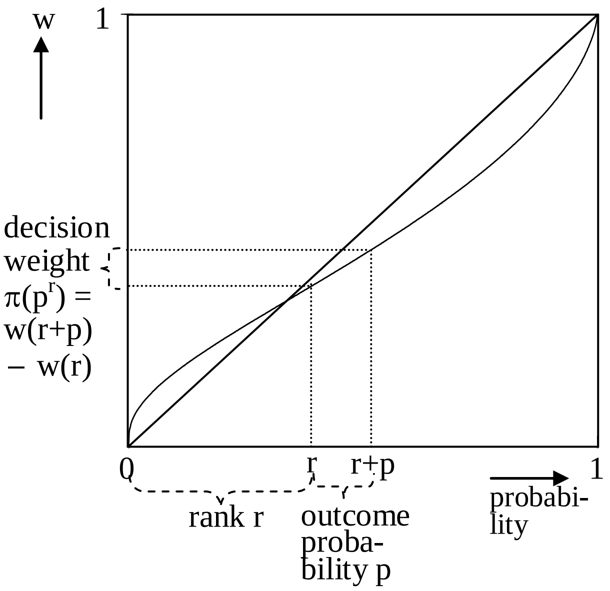
FIGURE 5.5.4. Another illustration of general rank-dependent utility



Relative to Figure 5.5.3, this figure has been rotated left and flipped horizontally.

p. 170:

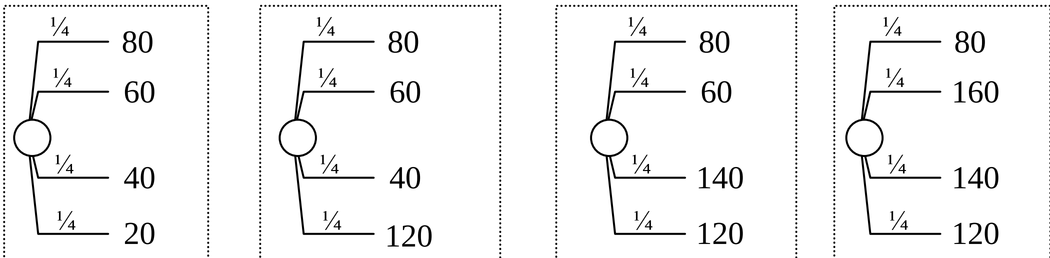
FIGURE 6.1.1. Decision weight of ranked probability p^r as marginal w-contribution



ELUCIDATION: This Figure was made using only MS Word. I drew the curve by hand.

p. 173:

FIGURE 6.3.1. Rank dependence of decision weight for $w(p) = p^2$



$\pi(80) = \pi(0.25^b) = w(0.25) = 0.0625.$

$\pi(80) = \pi(0.25^{0.25}) = w(0.50) - w(0.25) = 0.1875.$

$\pi(80) = \pi(0.25^{0.50}) = w(0.75) - w(0.50) = 0.3125.$

$\pi(80) = \pi(0.25^w) = 1 - w(0.75) = 0.4375.$

p. 173:

FIGURE 6.3.2. Decision weights $\pi(\alpha)$ of outcomes α from graphs of weighting functions

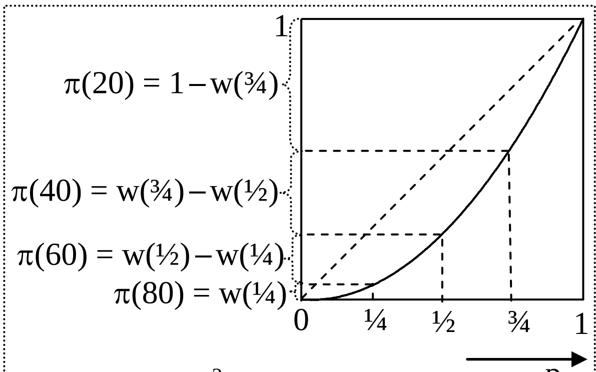


FIG. a. $w(p) = p^2$ generates pessimism.

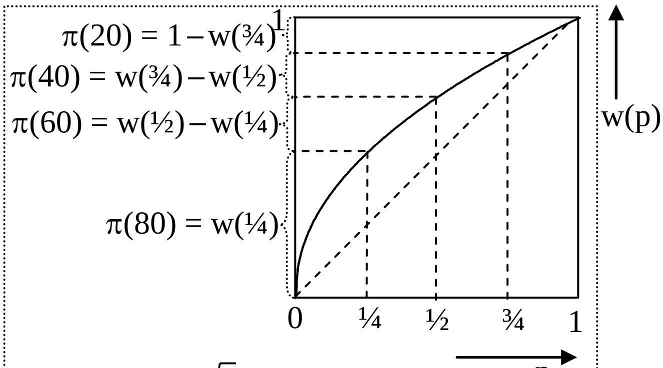


FIG. b. $w(p) = \sqrt{p}$ generates optimism.

ELUCIDATION: Figure 6.3.2a contains the graph of the function:
$w(p) = p^2$.

Figure 6.3.2b contains the graph of the function:
$w(p) = \sqrt{p}$.

I made the graphs using Scientific Workplace as explained above.

p. 178:

FIGURE 6.4.1. Dependence of decision weight on rank

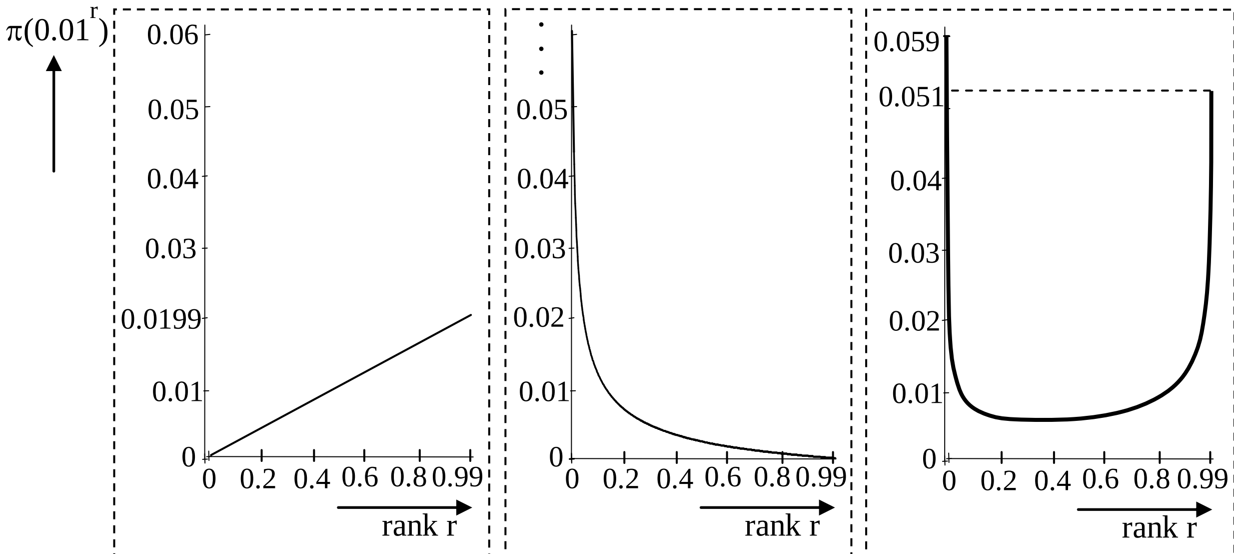


FIG. a. $\pi(0.01^r)$ for $w(p) = p^2$.

FIG. b. $\pi(0.01^r)$ for $w(p) = \sqrt{p}$; $\pi(0.01^{0.0}) = 0.10$.

FIG. c. π for $w(p)$ of Eqs. 6.4.1 & 6.4.2 and Fig. 6.1.1.

$\pi(p^r) = w(p+r) - w(r) \approx pw'(r)$ for $p = 0.01$.

ELUCIDATION: Figure 6.4.1b contains the graph of the function: $\sqrt{p+0.01} - \sqrt{p}$.

I made the graphs using Scientific Workplace as explained above. The TeX input file can be obtained here:

http://people.few.eur.nl/wakker/ptbook/figures/texfilesfigs/fig.6.4.1b_pi(0.01)sqrt.tex

ELUCIDATION: Figure 6.4.1c contains the graph of the function:

$$w(p) = \left(\exp(-(-\ln(p+0.01))^a)\right)^b - \left(\exp(-(-\ln(p))^a)\right)^b$$

with

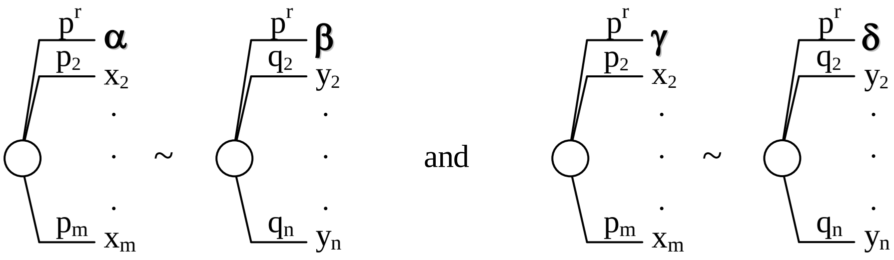
a = 0.65 and b = 1.0467.

I made the graphs using Scientific Workplace as explained above. The TeX input file can be obtained here:

http://people.few.eur.nl/wakker/ptbook/figures/texfilesfigs/fig.6.4.1c_pi(0.01)prelec.tex

p. 183:

FIGURE 6.5.1. $\alpha \ominus \beta \sim_c^t \gamma \ominus \delta$ for risk



We have $p > 0$. The superscript r indicates the rank of p, which is the same for all prospects.

pp. 186 & 187:

Figure 6.5.2. Four indifferences

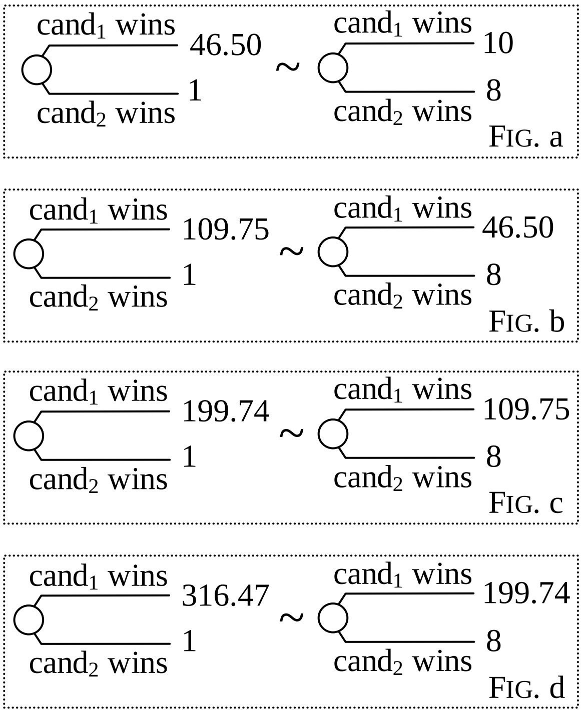
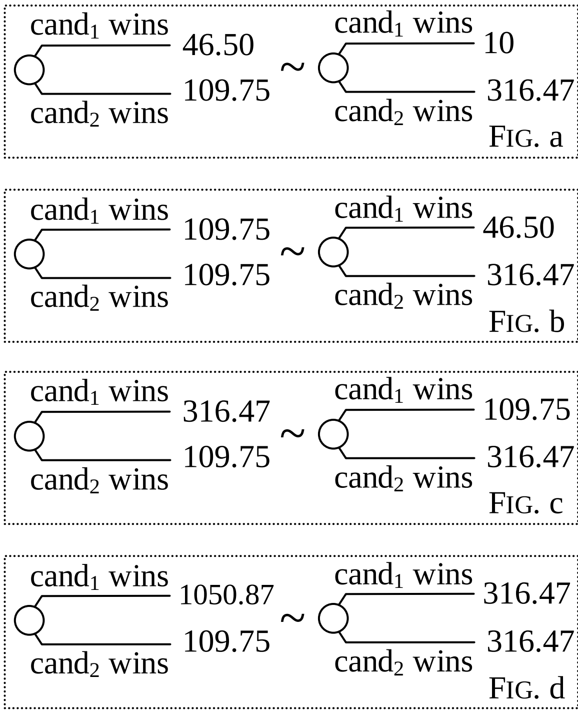


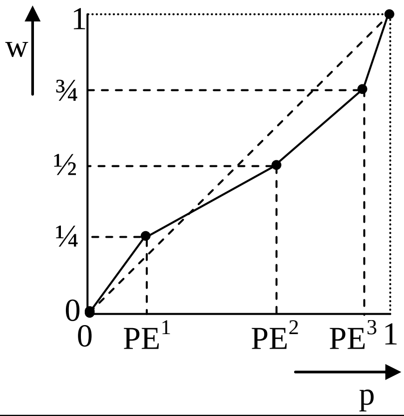
Figure 6.5.3. Four indifferences



ELUCIDATION: I put here two figures because they belong together.

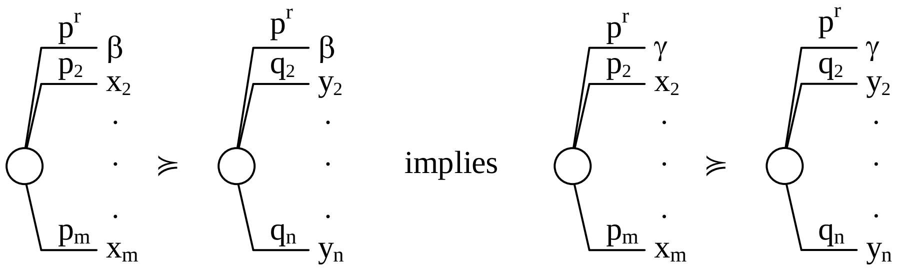
p. 188:

FIGURE 6.5.4. Probability weighting graph derived from Figures 4.1.1 and 4.1.5.



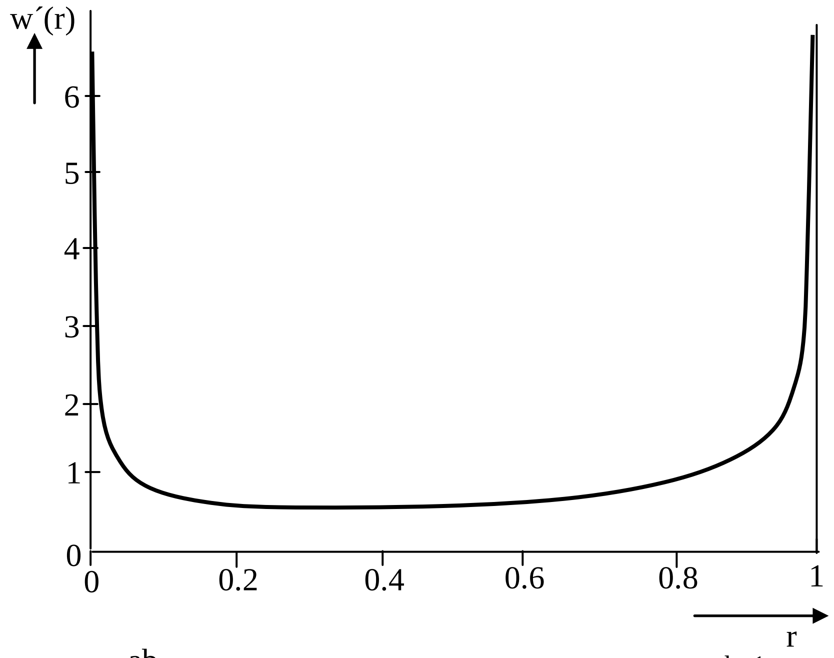
p. 189:

FIGURE 6.5.5. The rank-sure-thing principle for risk



p. 198:

FIGURE 6.8.1. The derivative of the weighting function



$$w'(r) = \frac{ab}{r}(-\mathit{ln}(r))^{a-1}\mathit{exp}\left(-(-\mathit{ln}(r))^{a}\right)\left(\mathit{exp}(-(-\mathit{ln}(r))^{a})\right)^{b-1}$$

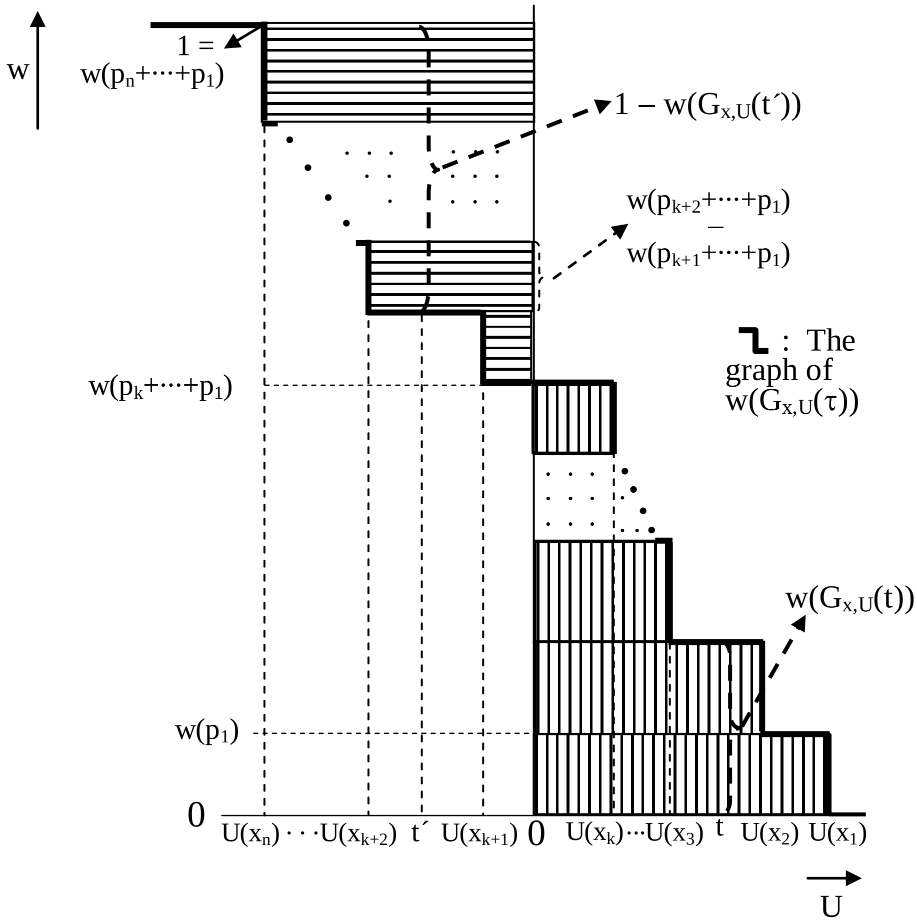
with $a = 0.65$, $b = 1.0467$.

ELUCIDATION: The figure contains the graph of the function indicated in the legend.

I made the graphs using Scientific Workplace as explained above. The TeX input file can be obtained here:
http://people.few.eur.nl/wakker/ptbook/figures/texfilesfigs/fig.6.8.1deriv.prelec.tex

p. 200:

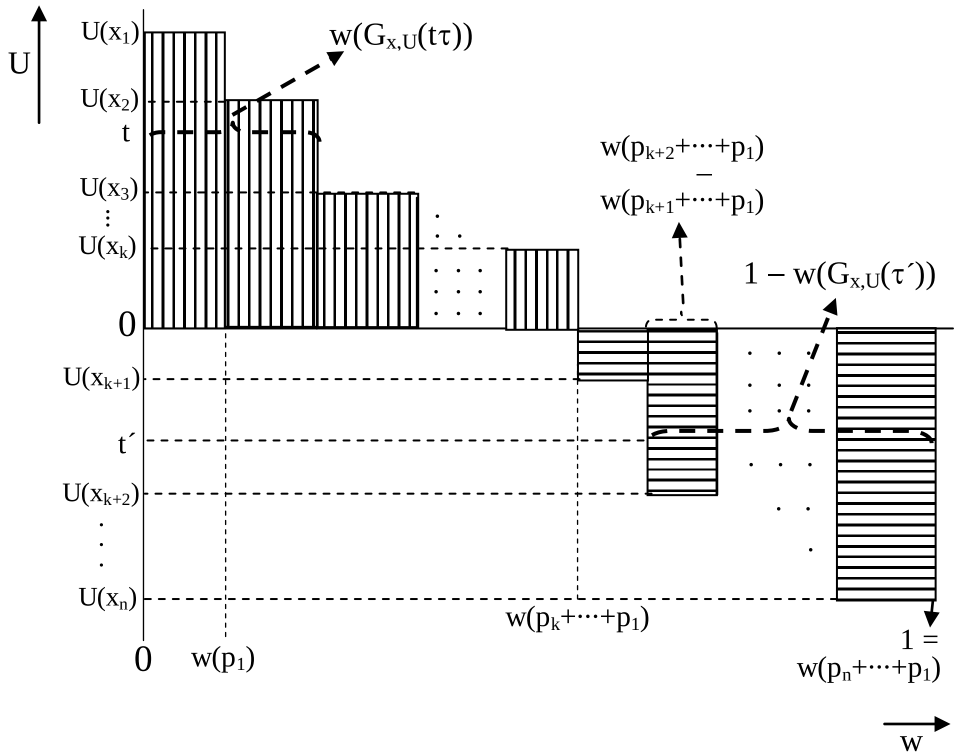
FIGURE 6.9.1. RDU of a prospect with positive and negative utilities



The prospect is $p_1x_1 \cdots p_nx_n$, with $U(x_1) \geq \cdots \geq U(x_k) \geq 0 \geq U(x_{k+1}) \geq \cdots \geq U(x_n)$. $w(G_{x,U}(t))$ is the w-transform of the probability of receiving utility > t. The figure illustrates Eq. 6.9.1. For $t > 0$ the integrand is $w(G_{x,U}(t)$, and for $t´ < 0$ it is the negative of $1 - w(G_{x,U}(t))$. RDU is the area minus the area .

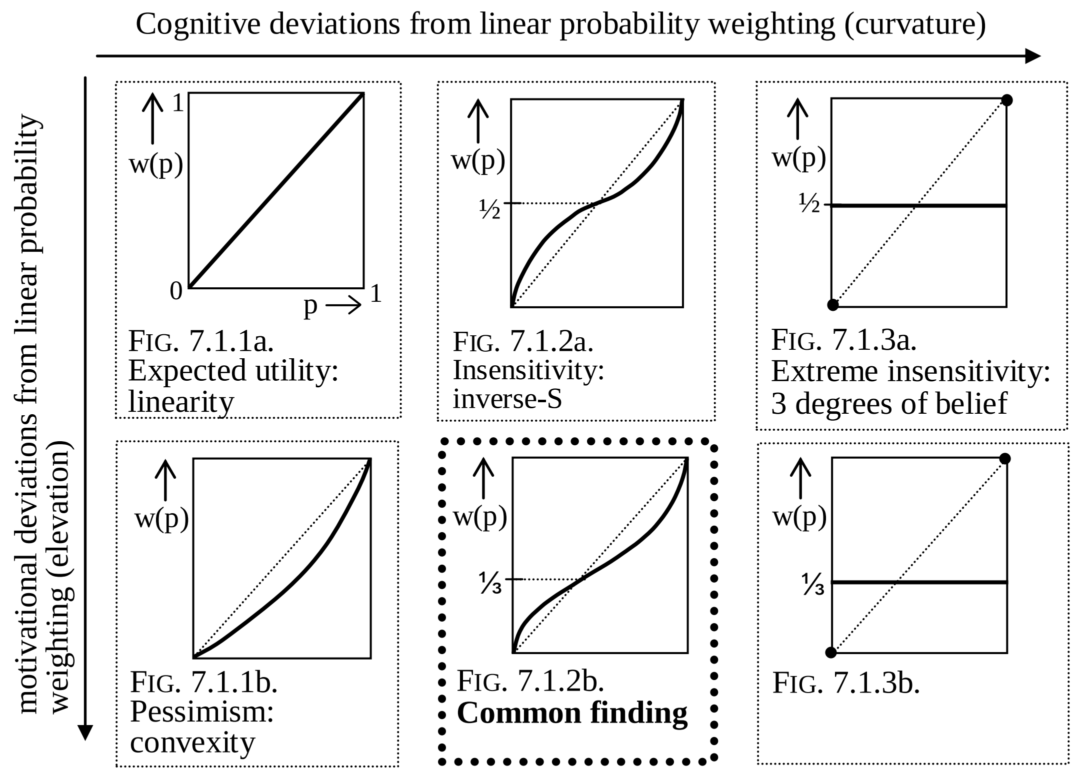
p. 201:

FIGURE 6.9.2. An illustration alternative to Figure 6.9.1



This figure has resulted from Figure 6.9.1 by rotating left and flipping horizontally.

p. 205:



ELUCIDATION: This Figure was made using only MS Word. The curves were drawn by hand.

p. 207:

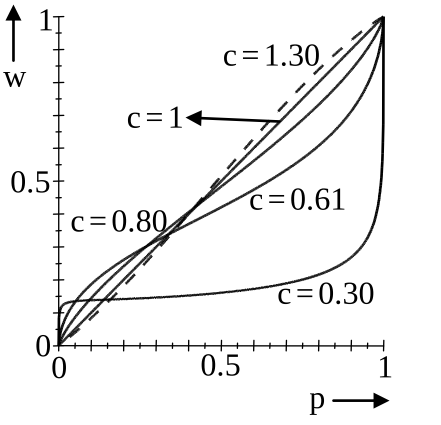


FIGURE 7.2.1. Tversky & Kahneman's (1992) family (Eq. 7.2.1).

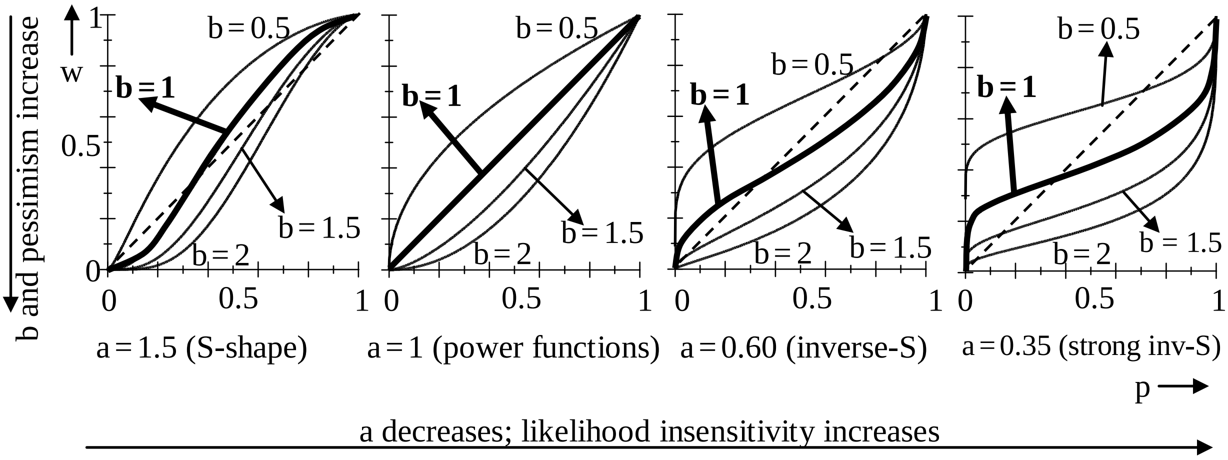
ELUCIDATION: This Figure contains graphs of the function

$$w(p) = \frac{p^c}{(p^c + (1-p)^c)^{1/c}}$$

with the c's as indicated in the figure.
I made the graphs using Scientific Workplace (did not keep input files) as explained above.

p. 208:

FIGURE 7.2.2. Prelec's compounding invariance family (Eq. 6.4.1)



ELUCIDATION: This Figure contains graphs of the function

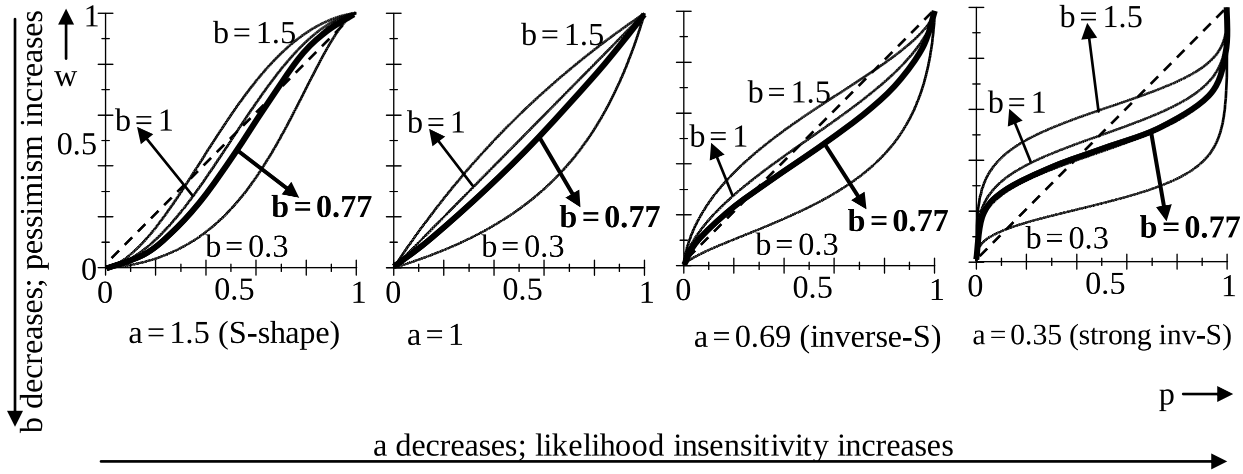
$$w(p) = (exp(-(-ln(p))^a))^b$$

with a and b as indicated in the figures.

I made the graphs using Scientific Workplace (did not keep input files) as explained above.

p. 208:

FIGURE 7.2.3. The family of Eq. 7.2.4



ELUCIDATION: This Figure contains graphs of the function

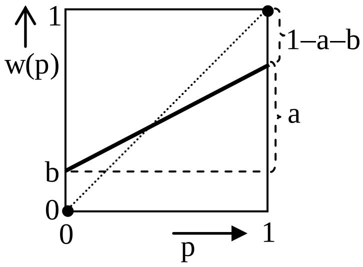
$$w(p) = \frac{bp^a}{bp^a + (1-p)^a}$$

with a and b as indicated in the figures.

I made the graphs using Scientific Workplace (did not keep input files) as explained above.

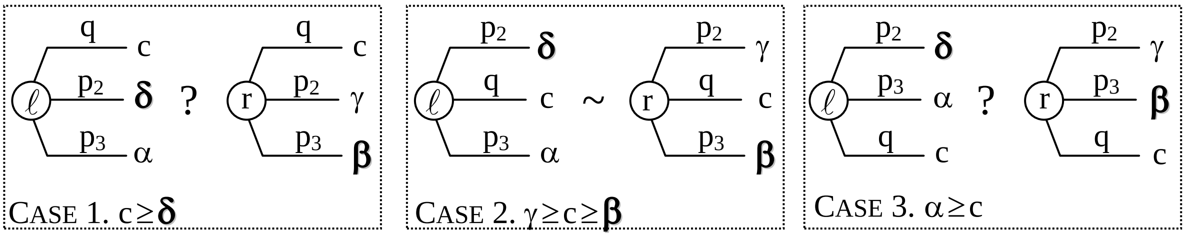
p. 209:

FIGURE 7.2.4. The neo-additive family



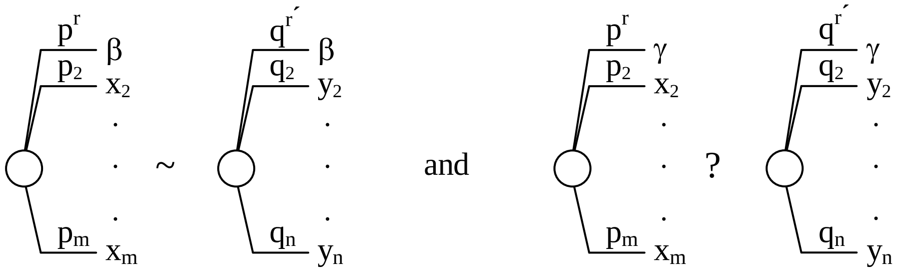
p. 215:

FIGURE 7.4.1. Testing the sure-thing principle



p. 218:

FIGURE 7.5.1.



The superscript r indicates the rank of p, and is the same in the first and third prospect. The superscript r´ indicates the rank of q, and is the same in the second and fourth prospect.

p. 220:

FIGURE 7.6.1. w, z, and π

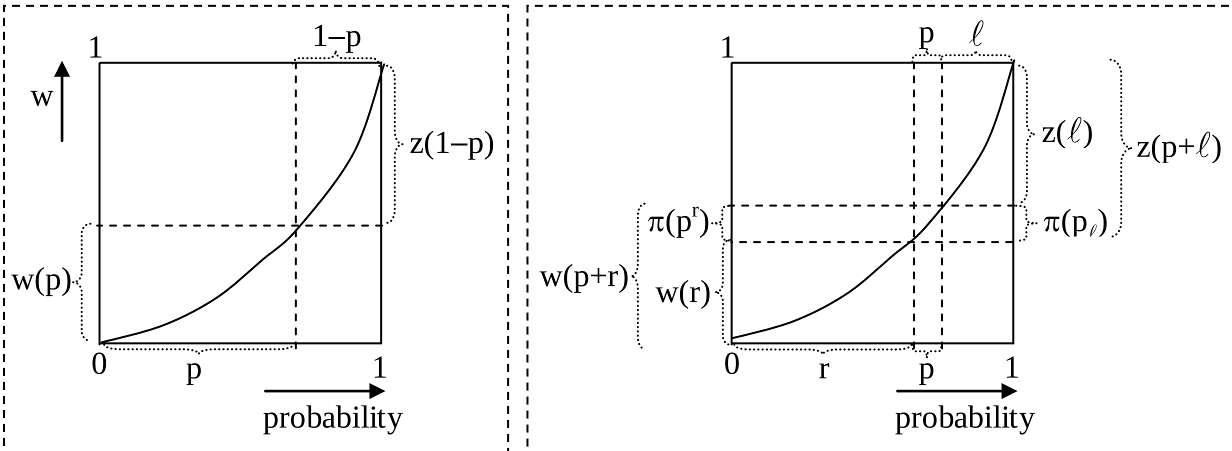


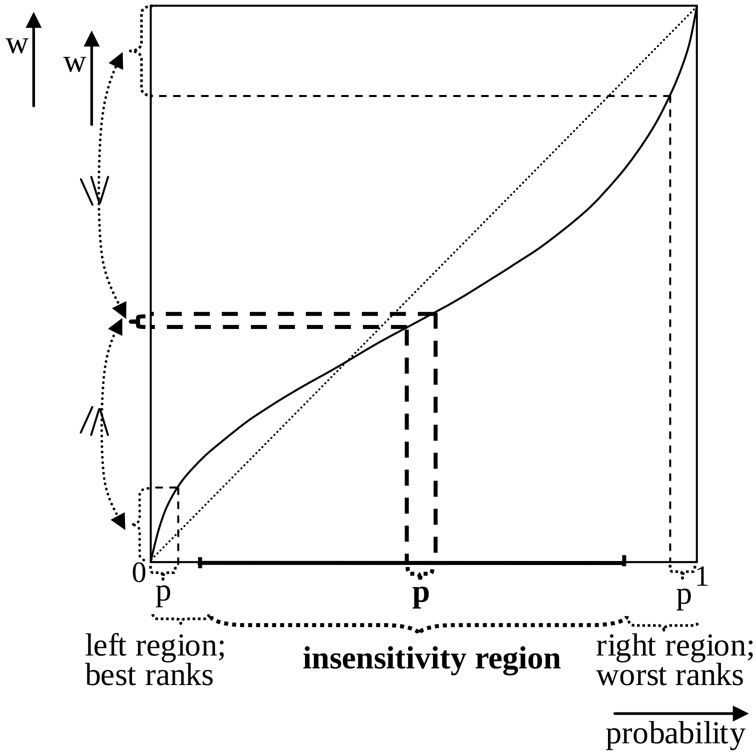
FIG. a. The relation between w and its dual z.

FIG. b. Deriving π from w and from z. $r+p+\ell = 1$.

ELUCIDATION: This Figure was made using only MS Word. The curve in the two figures should be the same and was drawn by hand.

p. 223:

FIGURE 7.7.1. Likelihood insensitivity (inverse-S)

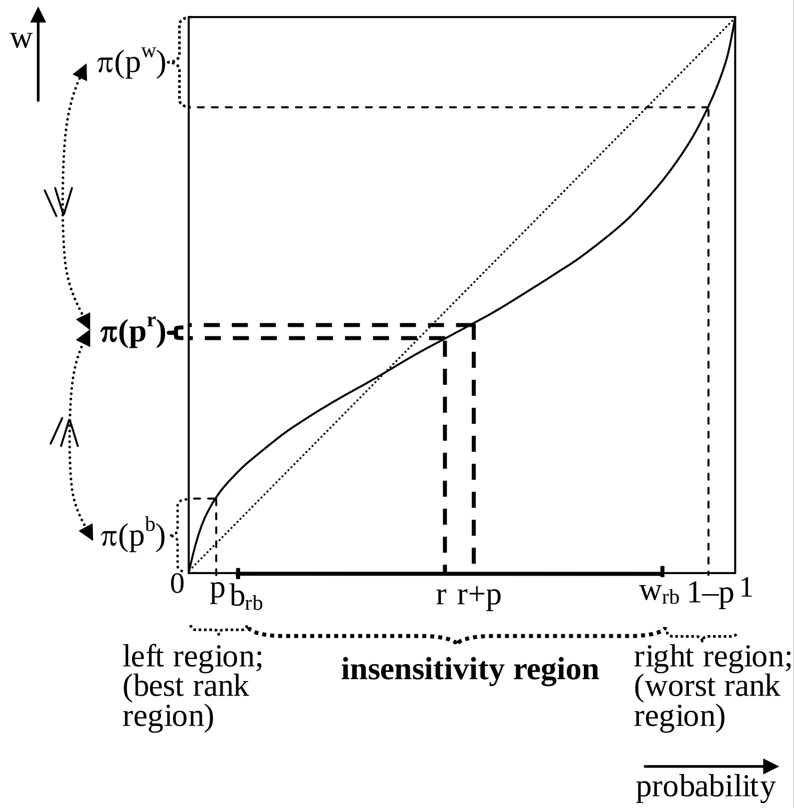


1. Insensitivity region is middle, fat, part.
2. Middle weight (solid left fat brace) is small.
3. Left lower dashed brace is not compared
   to left upper dashed brace.

ELUCIDATION: This Figure was made using only MS Word. The curve was drawn by hand.

p. 224:

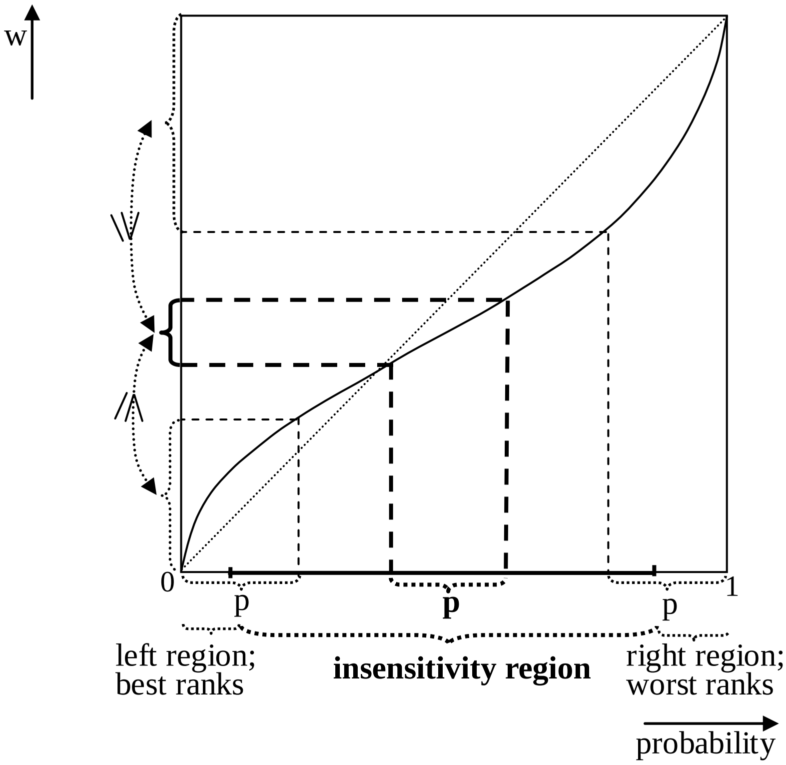
FIGURE 7.7.1´. Figure 7.7.1 with notation added



ELUCIDATION: This Figure was made using only MS Word. The curve should be the same as the one in Figure 7.7.1.

p. 226:

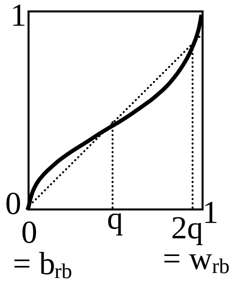
FIGURE 7.7.2. Likelihood insensitivity (inverse-S) for a large outcome probability p



ELUCIDATION: This Figure was made using only MS Word. The curve should be the same as the one in Figure 7.7.1.

p. 227:

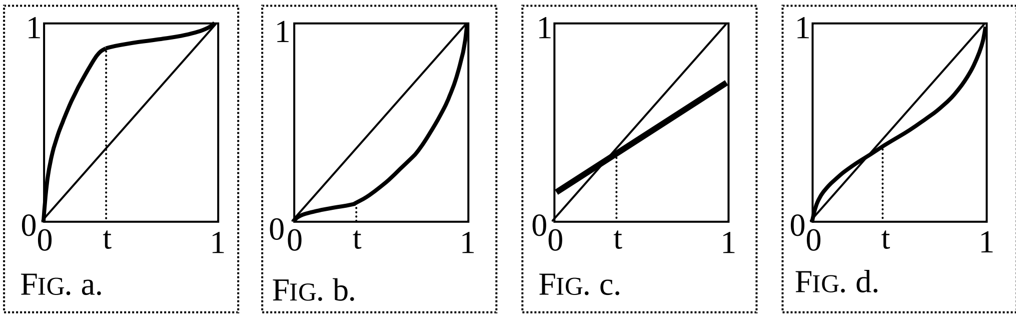
FIGURE 7.8.1.
Finding b_{rb} and w_{rb}



ELUCIDATION: This Figure was made using only MS Word. The curve was drawn by hand.

p. 232:

FIGURE 7.12.1. Cavex functions with different levels of inflection points



ELUCIDATION: This Figure was made using only MS Word. The curves were drawn by hand.

p. 235:

FIGURE 8.1.1.

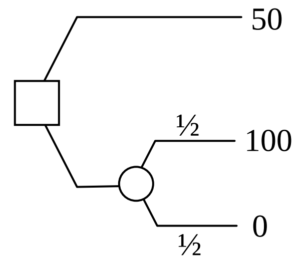


FIG. 8.1.1a. A choice between gain-prospects.

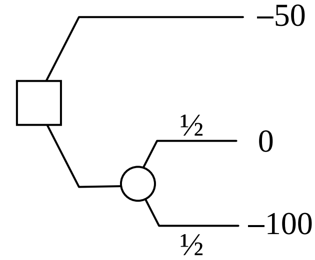


FIG. 8.1.1b. A choice between loss-prospects.

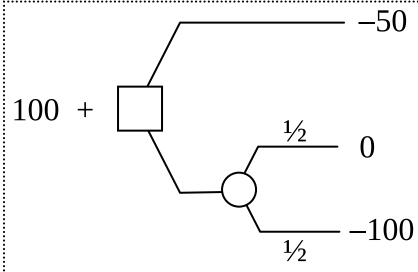


FIG. 8.1.1c. A choice between loss-prospects, but with an external side-payment.

p. 240:

FIGURE 8.4.1. Loss aversion

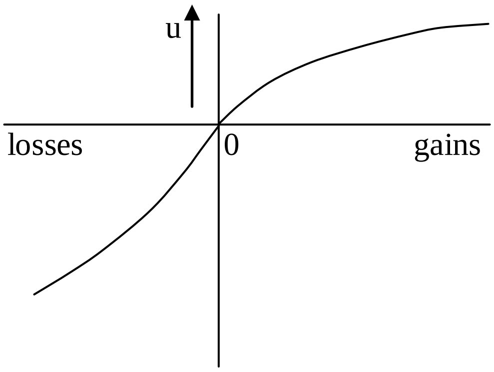


FIG. a. The basic utility u, differentiable at $x=0$.

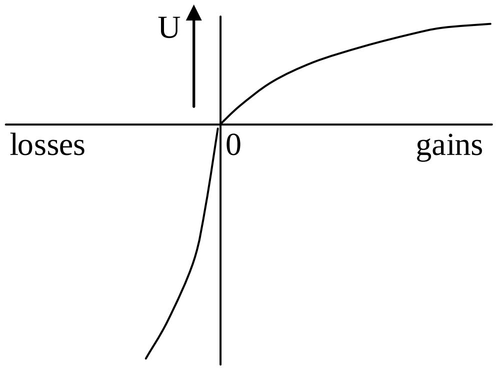


FIG. b. Utility U, obtained by “pulling u down” by a factor $\lambda > 1$ for losses.

ELUCIDATION: This Figure was made using only MS Word. The curves were drawn by hand.

p. 242:

FIGURE 8.6.1. Rabin’s preference

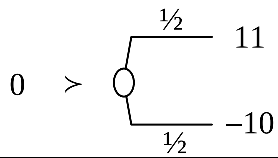


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FIGURE 8.9.1. Decompositions of final wealth

		decomposition of final wealth F	interpretation	evaluation
classical model		F	final wealth	U*(F)
	I constant: innocuous rescaling of outcomes	$I+\alpha$	initial wealth + outcome	U(α)
reference dependence	**ρ variable: fundamental breakaway from classical model**	$\boldsymbol{I+\rho+\alpha}$	**initial wealth + reference point + outcome**	**U(ρ,α)**

Bold printing indicates a fundamental breakaway from the classical model.

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FIGURE 9.3.1. x^+ and x^-

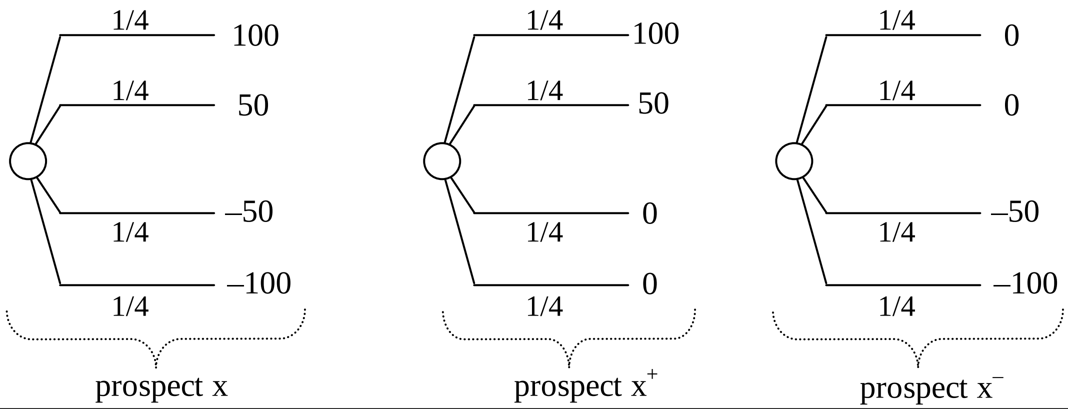

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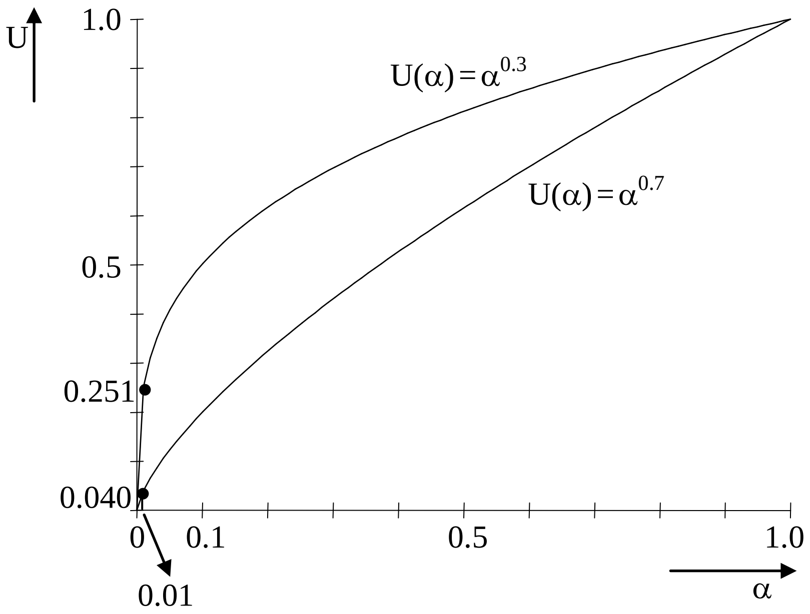
FIGURE 9.6.1. Dependence of loss aversion on scaling of money



If we replace the scaling u(1) = –u(–1) = 1 by the scaling u(0.01) = –u(–0.01), then we have to multiply the loss aversion parameter by 0.040/0.251; $\lambda = 2.25$ then turns into $\lambda^* = 0.36$.

ELUCIDATION: This Figure contains graphs of the functions as indicated, being

$U(\alpha) = \alpha^{0.3}$

and

$U(\alpha) = \alpha^{0.7}$.

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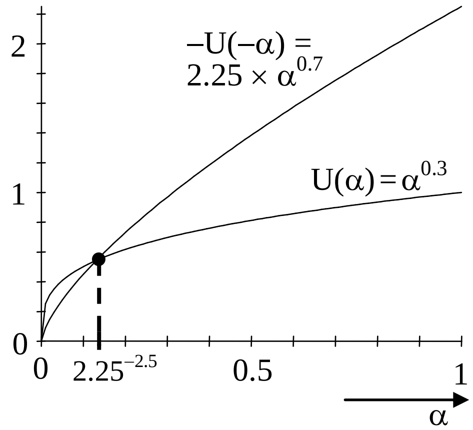
FIGURE 9.6.2. Anomaly for loss aversion



ELUCIDATION: This Figure contains graphs of the functions as indicated, being

$\alpha^{0.3}$

and

$2.25 \times (\alpha^{0.7})$.

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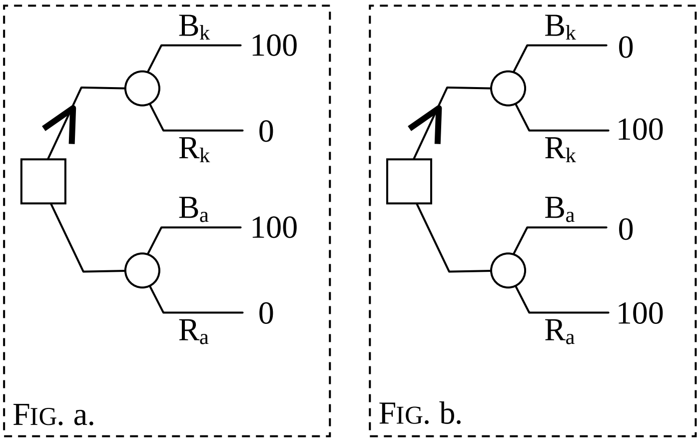
FIGURE 10.1.1. Ellsberg paradox



Arrows indicate majority preferences.

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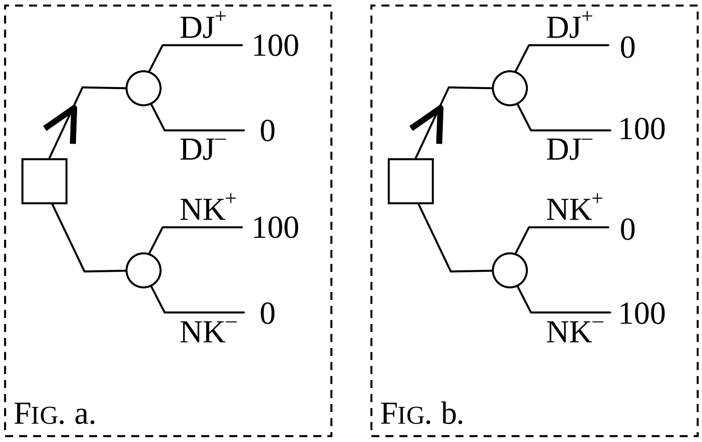
FIGURE 10.1.2. Home Bias



Arrows indicate majority preferences in the United States.

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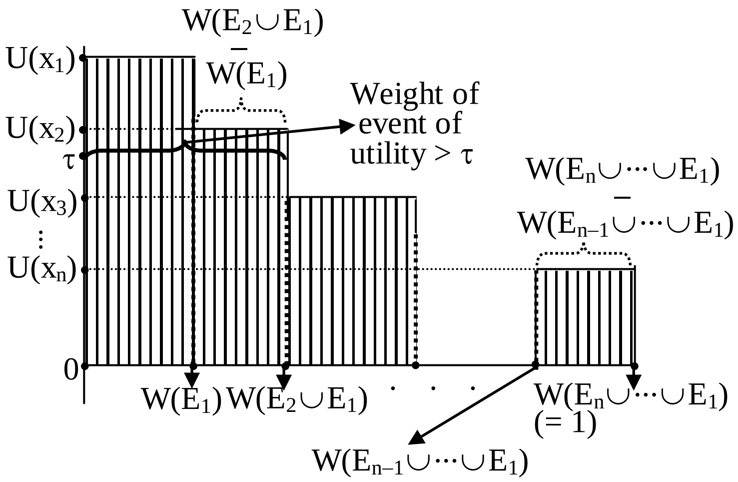
FIGURE 10.2.1. Rank-dependent utility for uncertainty



This figure extends Figure 5.5.4 to uncertainty.

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FIGURE 10.4.1. Testing the sure-thing principle

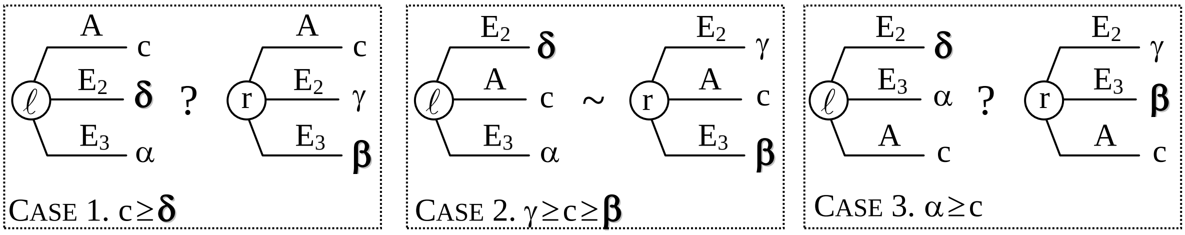

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FIGURE 10.7.1. An implication of Anscombe & Aumann (1963) that is implausible under ambiguity aversion

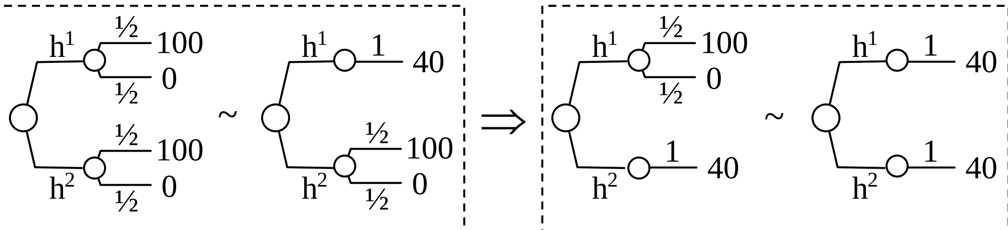

FIG. a. Ambiguity aversion works against the right prospect.

FIG. b. Ambiguity aversion works against the left prospect.

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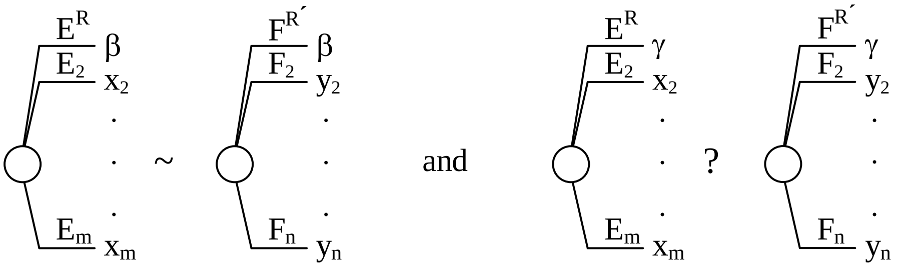
FIGURE 10.9.1.



The superscript R indicates the rank of E, and is the same in the first and third prospect. The superscript R´ indicates the rank of F, and is the same in the second and fourth prospect.

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FIGURE 11.3.1. Various components contributing to risk premium

CE	*Theory*	*Separate additions to risk premium*	
15.00	EV		
		0.43 is risk premium due to U	2.32 is total risk premium under RDU(U,W)
14.57	EU (U)		
		0.92 is additional risk premium due to w	
13.65	RDU (U,w)		
		0.97 is additional risk premium due to unknown probability	
12.68	RDU (U,W)		

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FIGURE 11.3.2. Various components contributing to risk premium

CE	*Theory*	*Separate additions to risk premium*	
2.00	EV		
		0.13 is risk premium due to U	
1.87	EU (U)		0.51 is total risk premium under RDU(U,W)
		0.19 is additional risk premium due to w	
1.68	RDU (U,w)		
		0.19 is additional risk premium due to unknown probability	
1.49	RDU (U,W)		

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FIGURE 12.5.1. Ambiguity aversion versus loss aversion

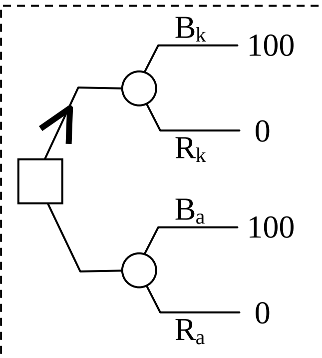

FIG. a. A straight choice between ambiguous and unambiguous prospect.

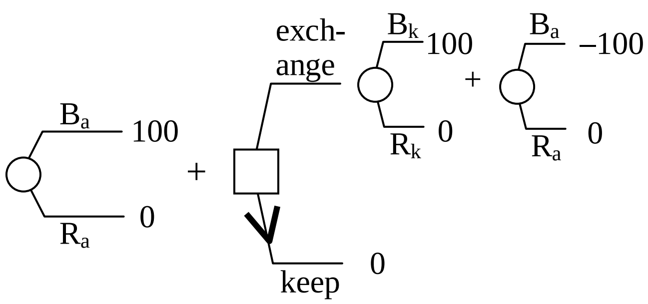

FIG. b. Prior endowment with ambiguous prospect, followed by choice to keep or exchange for unambiguous.

Arrows indicate majority preferences.

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FIGURE 12.6.1. Two prospects x, y

	50 balls		50 balls	
	E_1	E_2	E_3	E_4
x	4000	8000	4000	0
y	4000	4000	8000	0

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FIGURE 12.6.2. Six prospects

	50 balls		50 balls	
	E_1	E_2	E_3	E_4
x	4000	8000	4000	0
y	4000	4000	8000	0
x´	4000	8000	4000	4000
y´	4000	4000	8000	4000
x´´	0	8000	4000	4000
y´´	0	4000	8000	4000

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FIGURE B.1. Decision tree for job offer

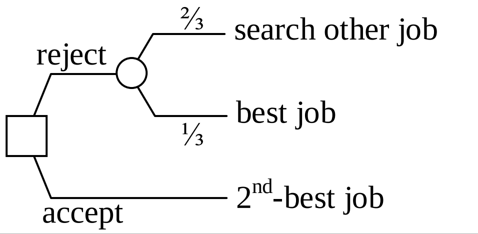

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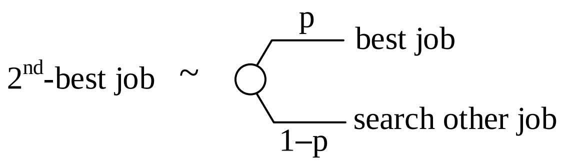
FIGURE B.2. Determining utility of 2nd-best job



Determine probability p to give indifference.

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FIGURE C.1. A dynamic decision tree

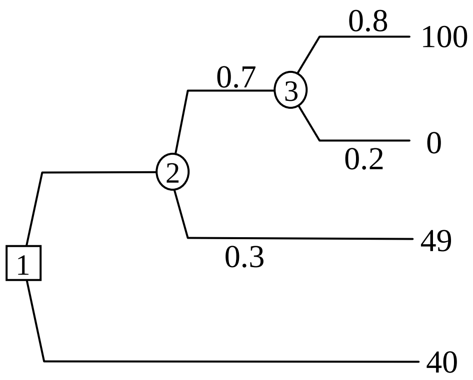

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FIGURE C.2. A multistage prospect

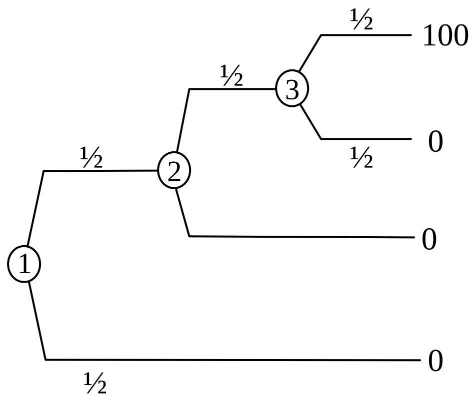

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FIGURE C.3. A dynamic decision tree

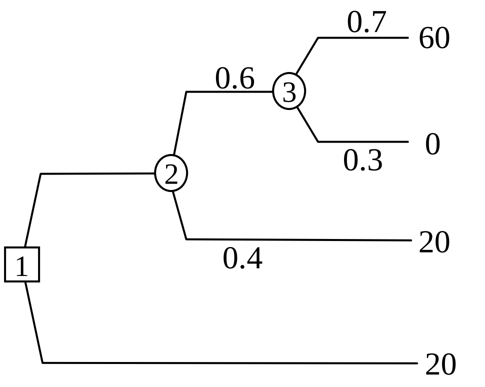

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FIGURE E.1. A dynamic illustration of multisymmetry

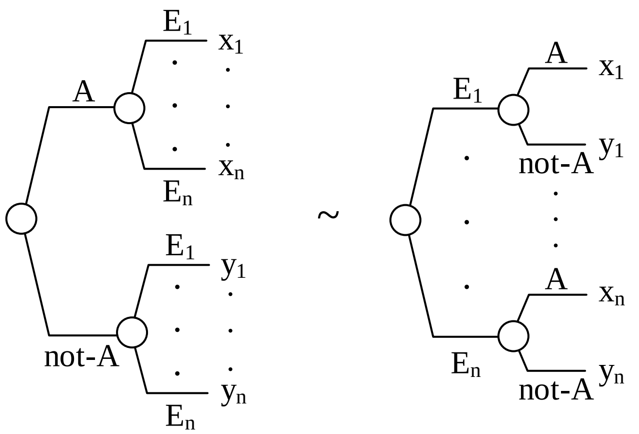

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FIGURE E.2. A dynamic illustration of act-independence