Figure 1   figures/neuron.eps

SOme text

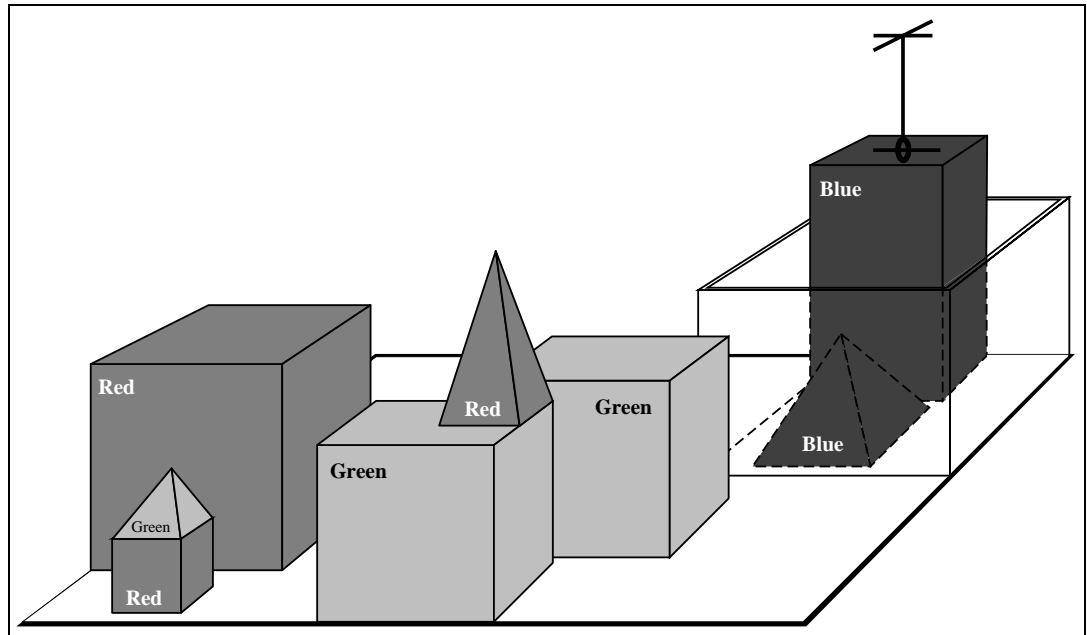**Figure 2**   figures/analogy.eps
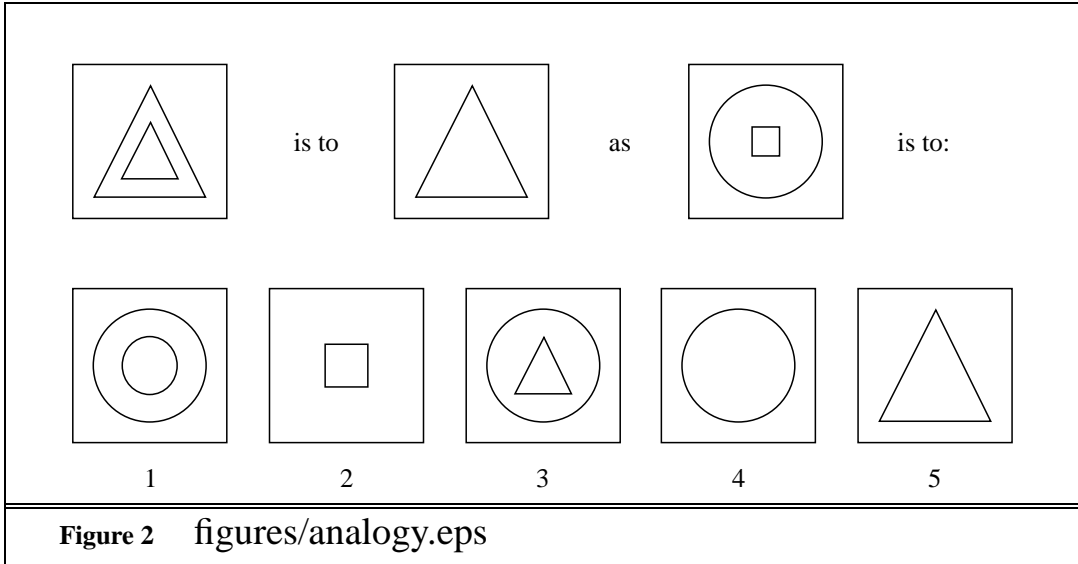
SOme text

Figure 3   figures/blocks-world.eps

SOme text
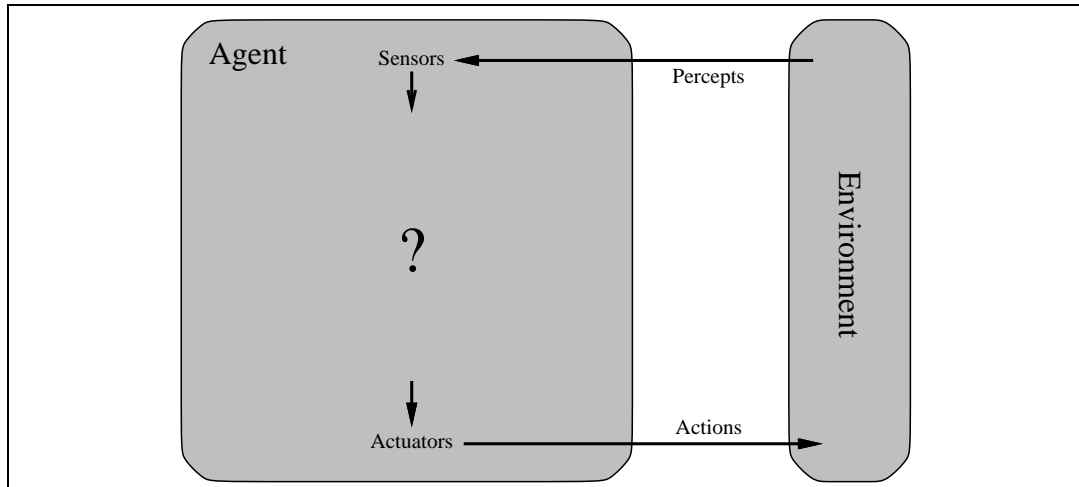
Figure 4   figures/agent-environment.eps

SOme text

Figure 5   figures/vacuum2-environment.eps

SOme text

Figure 6   figures/simple-reflex-agent.eps
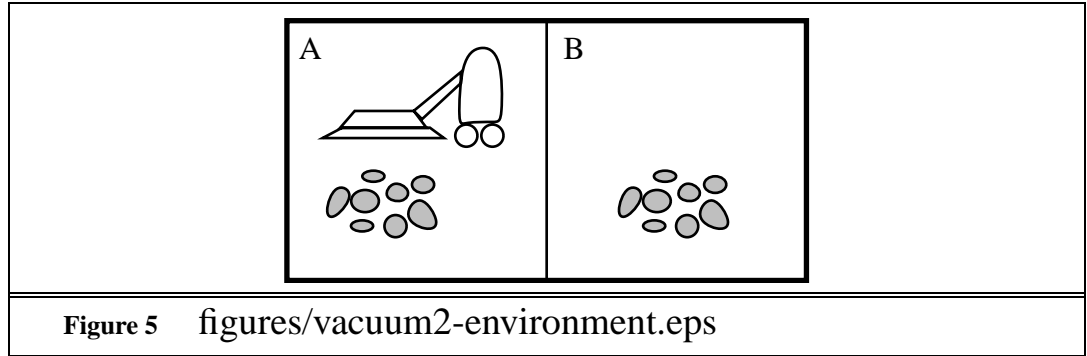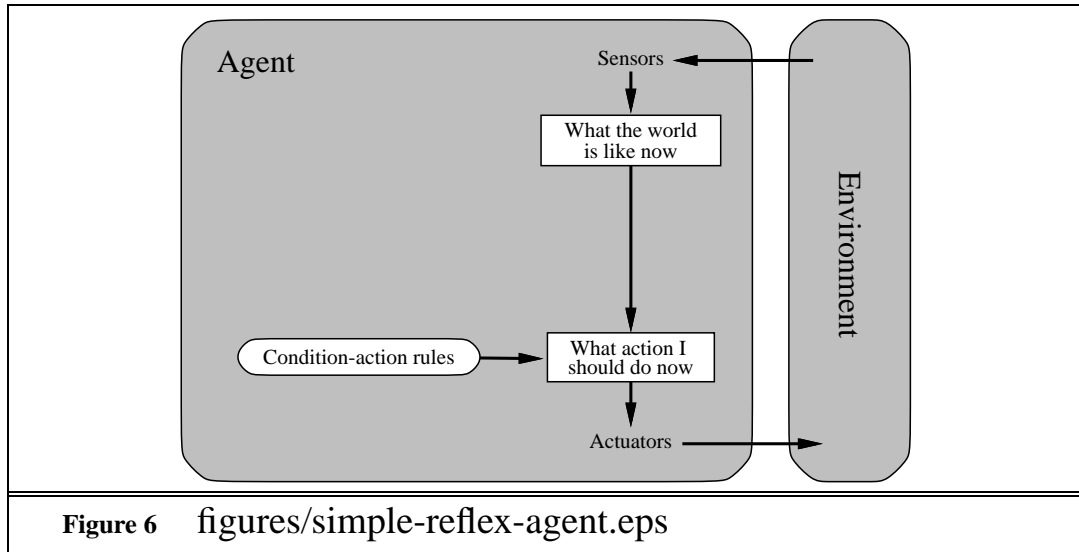
SOme text

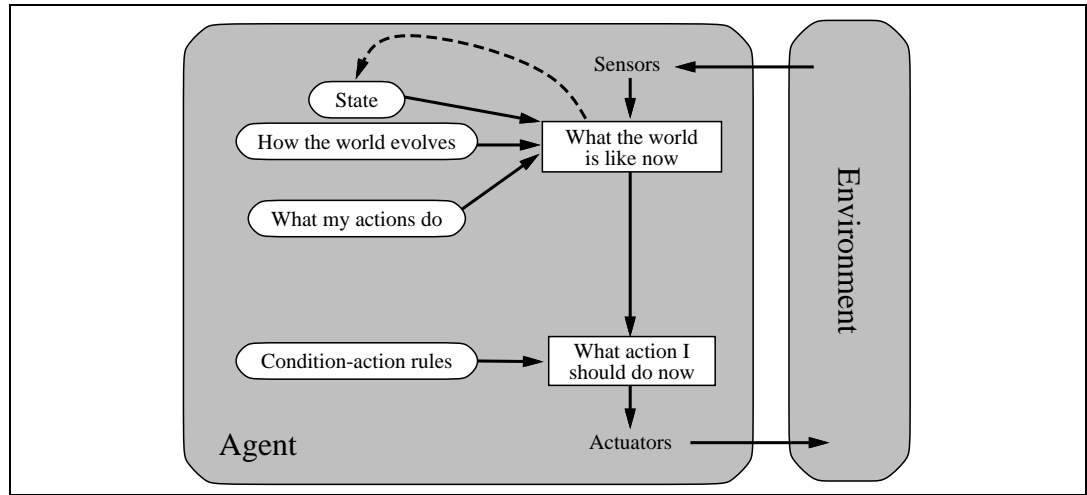**Figure 7**   figures/reflex+state-agent.eps

SOme text
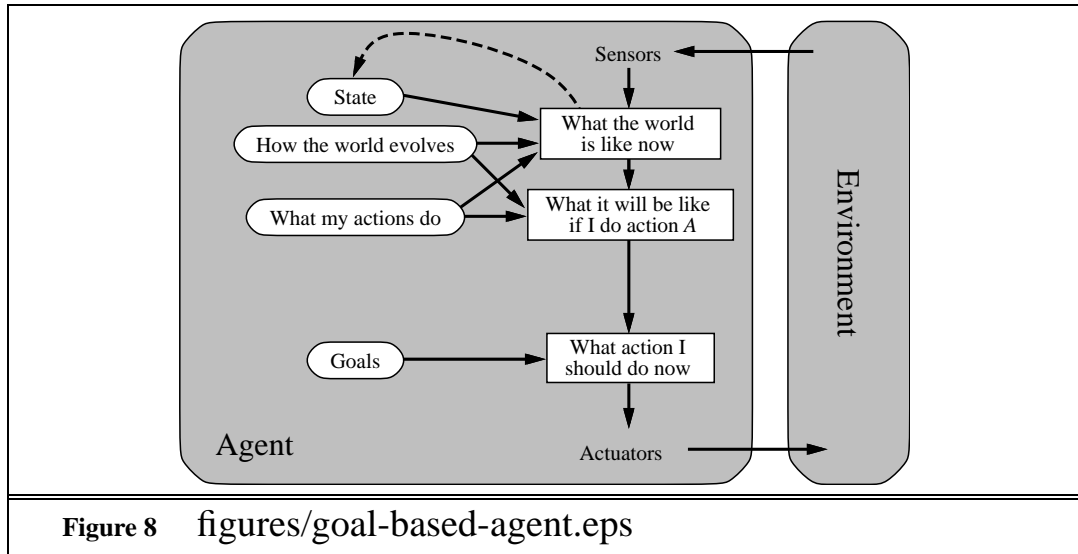
Figure 8   figures/goal-based-agent.eps

SOme text
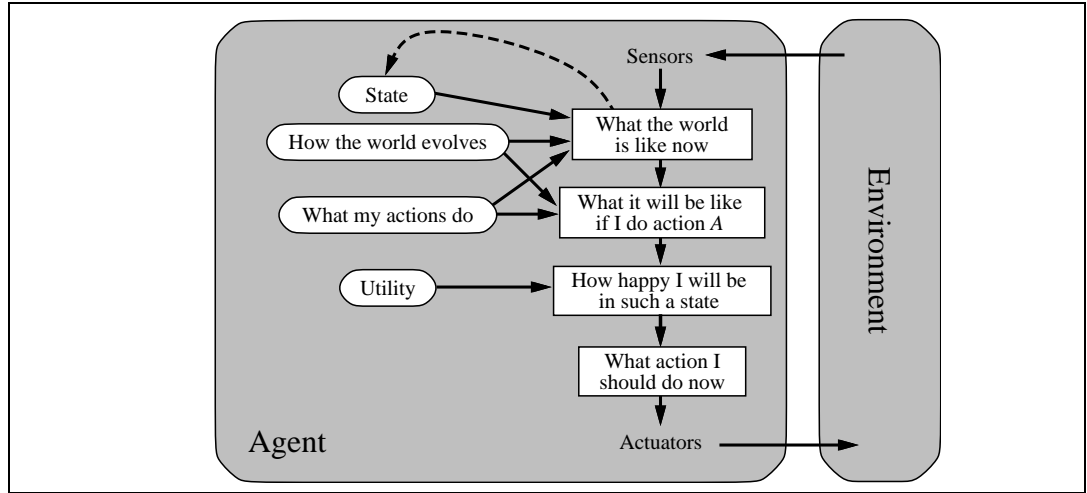
Figure 9   figures/utility-based-agent.eps

SOme text

Performance standard

Critic

Sensors

feedback

changes

Learning
element

Performance
element

knowledge

learning
goals

Problem
generator

Environment

Agent

Actuators

Figure 10   figures/learning-agent.eps
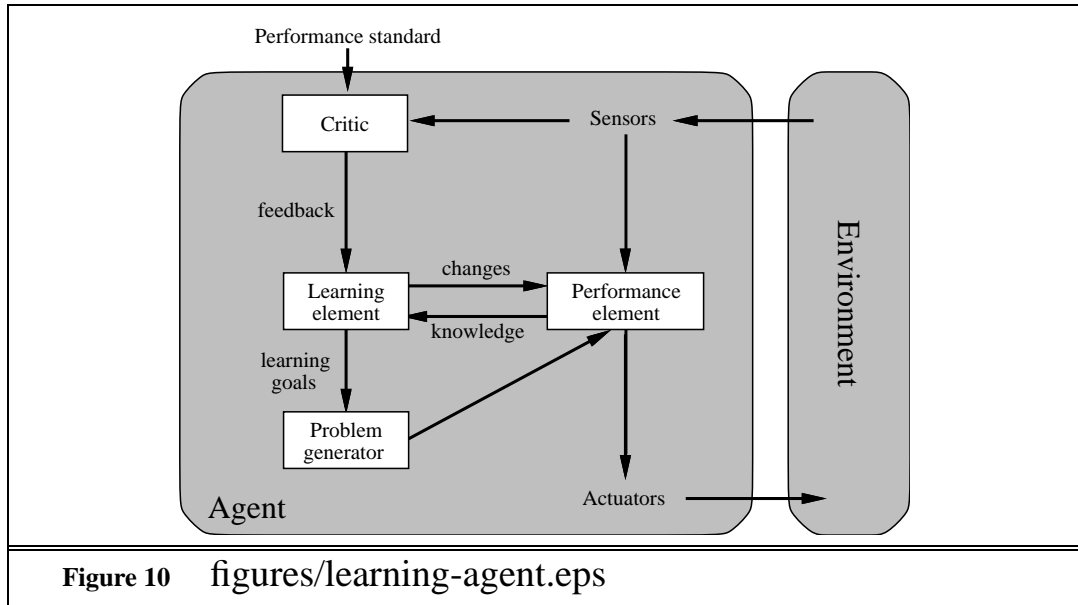
SOme text

Figure 11   figures/romania-distances.eps

SOme text

Figure 12   figures/vacuum2-state-space.eps

SOme text

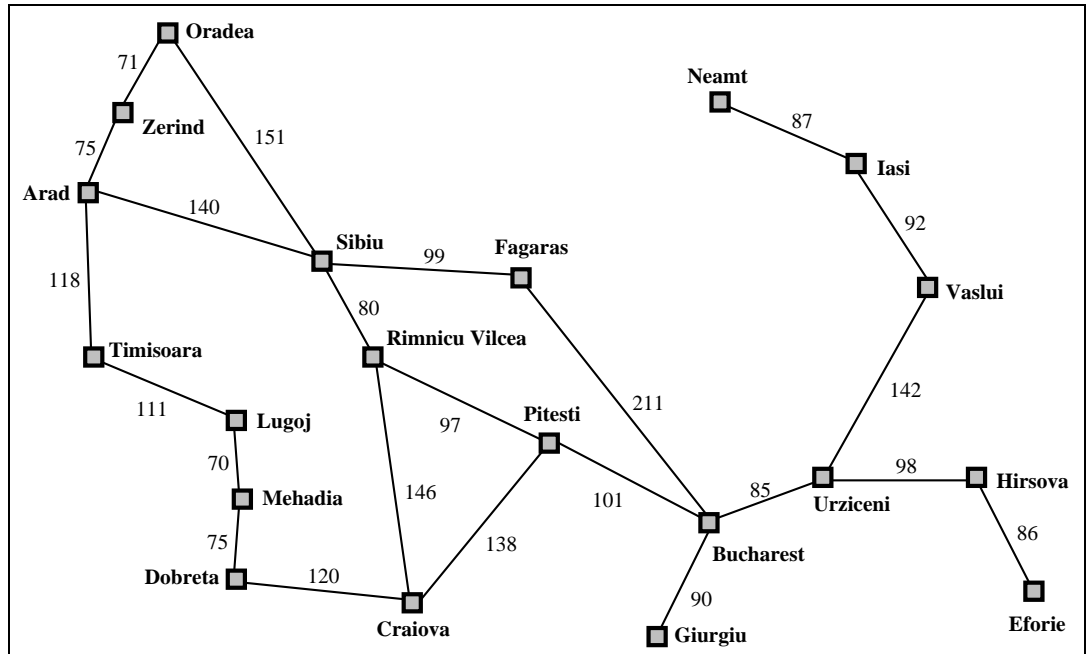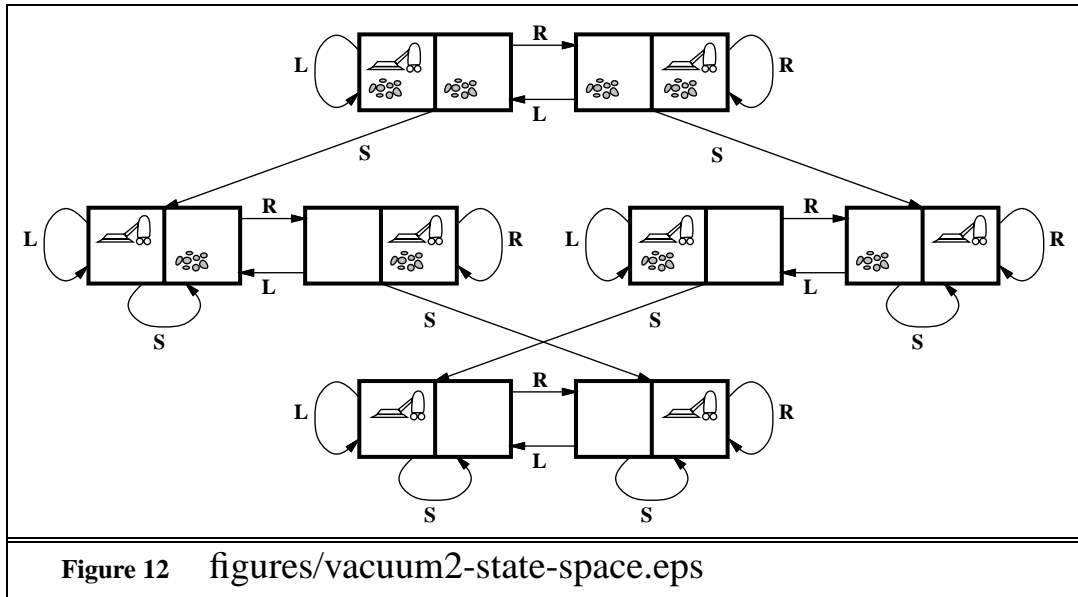|						
7	2	4			1	2
5		6		3	4	5
8	3	1		6	7	8

Start State   Goal State

Figure 13   figures/8puzzle.eps
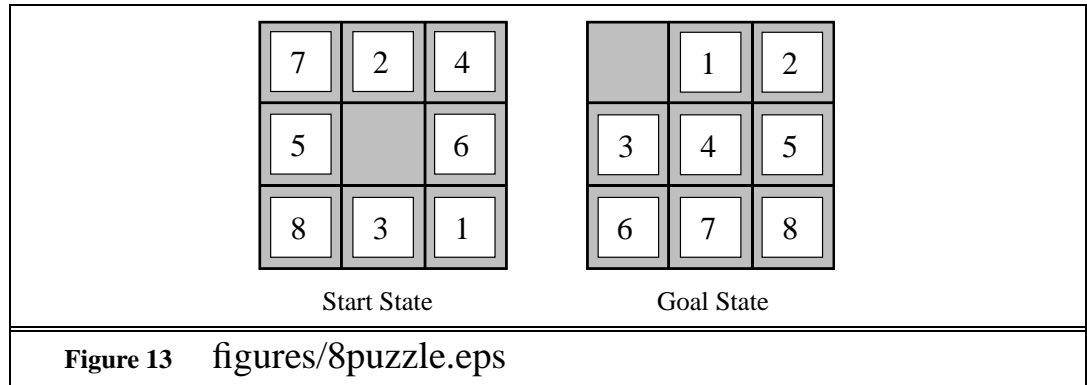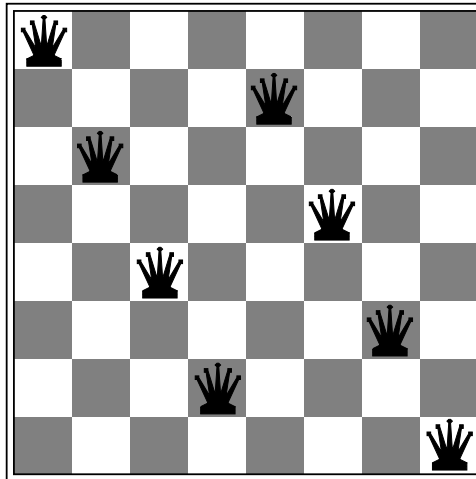
SOme text

Figure 14   figures/8queens.eps

SOme text

(a) The initial state

Arad

Sibiu   Timisoara   Zerind

Arad   Fagaras   Oradea   Rimnicu Vilcea   Arad   Lugoj   Arad   Oradea

(b) After expanding Arad

Arad

Sibiu   Timisoara   Zerind

Arad   Fagaras   Oradea   Rimnicu Vilcea   Arad   Lugoj   Arad   Oradea

(c) After expanding Sibiu

Arad

Sibiu   Timisoara   Zerind

Arad   Fagaras   Oradea   Rimnicu Vilcea   Arad   Lugoj   Arad   Oradea

Figure 15   figures/search-map.eps

SOme text

Figure 16   figures/state-vs-node.eps

SOme text

Figure 17   figures/bfs-progress.eps

SOme text

Figure 18   figures/dfs-progress.eps

SOme text

Figure 19   figures/ids-progress.eps
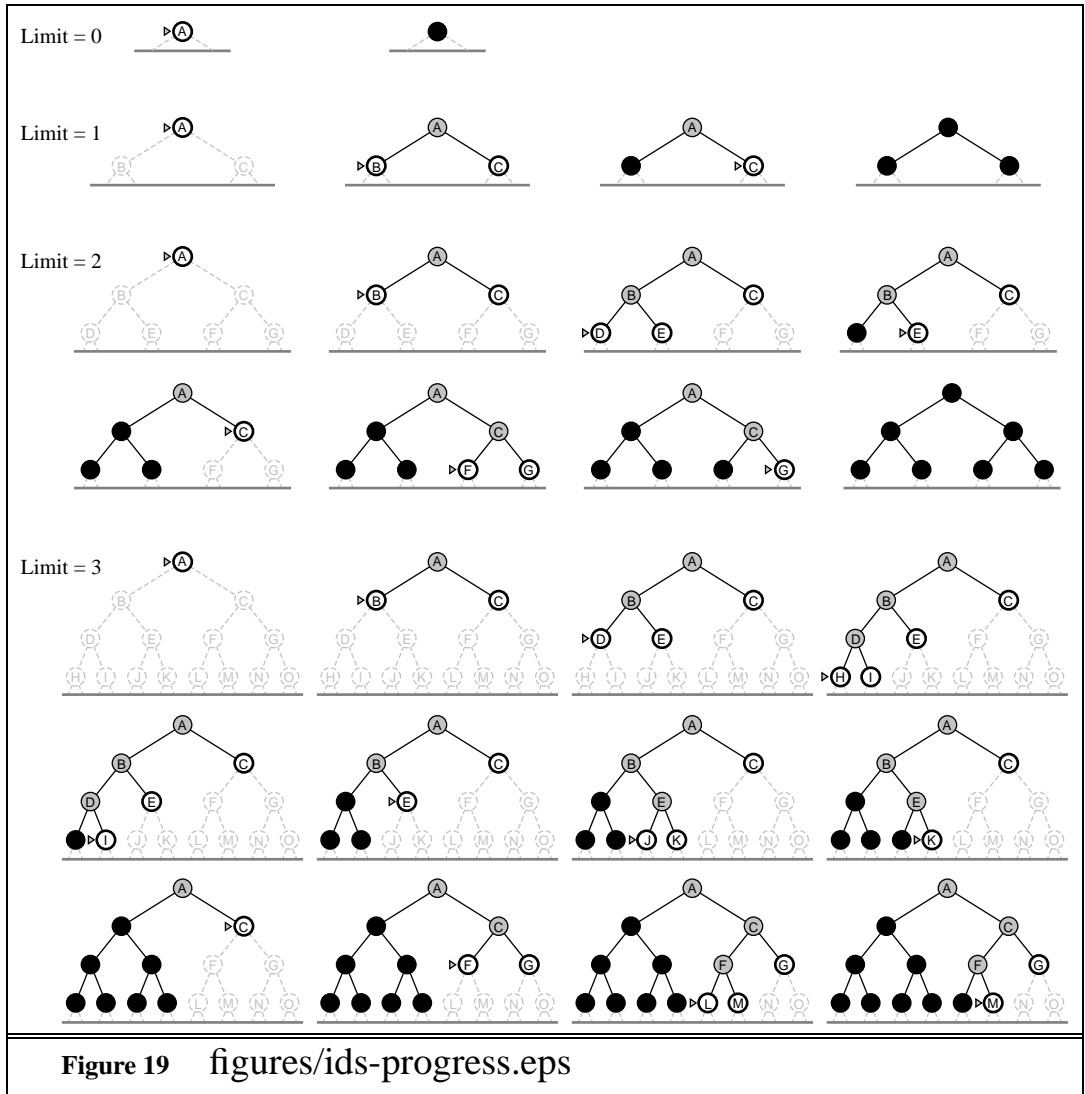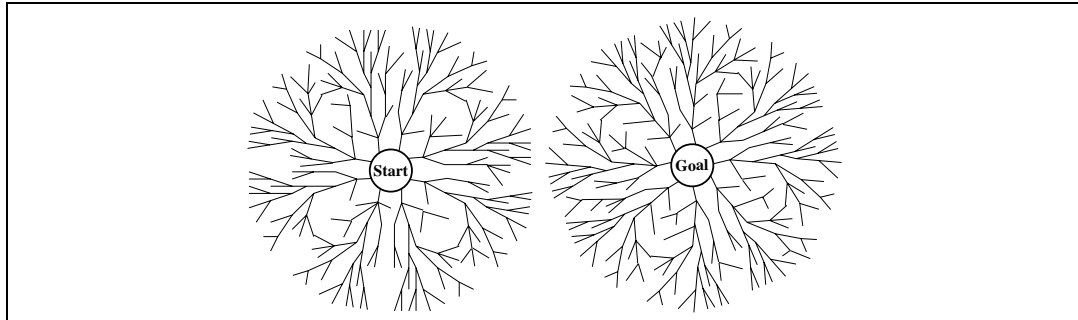
SOme text

Figure 20   figures/bidirectional.eps

SOme text

A
B
C
D

(a)   (b)   (c)

A

Figure 21   figures/ribbon+grid.eps

SOme text

Figure 22   figures/vacuum2-states.eps
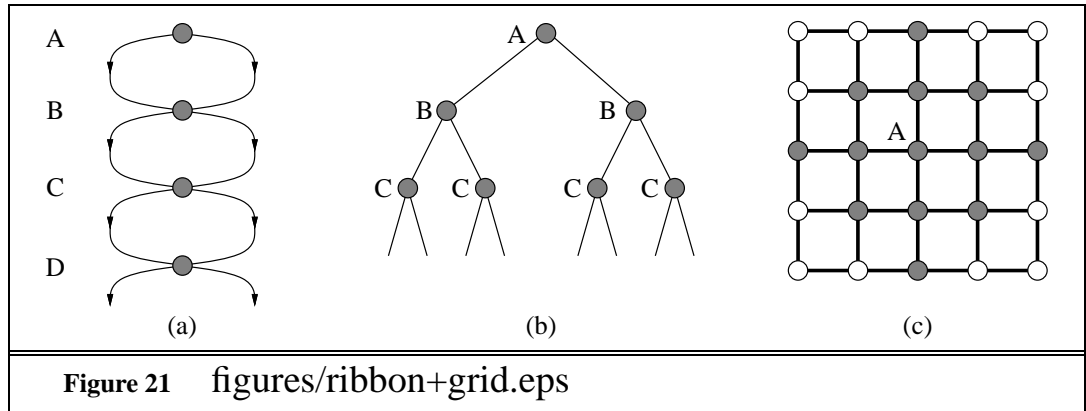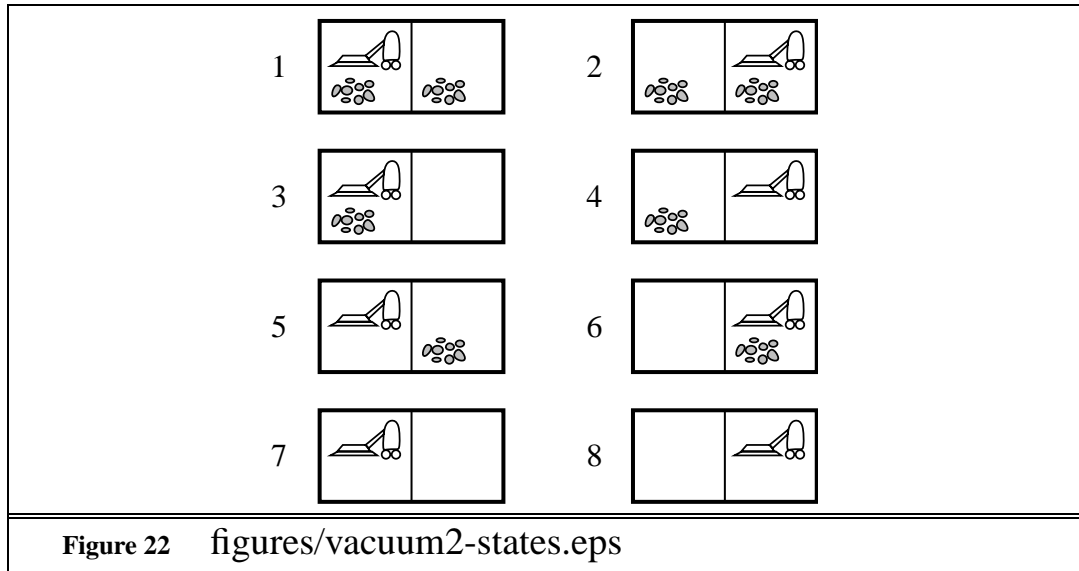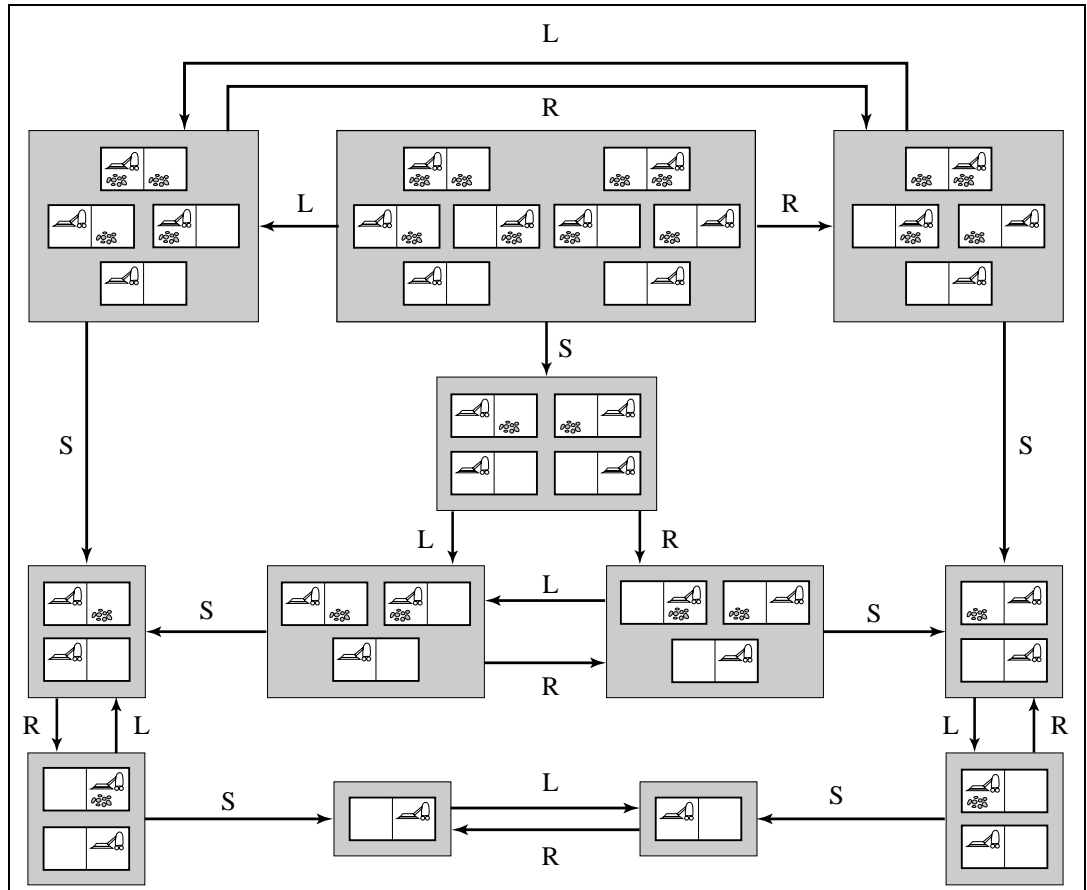
SOme text

Figure 23   figures/vacuum2-sets.eps

SOme text
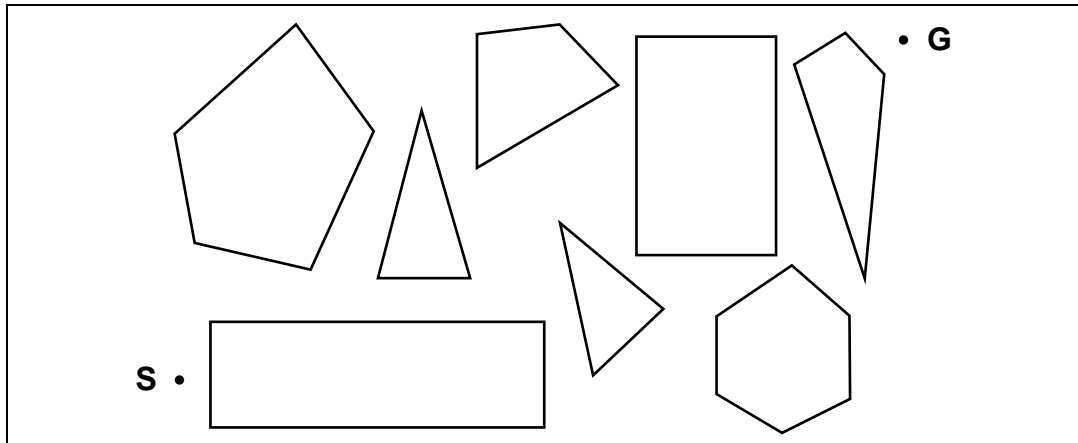
Figure 24   figures/geometric-scene.eps

SOme text

Arad	366	Mehadia	241
Bucharest	0	Neamt	234
Craiova	160	Oradea	380
Dobreta	242	Pitesti	100
Eforie	161	Rimnicu Vilcea	193
Fagaras	176	Sibiu	253
Giurgiu	77	Timisoara	329
Hirsova	151	Urziceni	80
Iasi	226	Vaslui	199
Lugoj	244	Zerind	374

Figure 25 figures/romania-sld.eps

(a) The initial state

(b) After expanding Arad

(c) After expanding Sibiu

(d) After expanding Fagaras

Figure 26   figures/greedy-progress.eps

SOme text

(a) The initial state

Arad
366=0+366

(b) After expanding Arad

Arad

Sibiu
393=140+253

Timisoara
447=118+329

Zerind
449=75+374

(c) After expanding Sibiu

Arad

Sibiu

Timisoara
447=118+329

Zerind
449=75+374

Arad
646=280+366

Fagaras
415=239+176

Oradea
671=291+380

Rimnicu Vilcea
413=220+193

(d) After expanding Rimnicu Vilcea

Arad

Sibiu

Timisoara
447=118+329

Zerind
449=75+374

Arad
646=280+366

Fagaras
415=239+176

Oradea
671=291+380

Rimnicu Vilcea

Craiova
526=366+160

Pitesti
417=317+100

Sibiu
553=300+253

(e) After expanding Fagaras

Arad

Sibiu

Timisoara
447=118+329

Zerind
449=75+374

Arad
646=280+366

Fagaras

Oradea
671=291+380

Rimnicu Vilcea

Sibiu
591=338+253

Bucharest
450=450+0

Craiova
526=366+160

Pitesti
417=317+100

Sibiu
553=300+253

(f) After expanding Pitesti

Arad

Sibiu

Timisoara
447=118+329

Zerind
449=75+374

Arad
646=280+366

Fagaras

Oradea
671=291+380

Rimnicu Vilcea

Sibiu
591=338+253

Bucharest
450=450+0

Craiova
526=366+160

Pitesti

Sibiu
553=300+253

Bucharest
418=418+0

Craiova
615=455+160

Rimnicu Vilcea
607=414+193

Figure 27   figures/astar-progress.eps
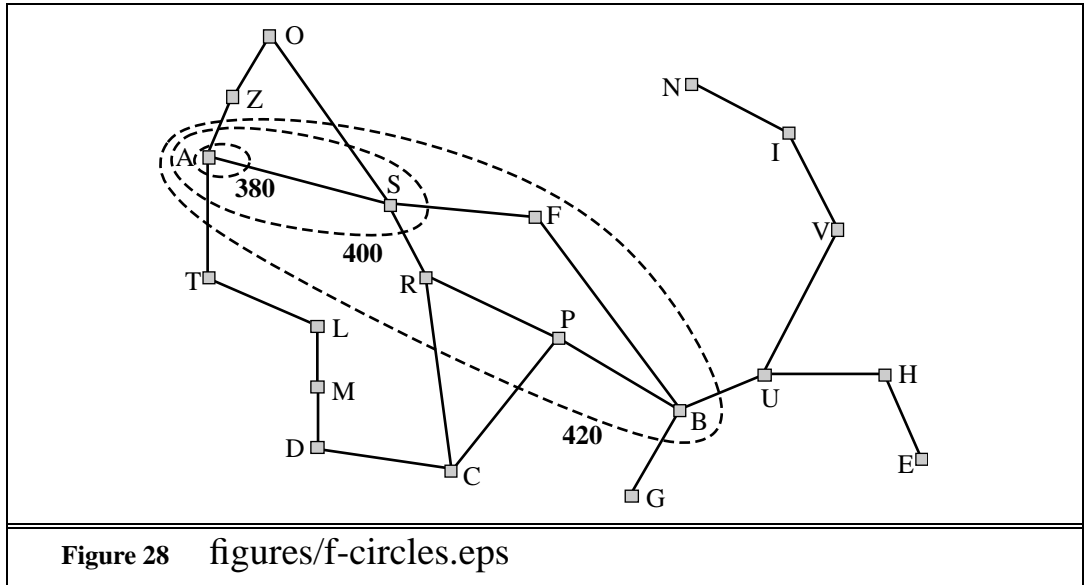
Figure 28   figures/f-circles.eps

SOme text

(a) After expanding Arad, Sibiu, and Rimnicu Vilcea

(b) After unwinding back to Sibiu and expanding Fagaras

(c) After switching back to Rimnicu Vilcea and expanding Pitesti
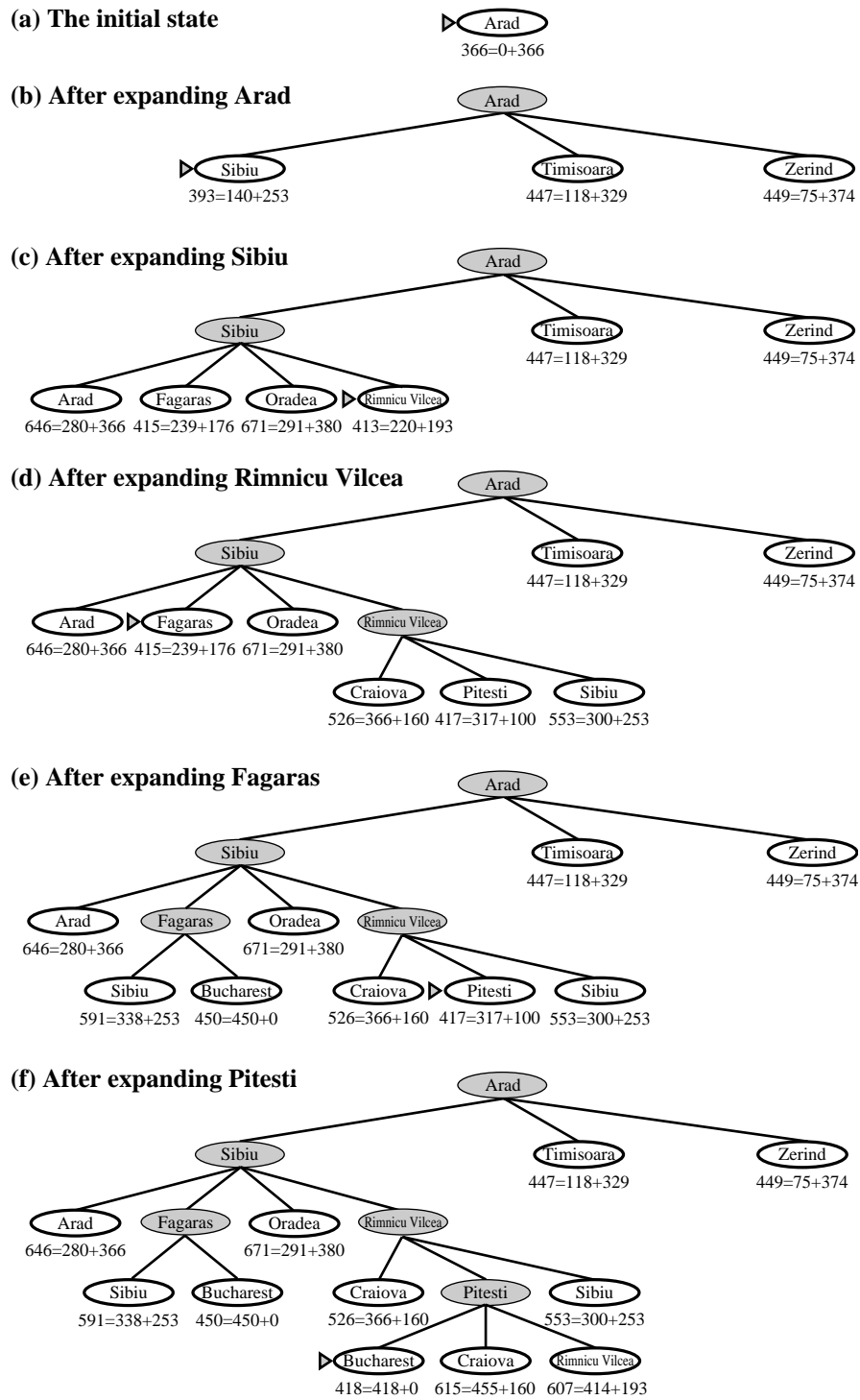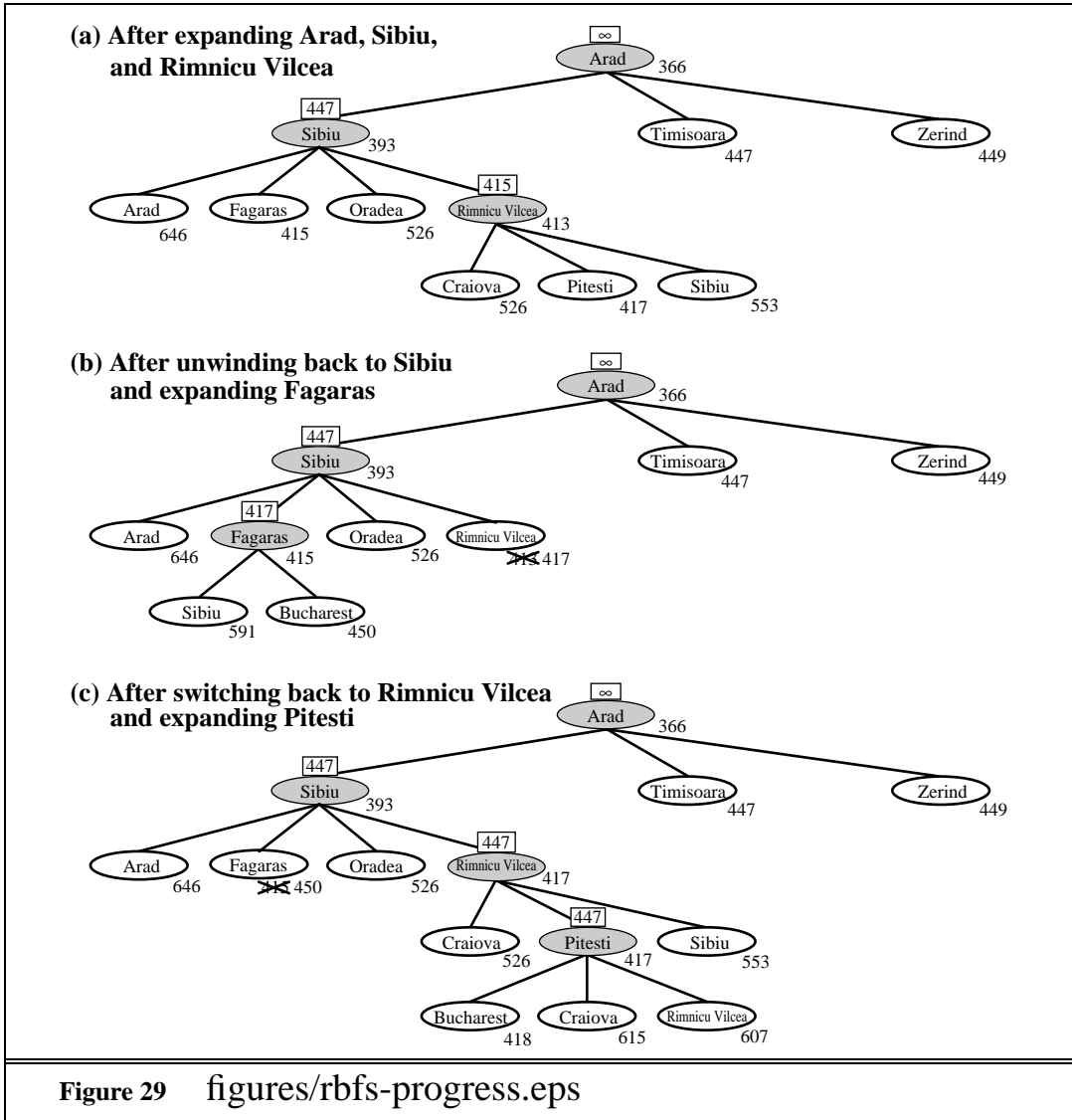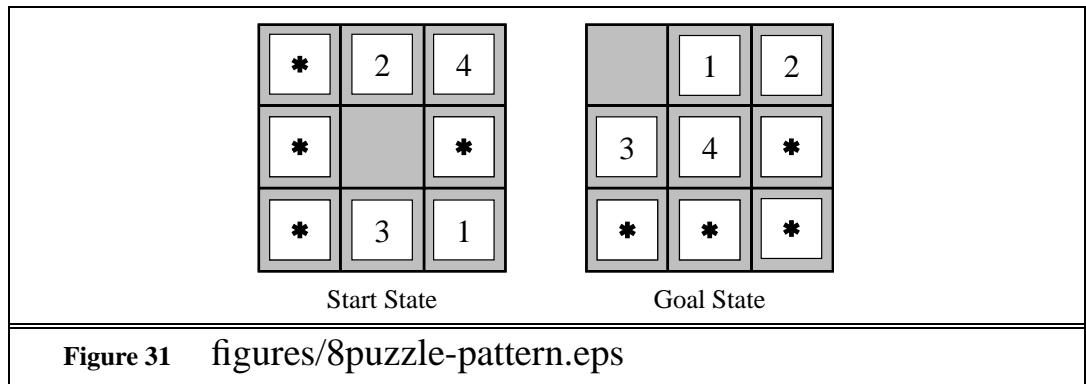
Figure 29   figures/rbfs-progress.eps

SOme text

7	2	4			1	2
5		6		3	4	5
8	3	1		6	7	8

Start State Goal State

Figure 30 figures/8puzzle.eps

SOme text

*	2	4			1	2
*		*		3	4	*
*	3	1		*	*	*

Start State Goal State

Figure 31 figures/8puzzle-pattern.eps

SOme text

objective function

global maximum

shoulder

local maximum

"flat" local maximum

state space

current
state
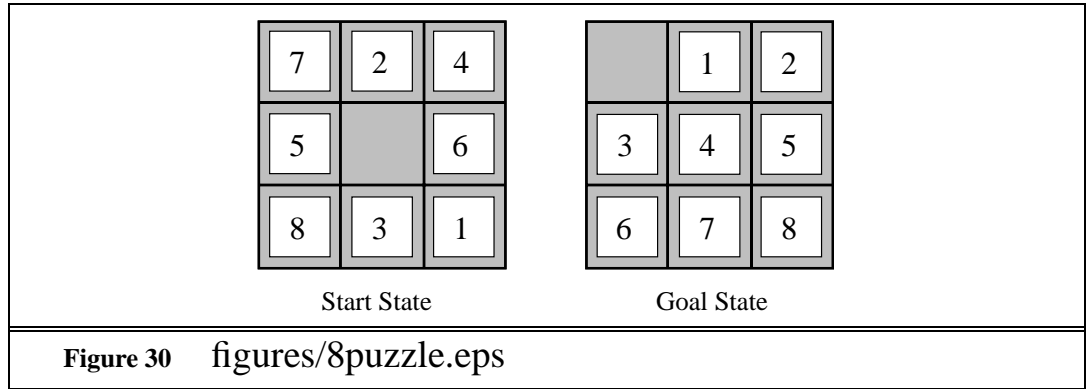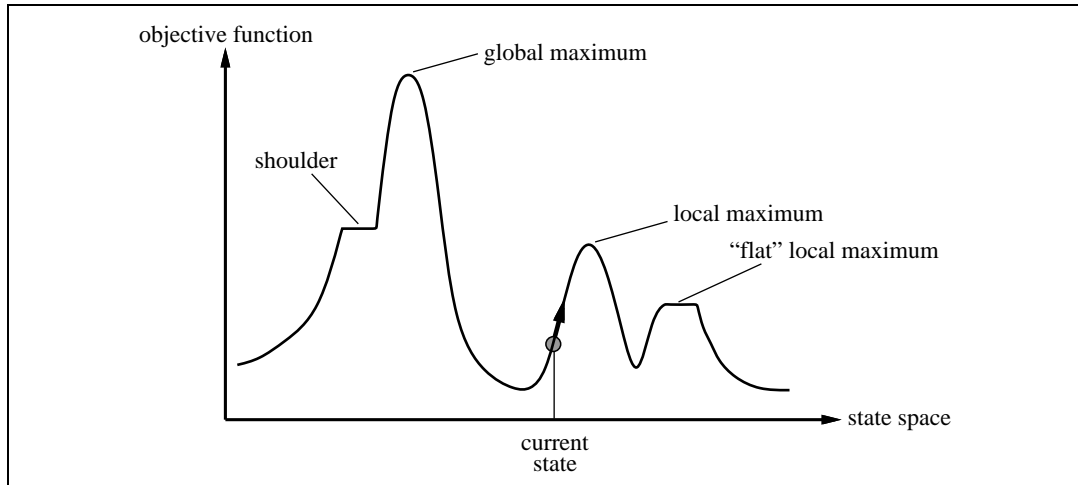
Figure 32   figures/hill-climbing.eps

SOme text

(a)
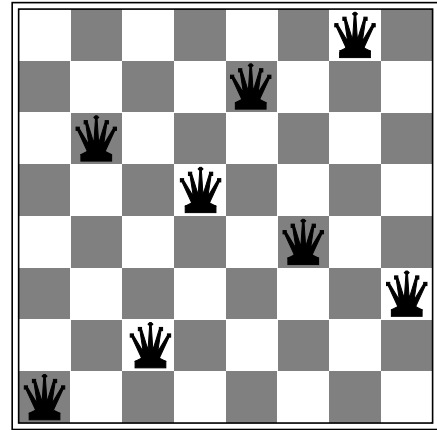
(b)

Figure 33 figures/8queens-successors.eps + figures/8queens-local-minimum.eps

SOme text
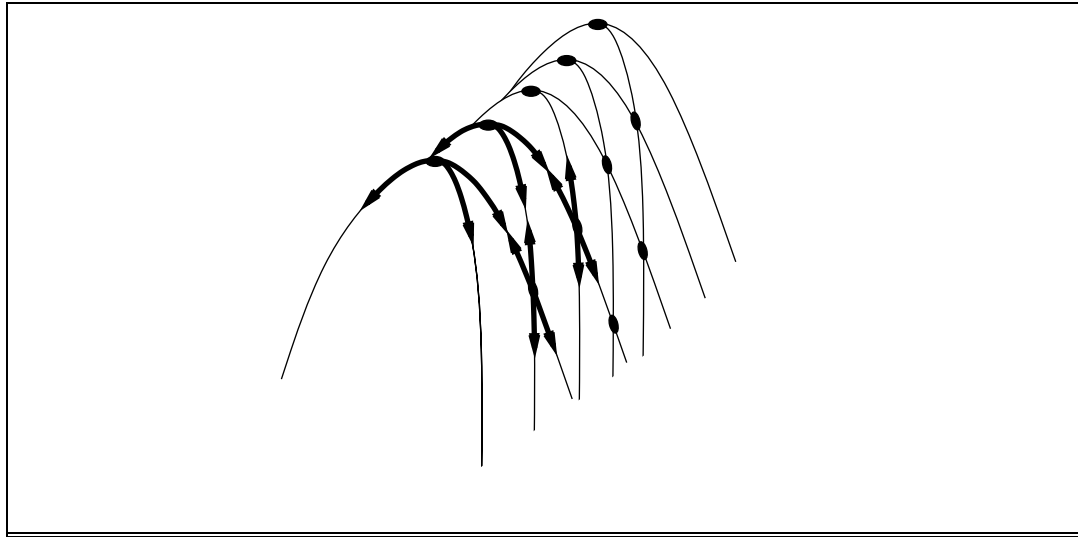
Figure 34   figures/ridge.eps

SOme text

24748552	**24** **31%**	32752411	32748552	32748152
32752411	**23** **29%**	24748552	24752411	24752411
24415124	**20** **26%**	32752411	32752124	32252124
32543213	**11** **14%**	24415124	24415411	24415417

(a)	(b)	(c)	(d)	(e)
Initial Population	Fitness Function	Selection	Crossover	Mutation

Figure 35   figures/genetic.eps
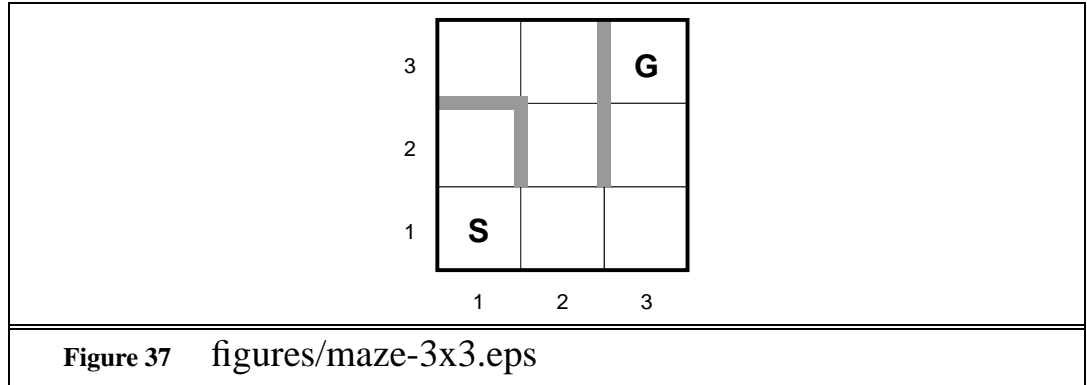
SOme text

Figure 36   figures/8queens-crossover.eps
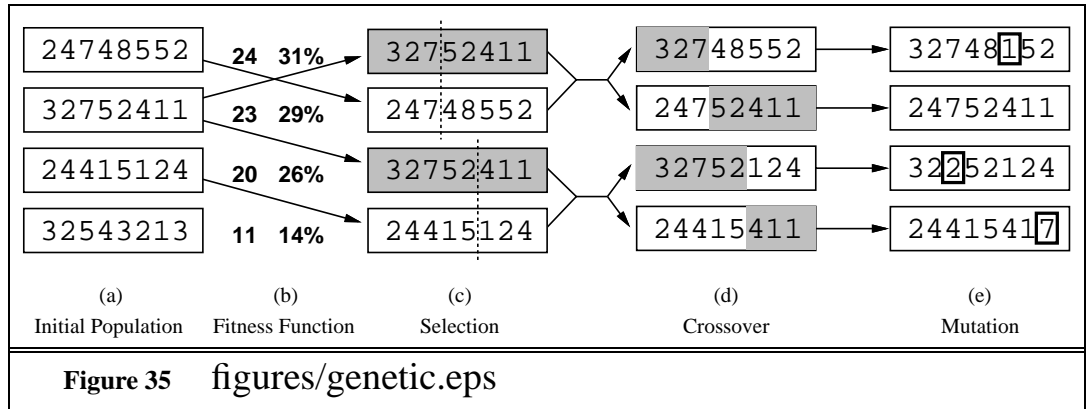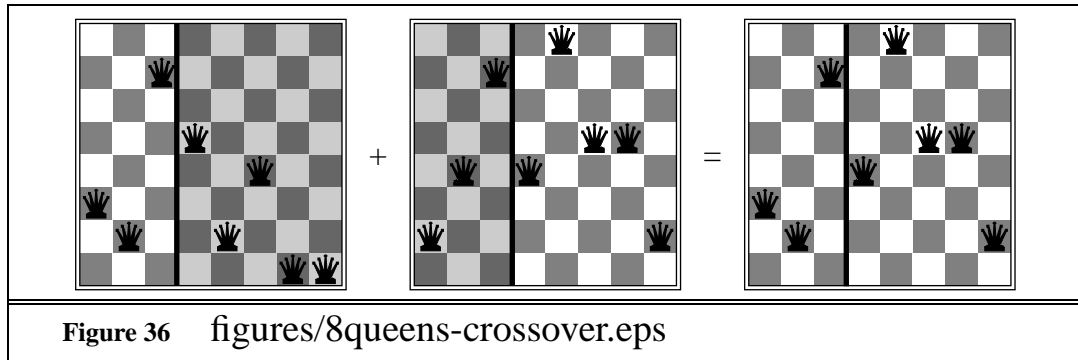
SOme text

Figure 37   figures/maze-3x3.eps

SOme text

(a)

(b)

Figure 38 figures/adversary-spaces.eps + figures/adversary-blocks.eps
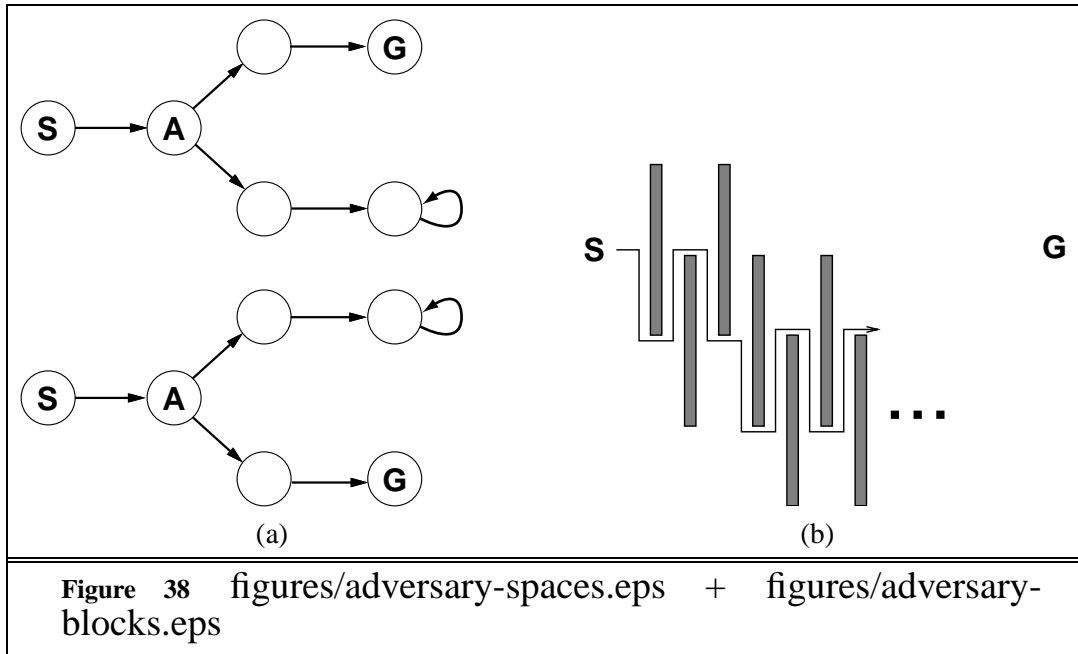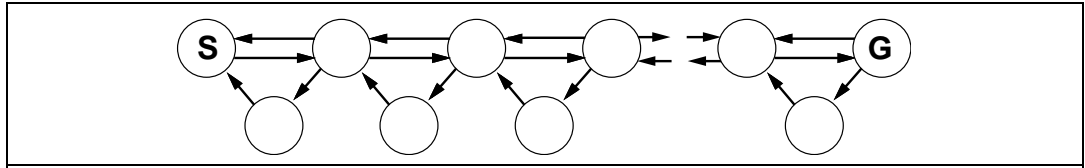
SOme text

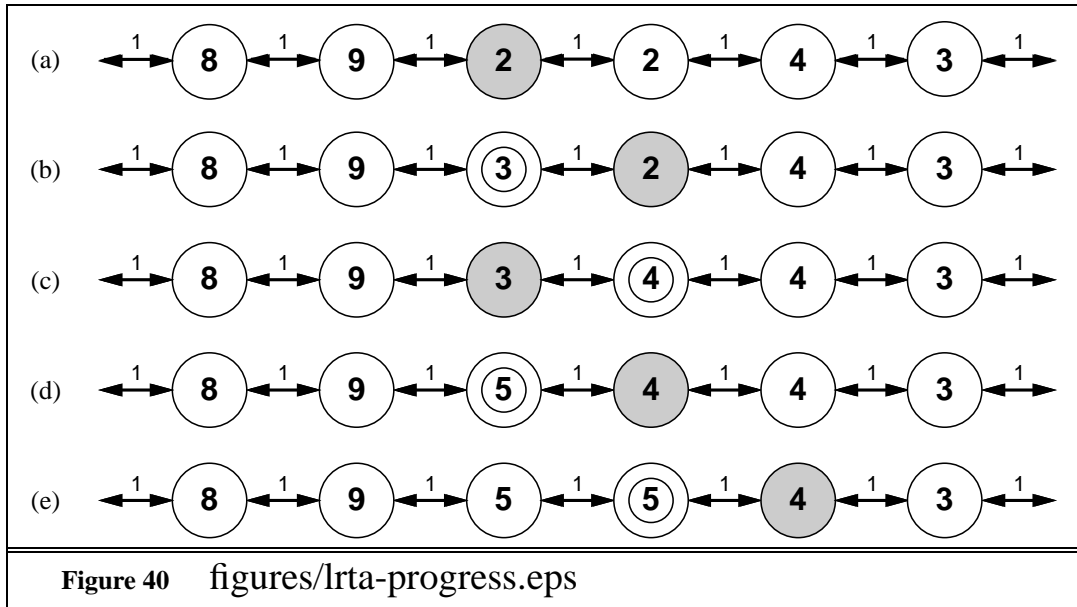**Figure 39**   figures/quicksand.eps

SOme text

Figure 40   figures/lrta-progress.eps

SOme text

(a)

(b)

Figure 41   figures/australia.eps + figures/australia-csp.eps
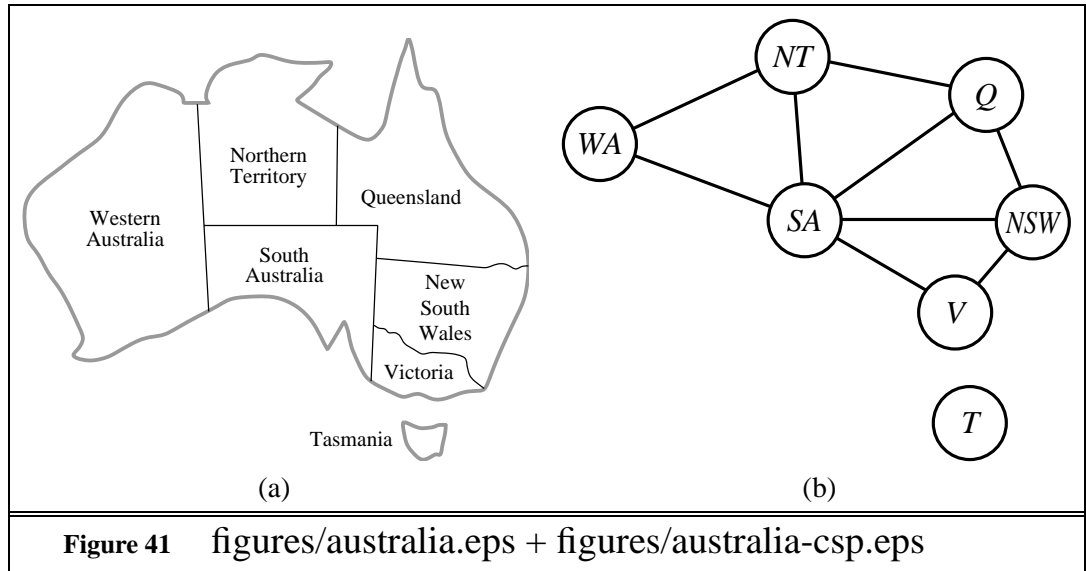
SOme text

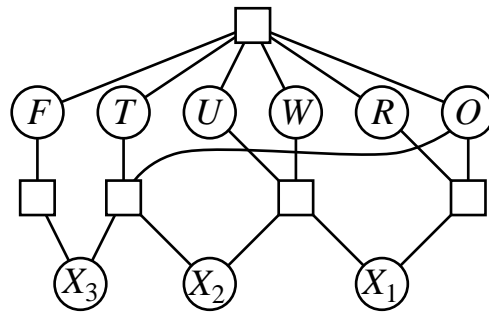$$
\begin{array}{r}
T\ W\ O \\
+\ T\ W\ O \\
\hline
F\ O\ U\ R
\end{array}
$$

(a)   (b)
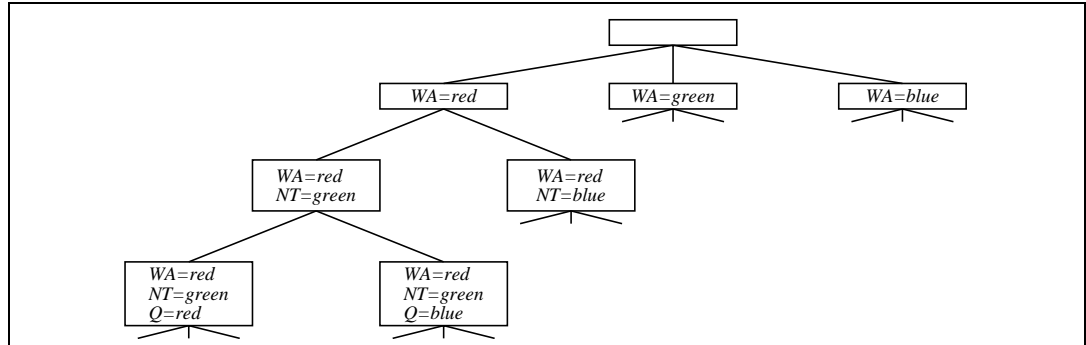
Figure 42   figures/cryptarithmetic.eps

SOme text

Figure 43   figures/australia-search.eps

SOme text

	WA	NT	Q	NSW	V	SA	T
Initial domains	R G B	R G B	R G B	R G B	R G B	R G B	R G B
After *WA=red*	®	G B	R G B	R G B	R G B	G B	R G B
After *Q=green*	®	B	Ⓖ	R B	R G B	B	R G B
After *V=blue*	®	B	Ⓖ	R	Ⓑ		R G B

Figure 44   figures/australia-fc.eps

SOme text

Figure 45   figures/8queens-min-conflicts.eps

SOme text

(a)

(b)

Figure 46   figures/tree-csp.eps

SOme text

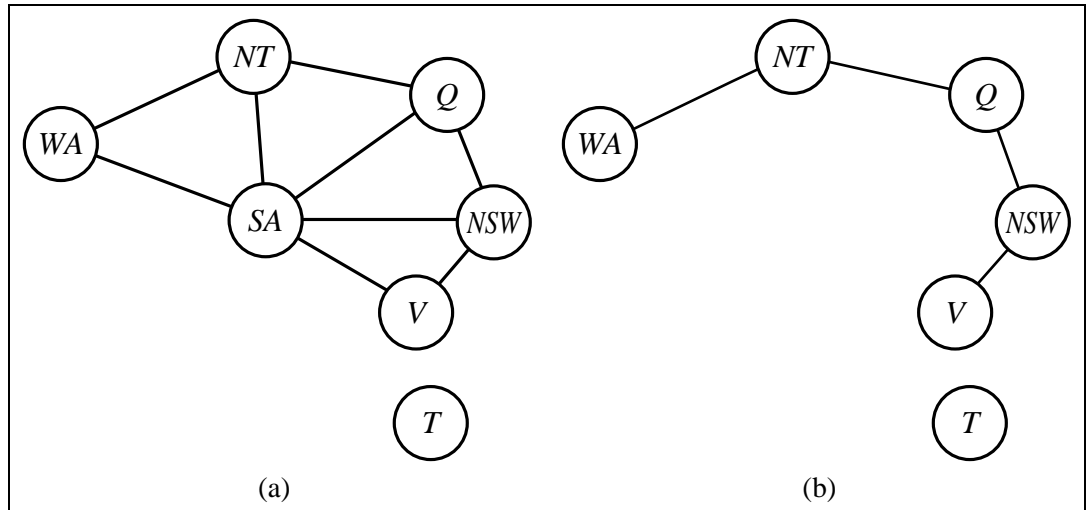(a)   (b)
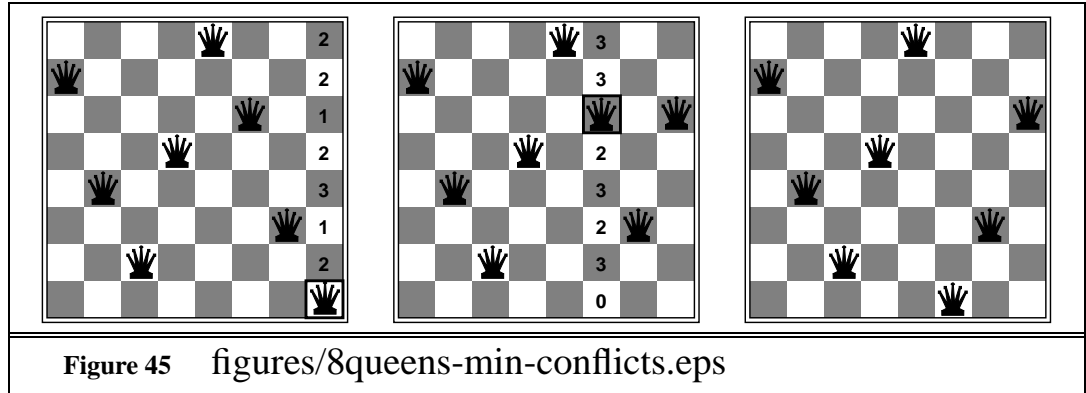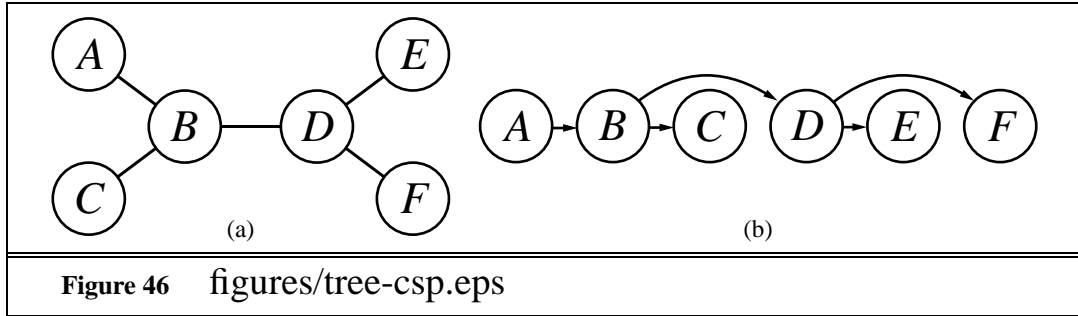
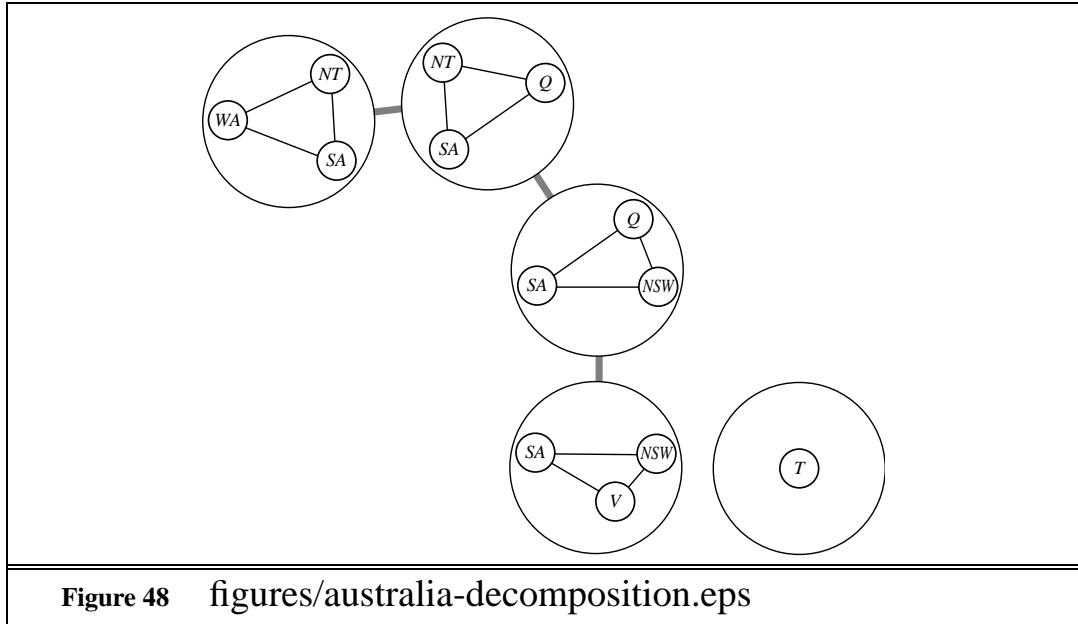**Figure 47**   figures/australia-csp.eps + figures/australia-tree.eps

SOme text

Figure 48   figures/australia-decomposition.eps

SOme text

Figure 49   figures/tictactoe.eps

SOme text

Figure 50   figures/minimax.eps

SOme text

Figure 51   figures/minimax3.eps

SOme text

Figure 52   figures/alpha-beta-progress.eps

SOme text

Figure 53   figures/alpha-beta-general.eps

SOme text

(a) White to move   (b) White to move

Figure 54   figures/chess-evaluation3.eps
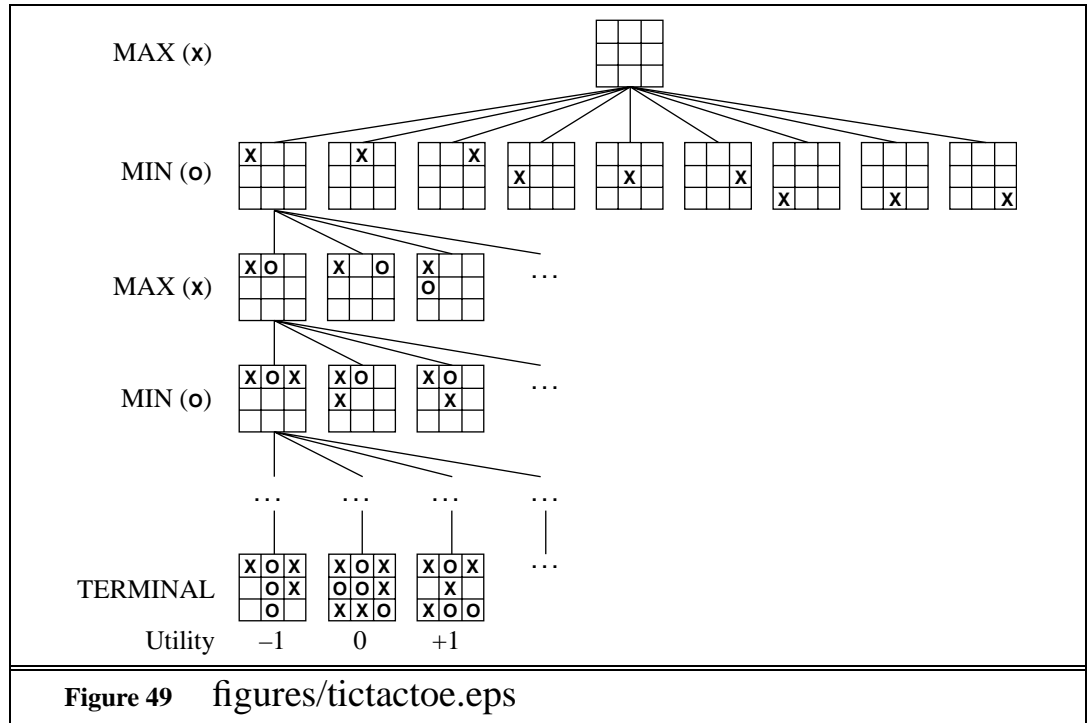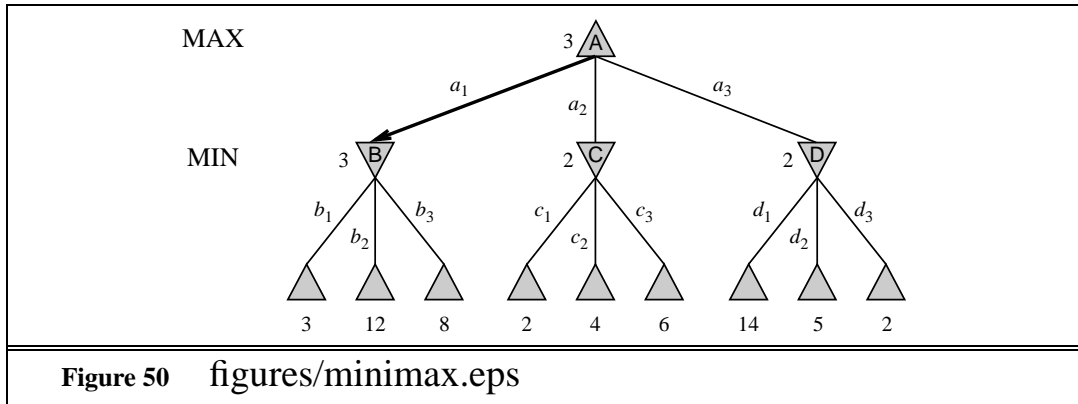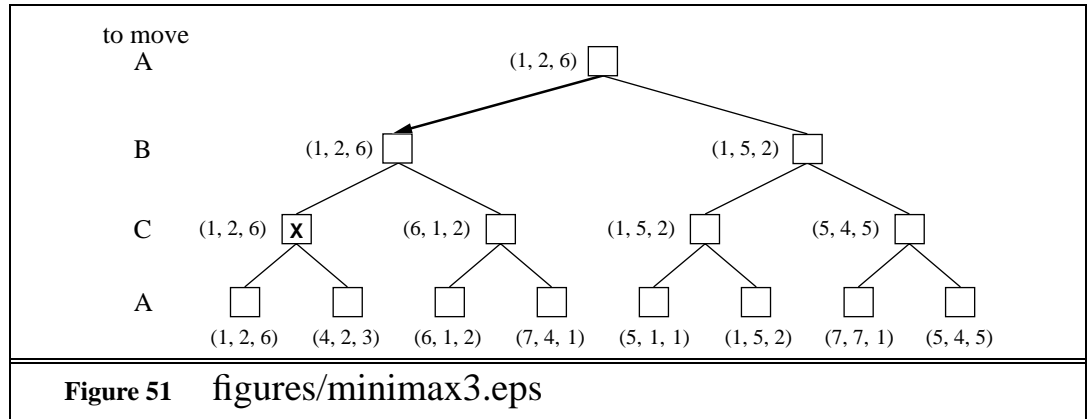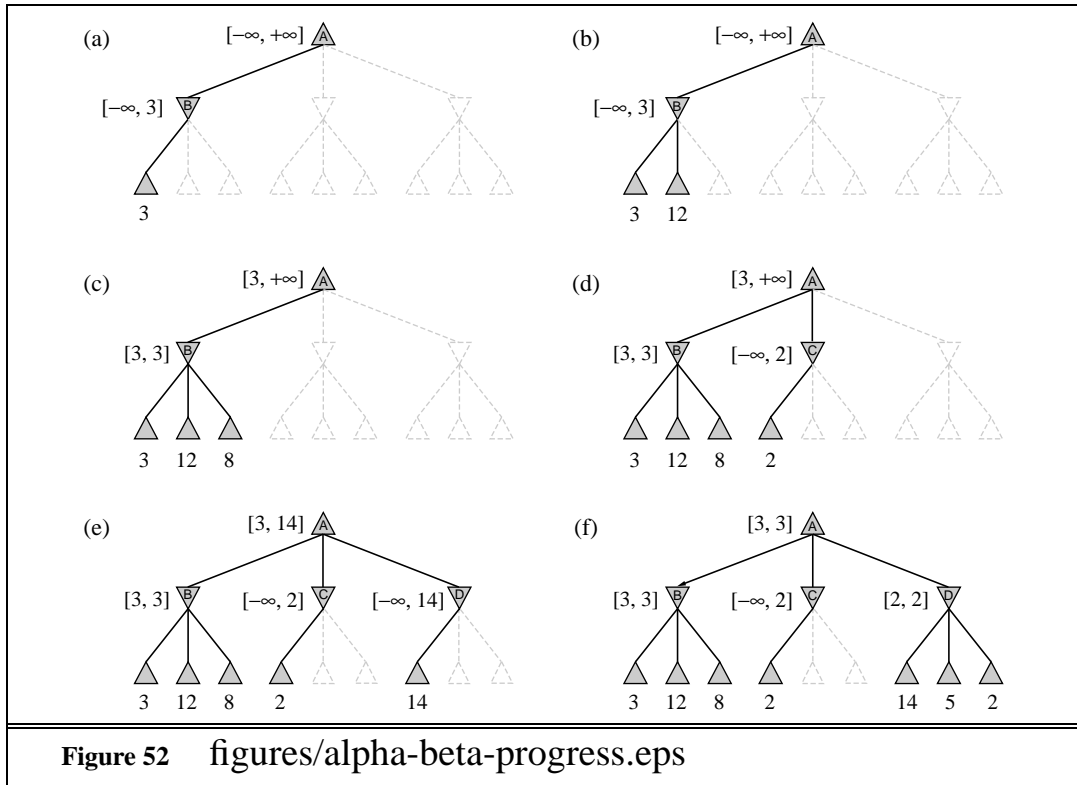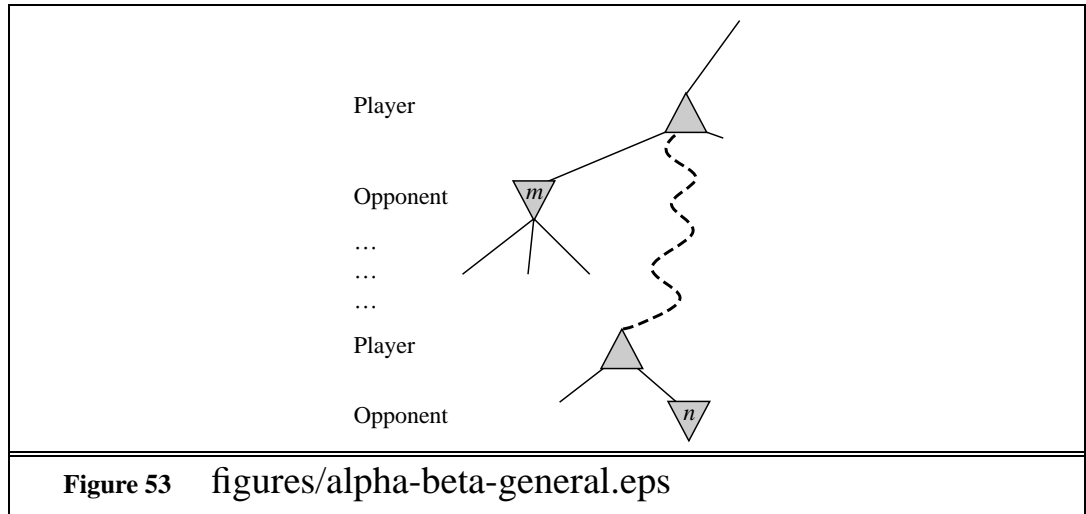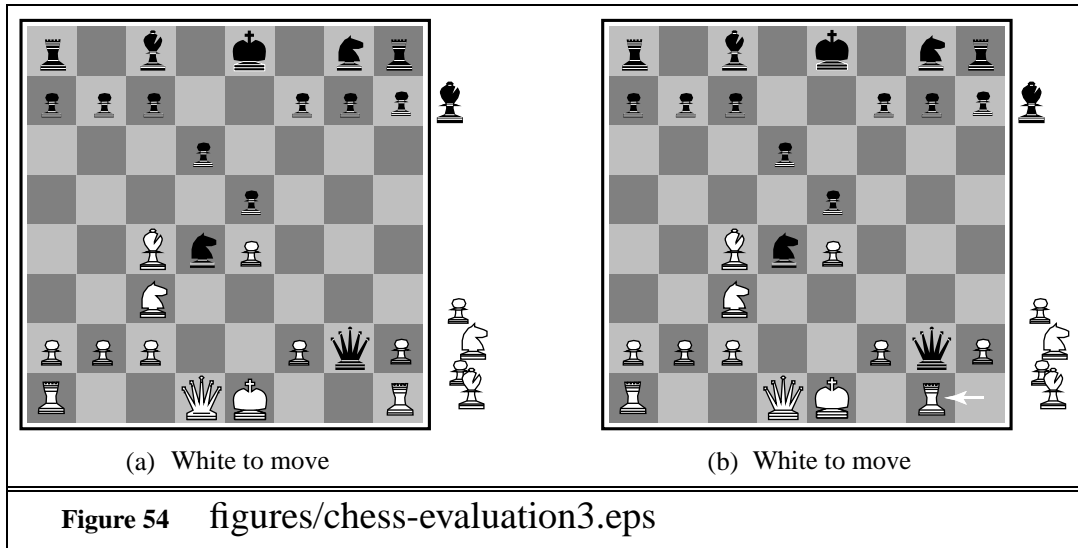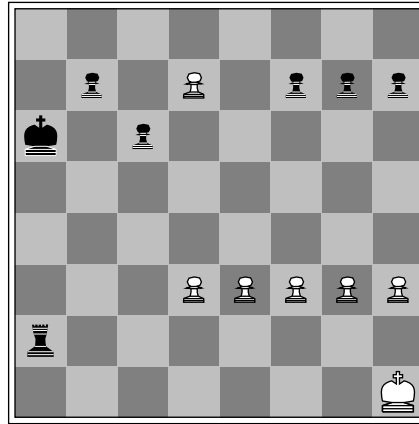
SOme text

Black to move

Figure 55   figures/horizon.eps

SOme text
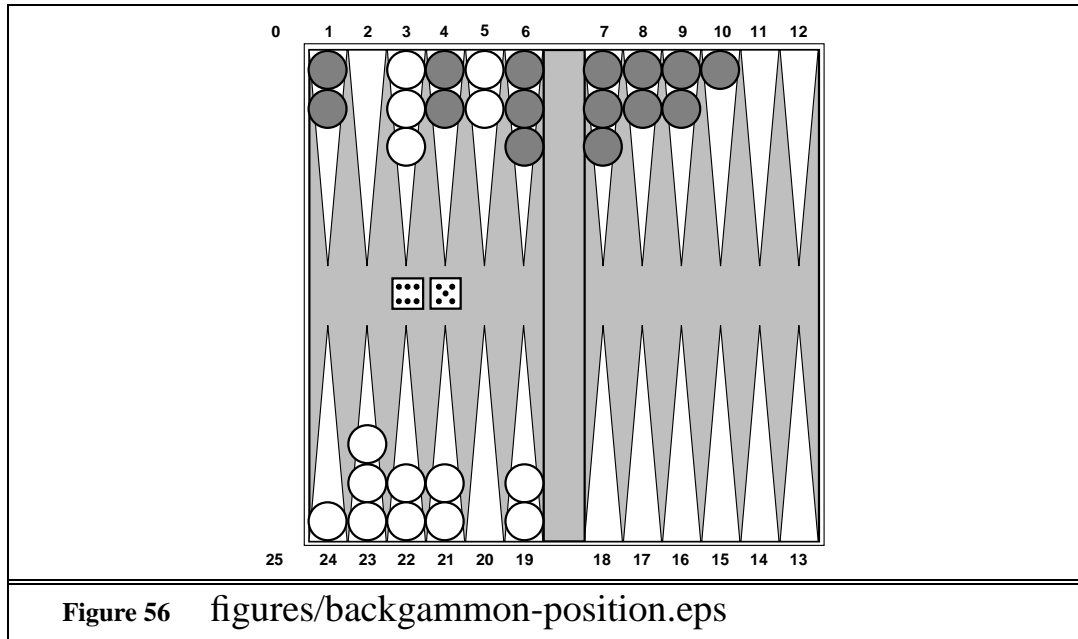
Figure 56 figures/backgammon-position.eps

SOme text

Figure 57   figures/backgammon-tree.eps

SOme text

Figure 58   figures/chance-evaluation.eps

SOme text

Figure 59 figures/minimax-error.eps
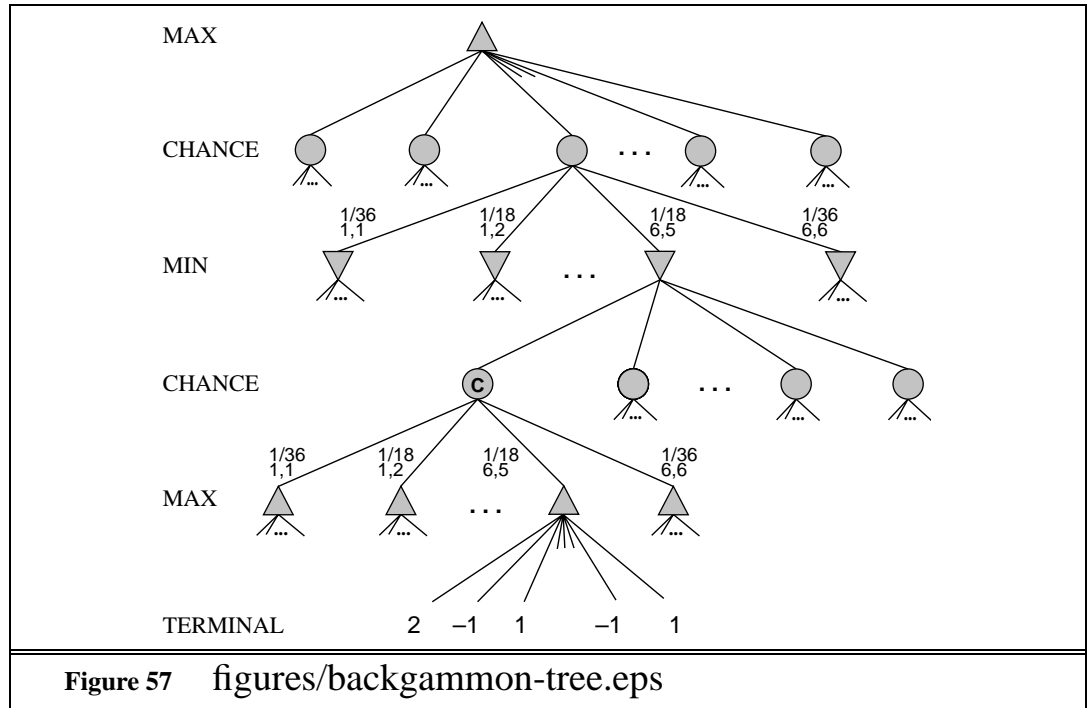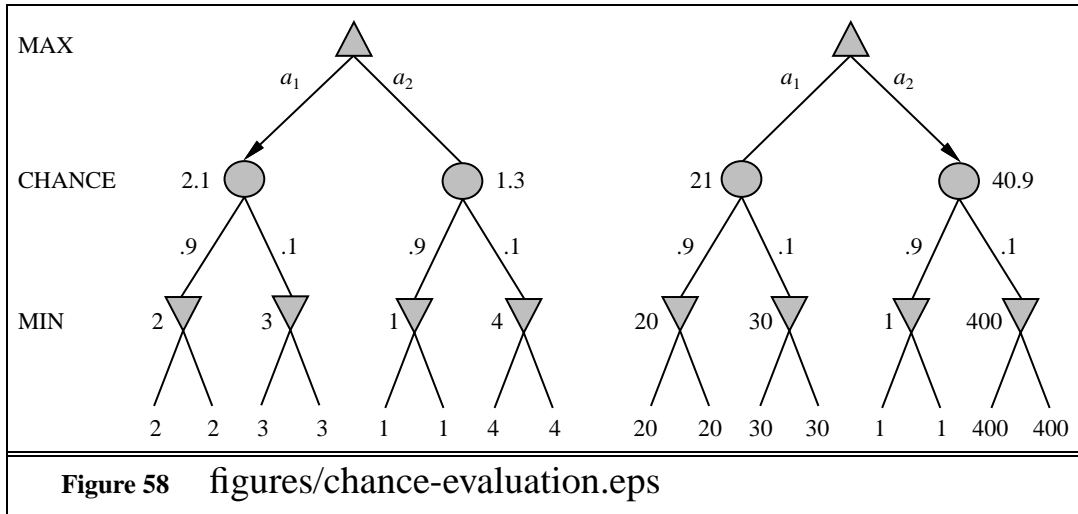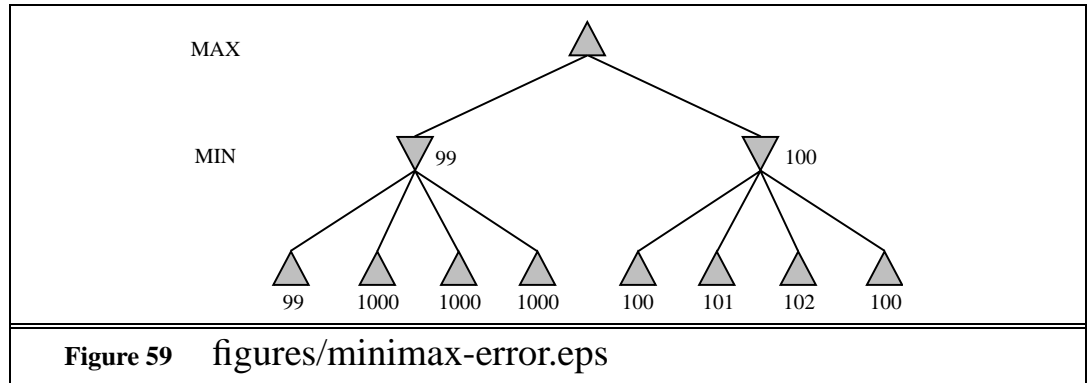
SOme text

Figure 60   figures/line-game4.eps

SOme text

n_1

n_2

n_j
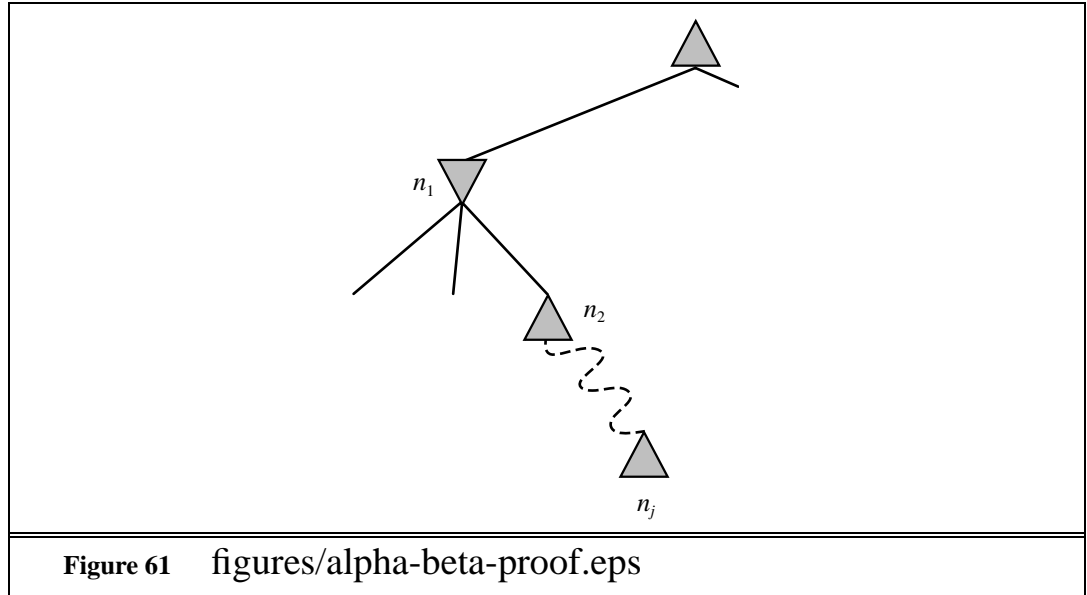
Figure 61   figures/alpha-beta-proof.eps

SOme text

	4			Breeze	PIT
	3	(wumpus)	Breeze Stench Gold	PIT	Breeze
	2	Stench		Breeze	
	1	START	Breeze	PIT	Breeze
		1	2	3	4

Figure 62   figures/wumpus-world.eps

SOme text

1,4	2,4	3,4	4,4
1,3	2,3	3,3	4,3
1,2 OK	2,2	3,2	4,2
1,1 **A** OK	2,1 OK	3,1	4,1

A	= *Agent*
B	= *Breeze*
G	= *Glitter, Gold*
OK	= *Safe square*
P	= *Pit*
S	= *Stench*
V	= *Visited*
W	= *Wumpus*

1,4	2,4	3,4	4,4
1,3	2,3	3,3	4,3
1,2 OK	2,2 **P?**	3,2	4,2
1,1 V OK	2,1 **A** B OK	3,1 **P?**	4,1

(a)   (b)

Figure 63   figures/wumpus-seq01.eps

SOme text

1,4	2,4	3,4	4,4
1,3 W!	2,3	3,3	4,3
1,2 [A] S OK	2,2 OK	3,2	4,2
1,1 V OK	2,1 B V OK	3,1 P!	4,1

[A] = *Agent*
B   = *Breeze*
G   = *Glitter, Gold*
OK = *Safe square*
P   = *Pit*
S   = *Stench*
V   = *Visited*
W   = *Wumpus*

1,4	2,4 P?	3,4	4,4
1,3 W!	2,3 [A] S G B	3,3 P?	4,3
1,2 S V OK	2,2 V OK	3,2	4,2
1,1 V OK	2,1 B V OK	3,1 P!	4,1

(a)   (b)

Figure 64   figures/wumpus-seq35.eps

SOme text

Figure 65 figures/wumpus-entailment.eps + figures/wumpus-nonentailment.eps

SOme text

| **Figure 66** | figures/follows+entails.eps |

SOme text

$\neg P_{2,1} \vee B_{1,1}$ $\neg B_{1,1} \vee P_{1,2} \vee P_{2,1}$ $\neg P_{1,2} \vee B_{1,1}$ $\neg B_{1,1}$ $P_{1,2}$

$\neg B_{1,1} \vee P_{1,2} \vee B_{1,1}$ $P_{1,2} \vee P_{2,1} \vee \neg P_{1,2}$ $\neg B_{1,1} \vee P_{2,1} \vee B_{1,1}$ $P_{1,2} \vee P_{2,1} \vee \neg P_{2,1}$ $\neg P_{2,1}$ $\neg P_{1,2}$

Figure 67   figures/wumpus-resolution.eps

SOme text

$$P \Rightarrow Q$$
$$L \wedge M \Rightarrow P$$
$$B \wedge L \Rightarrow M$$
$$A \wedge P \Rightarrow L$$
$$A \wedge B \Rightarrow L$$
$$A$$
$$B$$

(a)   (b)

Figure 68   LATEX + figures/pl-horn-example.eps

SOme text

| **Figure 69** | figures/wumpus-circuit1.eps |

SOme text

Breeze ☐

Stench ☐

Glitter ☐

Bump ☐

$L_{2,1}$

Scream ☐

FacingLeft

$L_{1,2}$

FacingDown

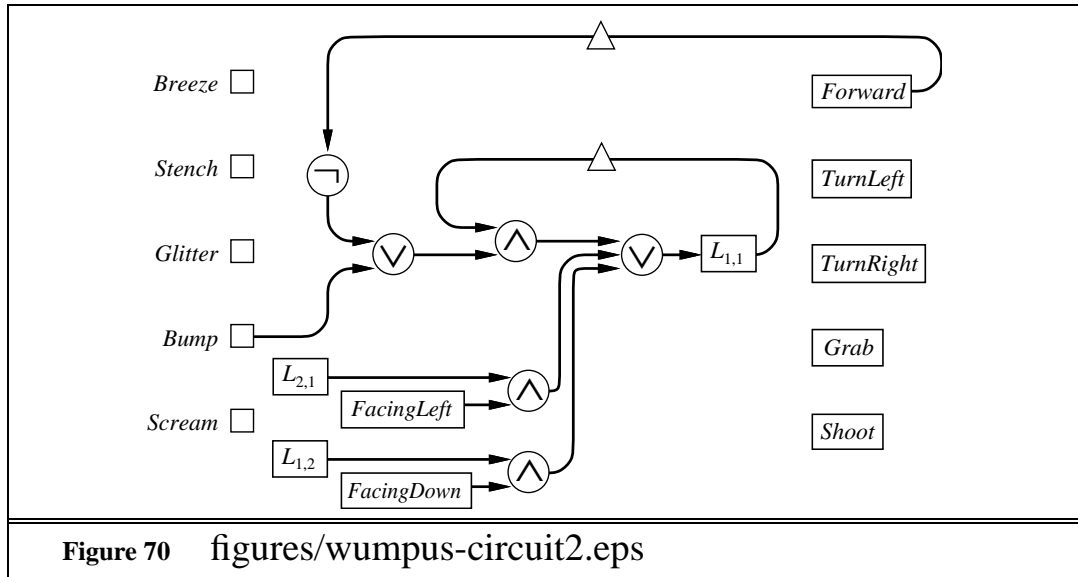$L_{1,1}$

Forward

TurnLeft

TurnRight

Grab
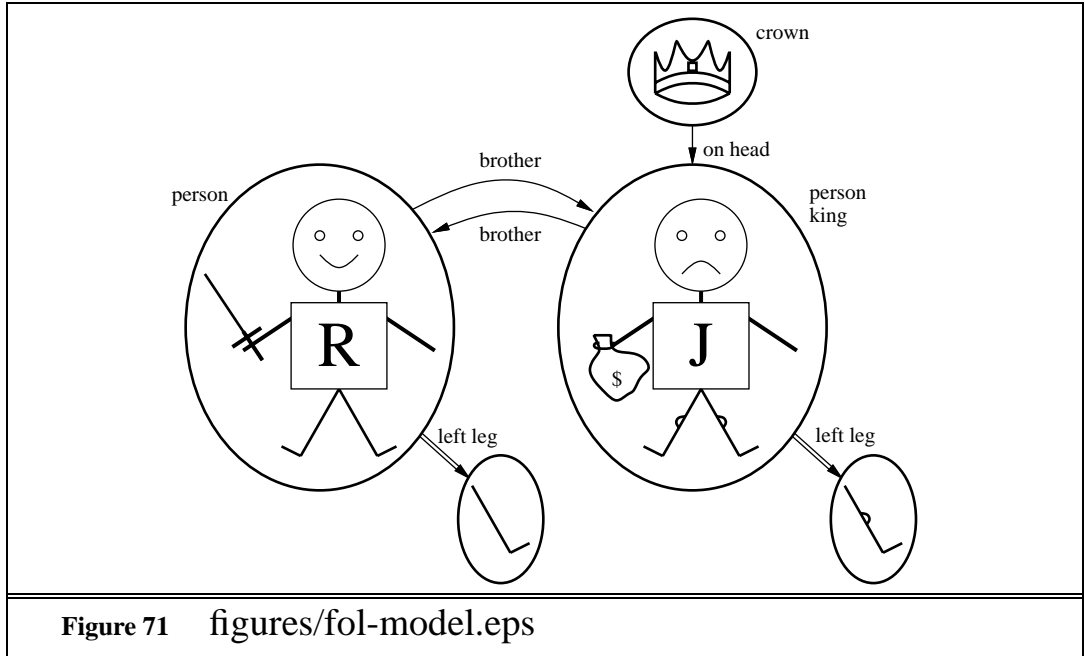
Shoot

Figure 70   figures/wumpus-circuit2.eps

SOme text

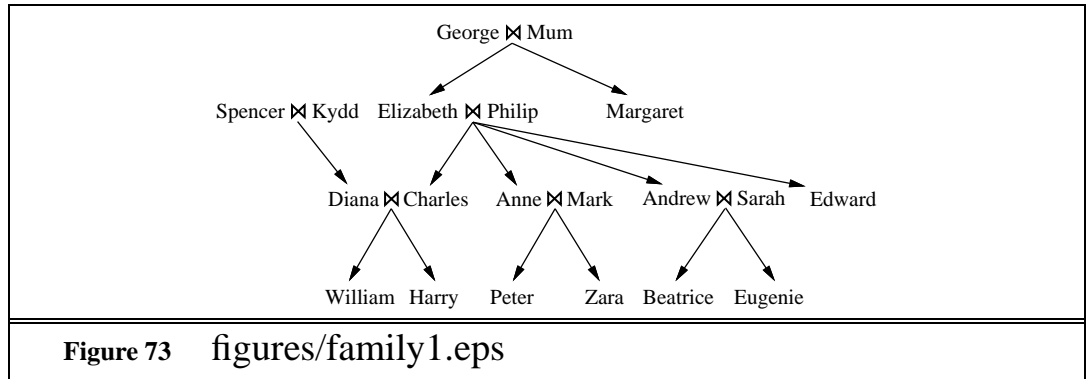
Figure 71   figures/fol-model.eps
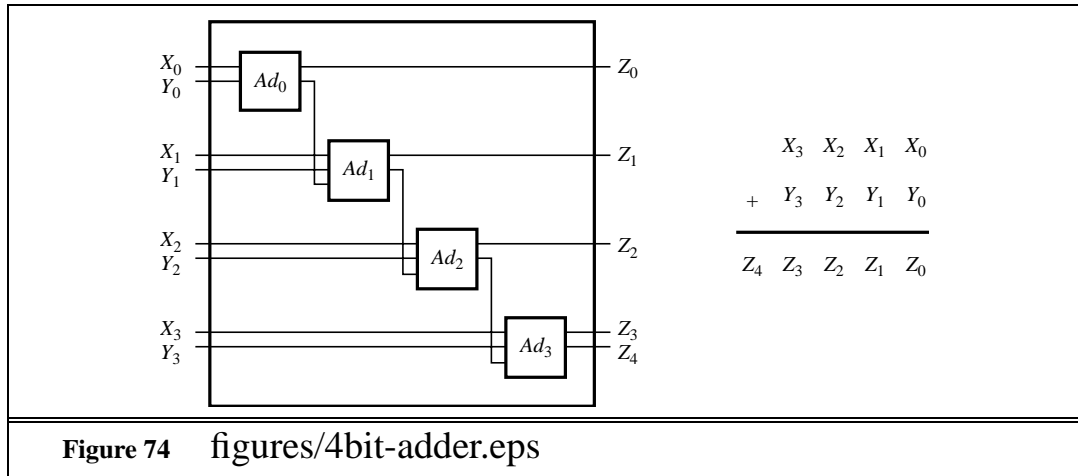
SOme text

Figure 72   figures/adder.eps

SOme text

George ⋈ Mum

Spencer ⋈ Kydd   Elizabeth ⋈ Philip   Margaret

Diana ⋈ Charles   Anne ⋈ Mark   Andrew ⋈ Sarah   Edward

William   Harry   Peter   Zara   Beatrice   Eugenie

Figure 73   figures/family1.eps

SOme text

Figure 74   figures/4bit-adder.eps

SOme text

Employs(x,y)

Employs(x,Richard)   Employs(AIMA.org,y)

Employs(AIMA.org,Richard)

(a)

Employs(x,y)

Employs(x,John)   Employs(x,x)   Employs(John,y)

Employs(John,John)

(b)

Figure 75   figures/subsumption-lattices.eps

SOme text

Criminal(West)

Weapon(M_1)   Sells(West,M_1,Nono)   Hostile(Nono)

American(West)   Missile(M_1)   Owns(Nono,M_1)   Enemy(Nono,America)

Figure 76   figures/crime-fc.eps

SOme text

$Diff(wa, nt) \wedge Diff(wa, sa) \wedge$
$\quad Diff(nt, q)Diff(nt, sa) \wedge$
$\quad Diff(q, nsw) \wedge Diff(q, sa) \wedge$
$\quad Diff(nsw, v) \wedge Diff(nsw, sa) \wedge$
$\quad Diff(v, sa) \Rightarrow Colorable()$

$Diff(Red, Blue) \quad Diff(Red, Green)$
$Diff(Green, Red) \quad Diff(Green, Blue)$
$Diff(Blue, Red) \quad Diff(Blue, Green)$

(a) (b)

Figure 77 figures/australia-csp.eps + LATEX

SOme text

Figure 78   figures/crime-bc.eps

SOme text

(a)

(b)

A_1

J_4

Figure 79   figures/prolog-ribbon.eps

SOme text

path(a,c)

link(a,c)   path(a,Y)   link(b,c)
fail   { }

link(a,Y)

{Y/b}

(a)

path(a,c)

path(a,Y)   link(Y,c)

path(a,Y')   link(Y',Y)

(b)

Figure 80   figures/proof-abc1.eps + figures/proof-abc2.eps

SOme text

¬*American*(*x*) ∨ ¬*Weapon*(*y*) ∨ ¬*Sells*(*x*,*y*,*z*) ∨ ¬*Hostile*(*z*) ∨ **Criminal(x)**   **¬Criminal(West)**

American(West)   ¬**American(West)** ∨ ¬*Weapon*(*y*) ∨ ¬*Sells*(*West*,*y*,*z*) ∨ ¬*Hostile*(*z*)

¬*Missile*(*x*) ∨ **Weapon(x)**   ¬**Weapon(y)** ∨ ¬*Sells*(*West*,*y*,*z*) ∨ ¬*Hostile*(*z*)

Missile(M₁)   ¬**Missile(y)** ∨ ¬*Sells*(*West*,*y*,*z*) ∨ ¬*Hostile*(*z*)

¬*Missile*(*x*) ∨ ¬*Owns*(*Nono*,*x*) ∨ **Sells(West,x,Nono)**   ¬**Sells(West,M₁,z)** ∨ ¬*Hostile*(*z*)

Missile(M₁)   ¬**Missile(M₁)** ∨ ¬*Owns*(*Nono*,*M₁*) ∨ ¬*Hostile*(*Nono*)

Owns(Nono,M₁)   ¬**Owns(Nono,M₁)** ∨ ¬*Hostile*(*Nono*)

¬*Enemy*(*x*,*America*) ∨ **Hostile(x)**   ¬**Hostile(Nono)**

Enemy(Nono,America)   ¬**Enemy(Nono,America)**

Figure 81   figures/crime-resolution.eps

SOme text

Cat(*Tuna*)	¬**Cat**(*x*) ∨ *Animal*(*x*)

Kills(Jack, Tuna) ∨ **Kills**(*Curiosity, Tuna*) ¬**Kills**(*Curiosity, Tuna*)

Animal(*Tuna*) ¬*Loves*(*y, x*) ∨ ¬**Animal**(*z*) ∨ ¬*Kills*(*x, z*) **Kills**(*Jack, Tuna*) ¬**Loves**(*x*,**F**(*x*)) ∨ *Loves*(*G*(*x*), *x*) ¬*Animal*(*x*) ∨ **Loves**(*Jack, x*)

¬*Loves*(*y, x*) ∨ ¬**Kills**(*x, Tuna*) ¬**Animal**(**F**(*Jack*)) ∨ *Loves*(*G*(*Jack*), *Jack*) **Animal**(**F**(*x*)) ∨ *Loves*(*G*(*x*), *x*)

¬**Loves**(*y, Jack*) **Loves**(**G**(*Jack*), *Jack*)

□
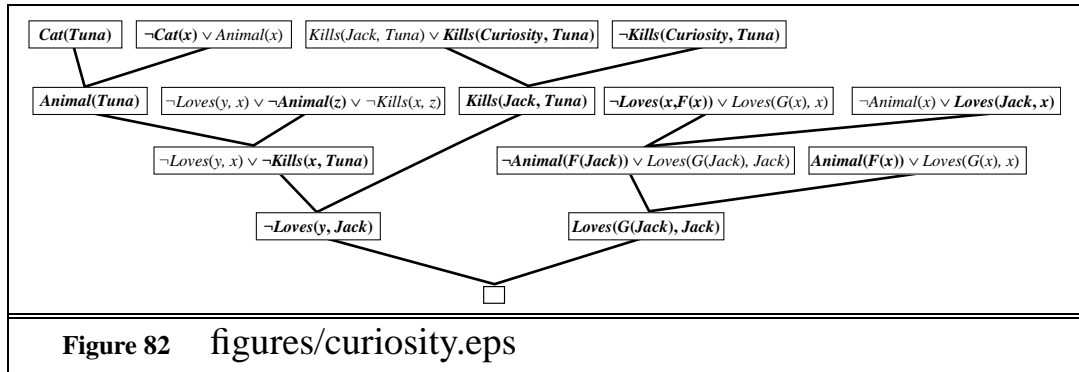
Figure 82 figures/curiosity.eps

SOme text

Any set of sentences S is representable in clausal form

Assume S is unsatisfiable, and in clausal form

Herbrand's theorem

Some set S' of ground instances is unsatisfiable

Ground resolution
theorem

Resolution can find a contradiction in S'

Lifting lemma

There is a resolution proof for the contradiction in S'

Figure 83   figures/resolution-completeness.eps

SOme text

Figure 84   figures/everything.eps

SOme text

$Result(Turn(Right),$
$Result(Forward, S_0))$

$Turn(Right)$

$Result(Forward, S_0)$

$Forward$

S_0

Figure 85   figures/situations.eps

SOme text

Figure 86   figures/event-space.eps

SOme text

Figure 87   figures/complex-events.eps
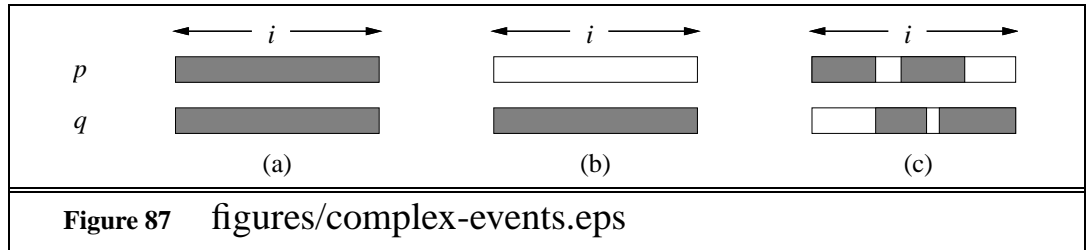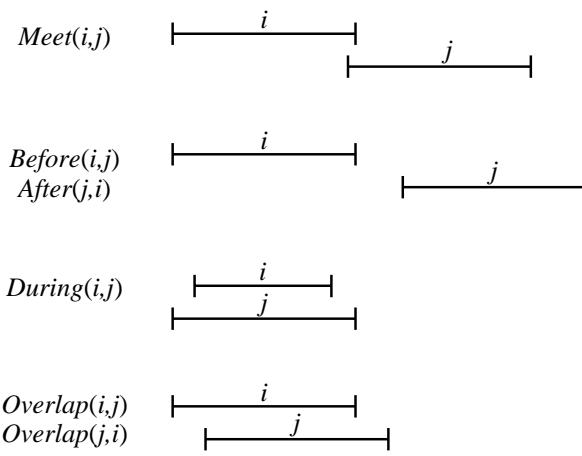
SOme text

Figure 88 figures/time-intervals.eps

SOme text

Figure 89   figures/president-usa.eps
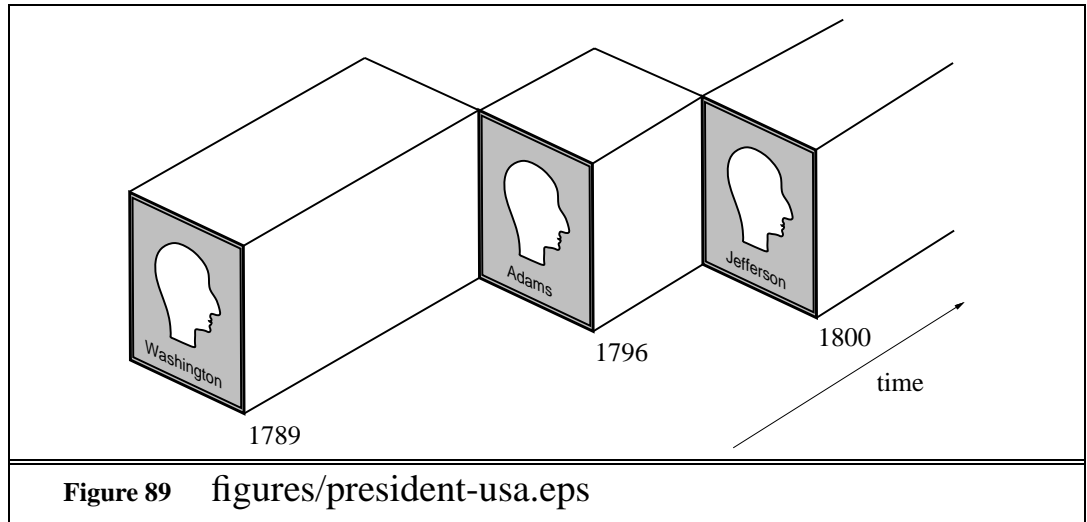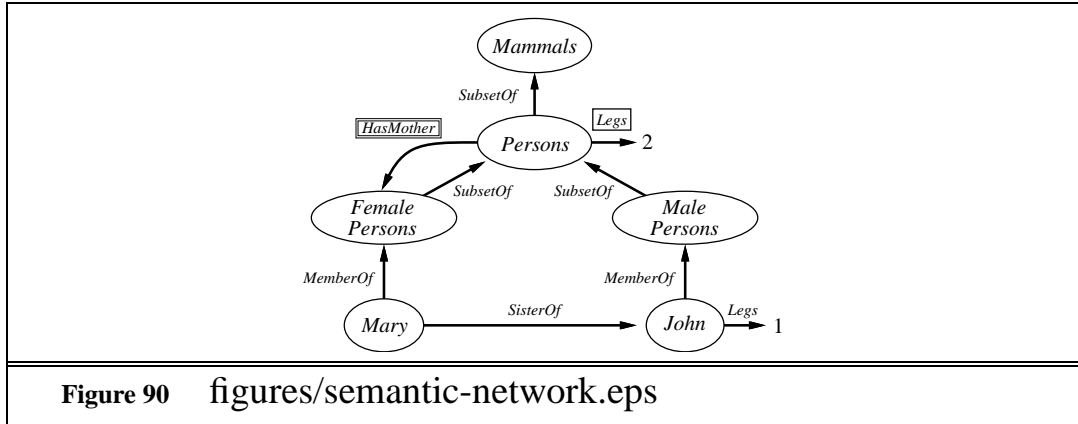
SOme text

Figure 90   figures/semantic-network.eps

SOme text

Figure 91   figures/flying-network.eps

SOme text

Figure 92   figures/two-plan-searches.eps

SOme text

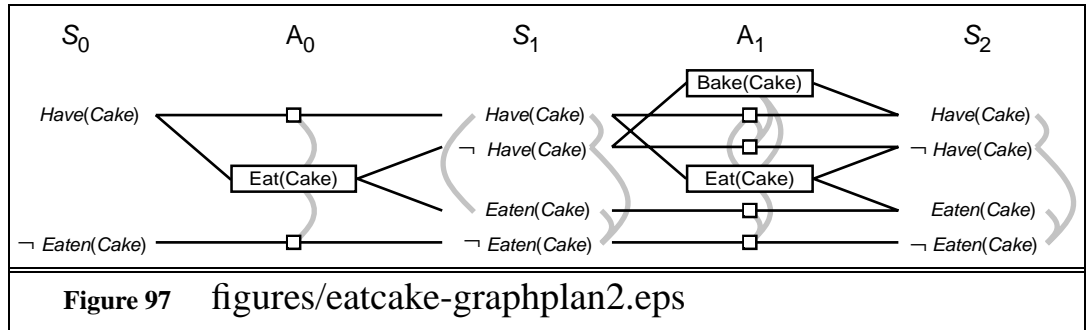Partial-Order Plan:

Total-Order Plans:
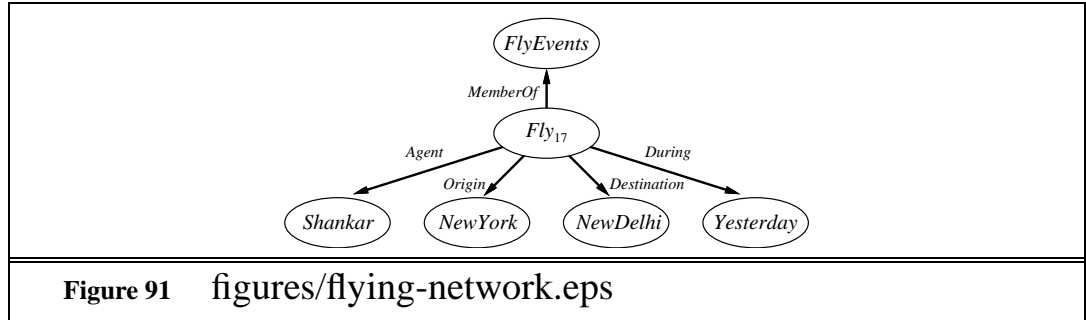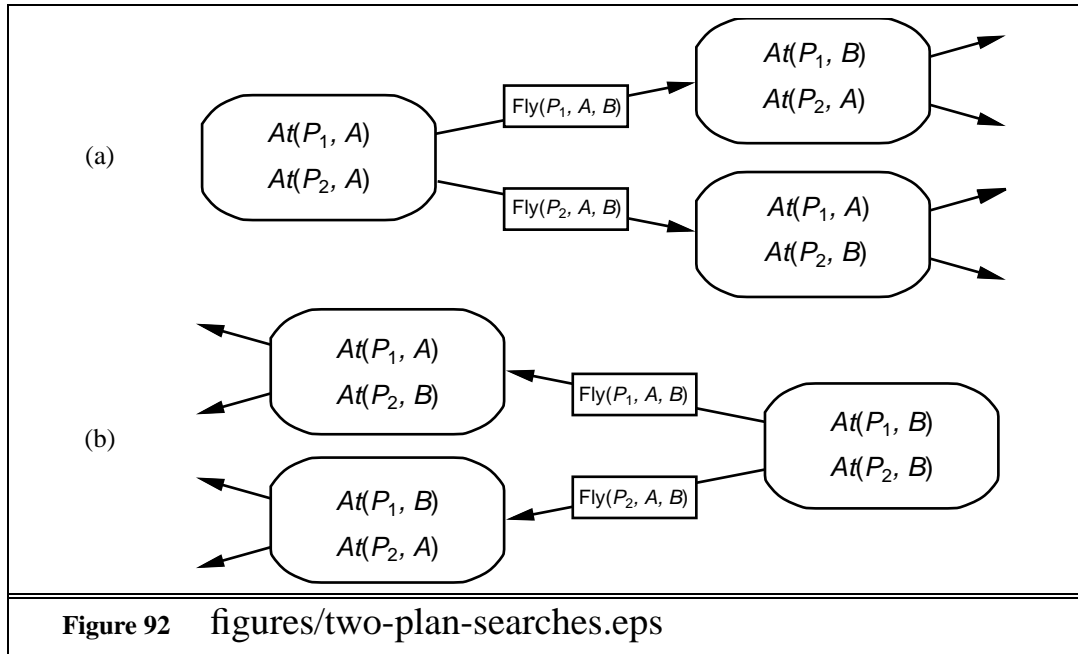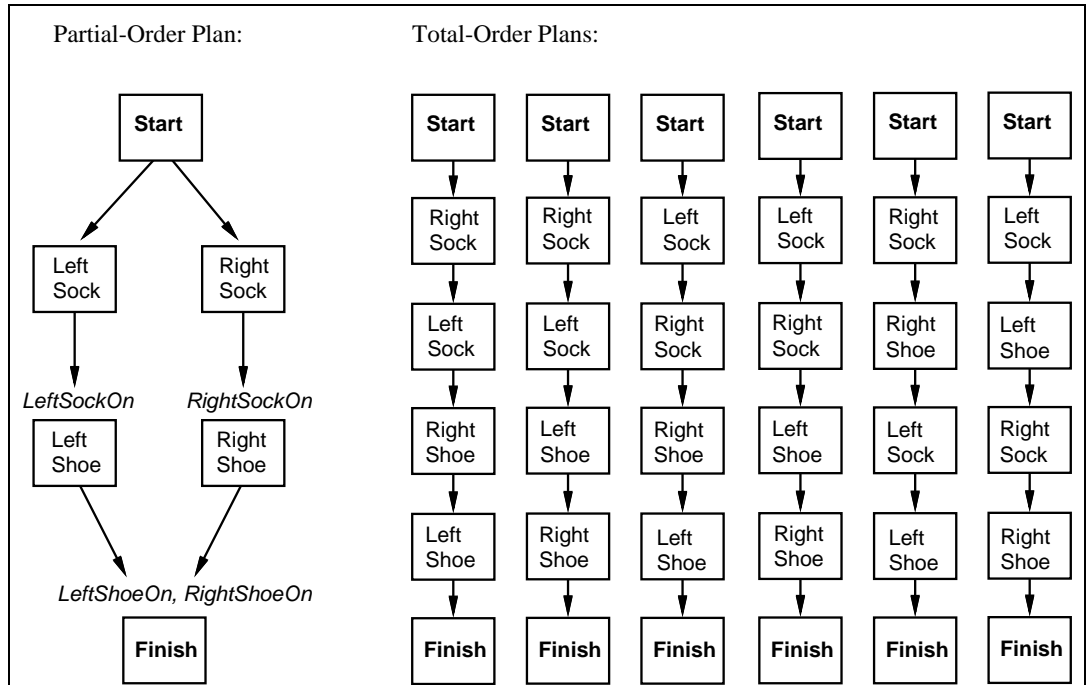
Figure 93   figures/shoes-socks3.eps

SOme text

At(*Spare,Trunk*) Remove(Spare,Trunk)

Start At(*Spare,Trunk*)
At(*Flat,Axle*)

At(*Spare,Ground*)
¬At(*Flat,Axle*) PutOn(Spare,Axle) → At(*Spare,Axle*) **Finish**

Figure 94 figures/tire0.eps

SOme text

Figure 95   figures/tire1.eps

SOme text

Figure 96   figures/tire2.eps

SOme text

Figure 97   figures/eatcake-graphplan2.eps

SOme text

S_0	A_0	S_1	A_1	S_2	
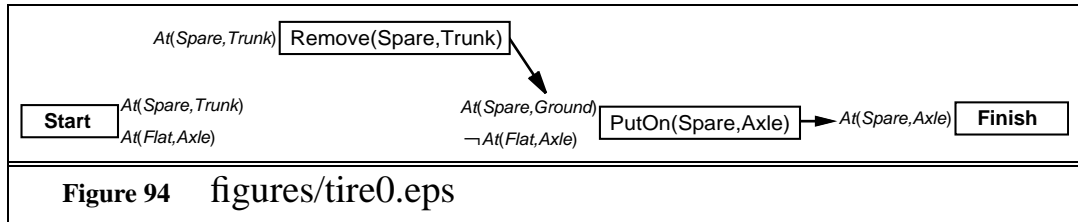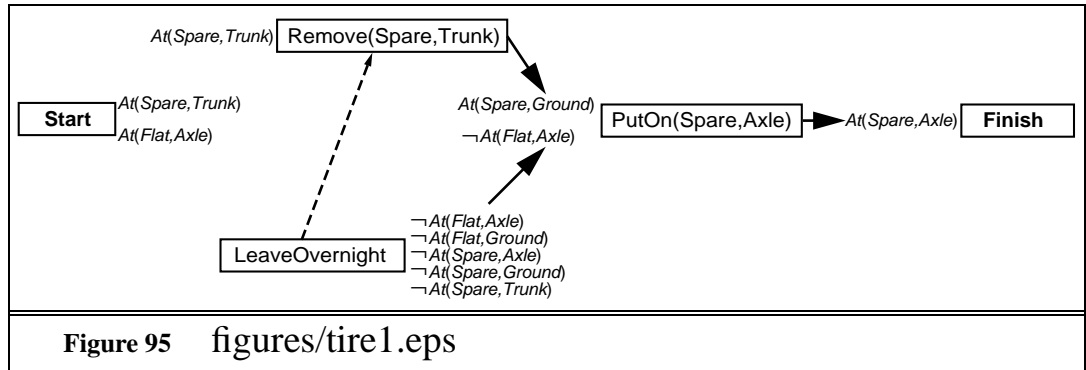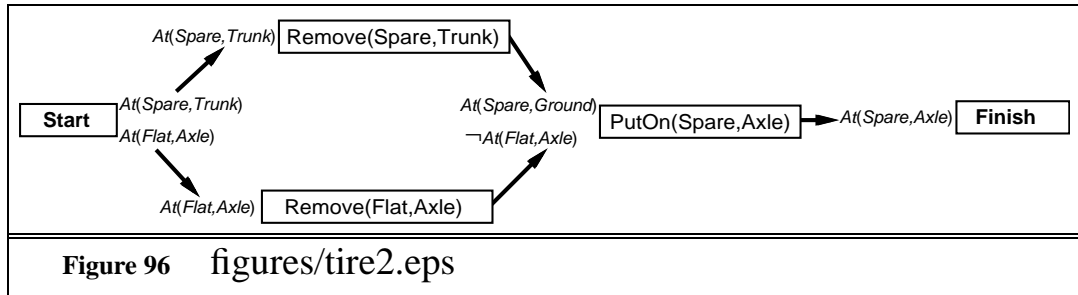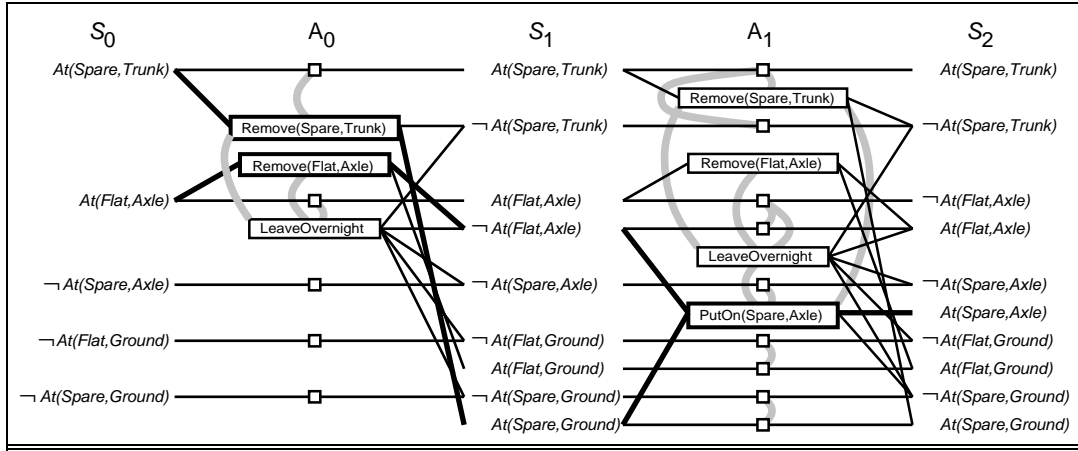
Figure 98   figures/tire-graphplan2.eps

SOme text

Figure 99 figures/sussman-anomaly.eps

SOme text

Room 4

Switch 4

Door 4

Switch 3

Room 3

Door 3

Shakey

Corridor

Switch 2

Room 2

Door 2

Switch 1

Box 3

Box 2

Room 1

Door 1

Box 4

Box 1

Figure 100 figures/shakey2.eps

SOme text
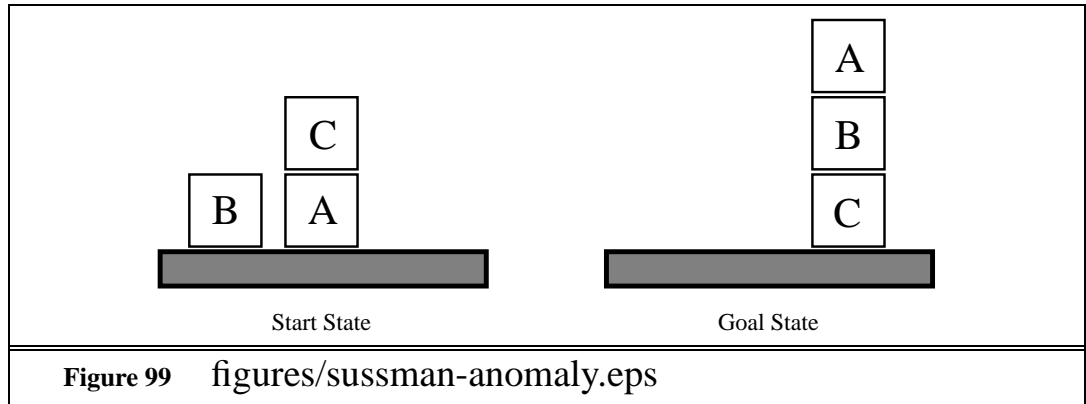
Figure 101   figures/jobshop-cpm.eps
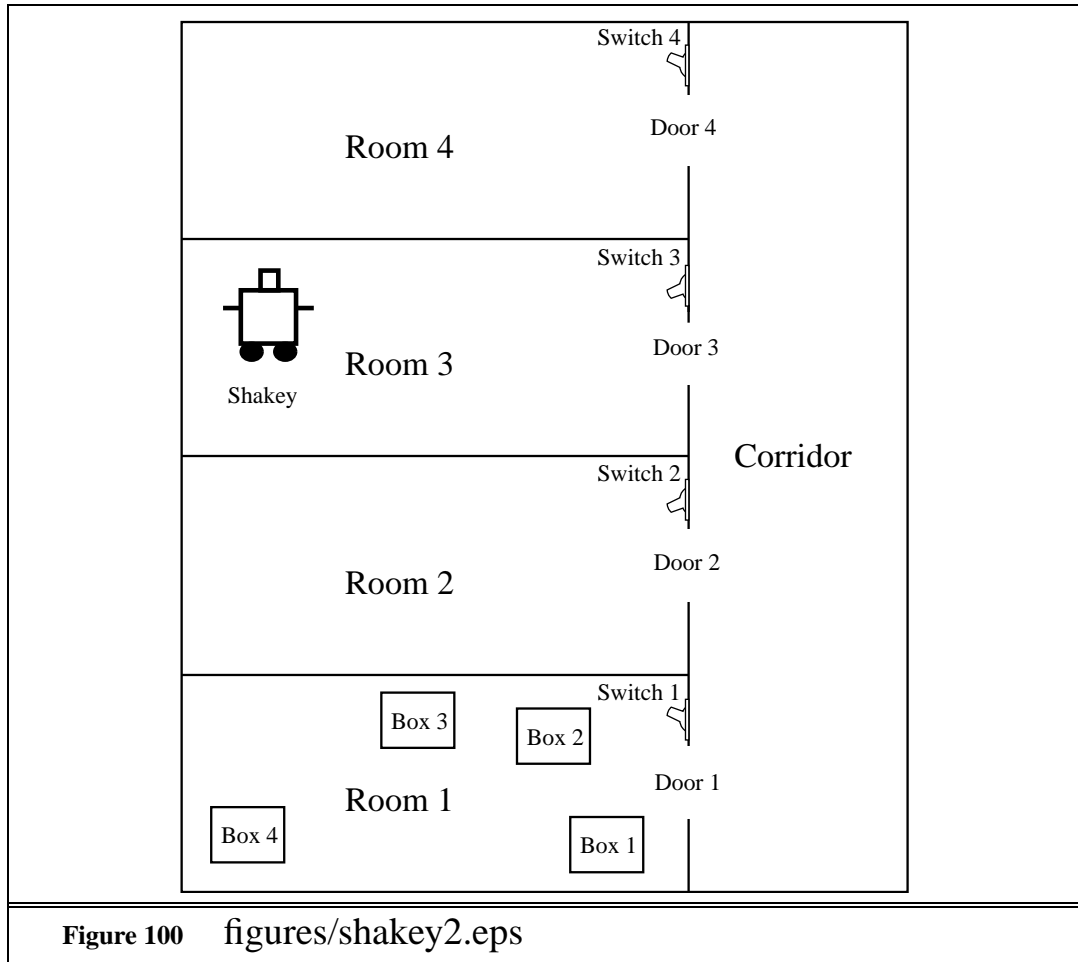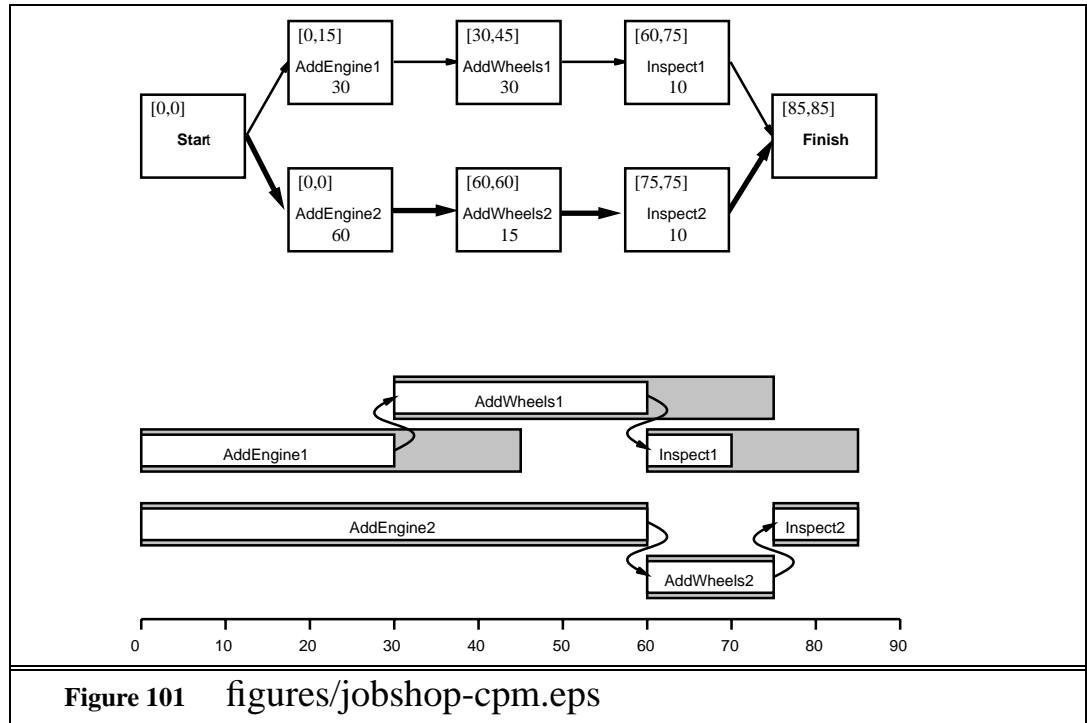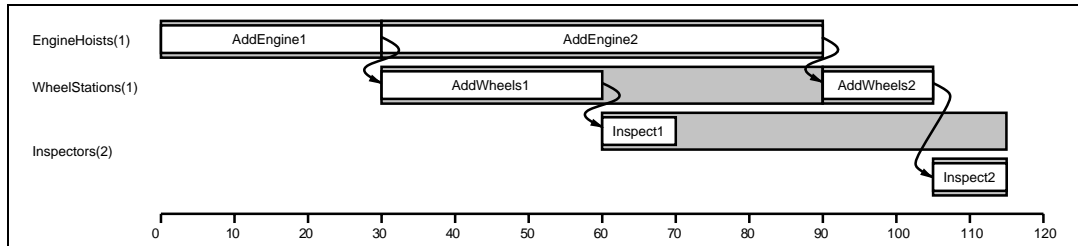
SOme text

Figure 102   figures/jobshop-resources.eps

SOme text
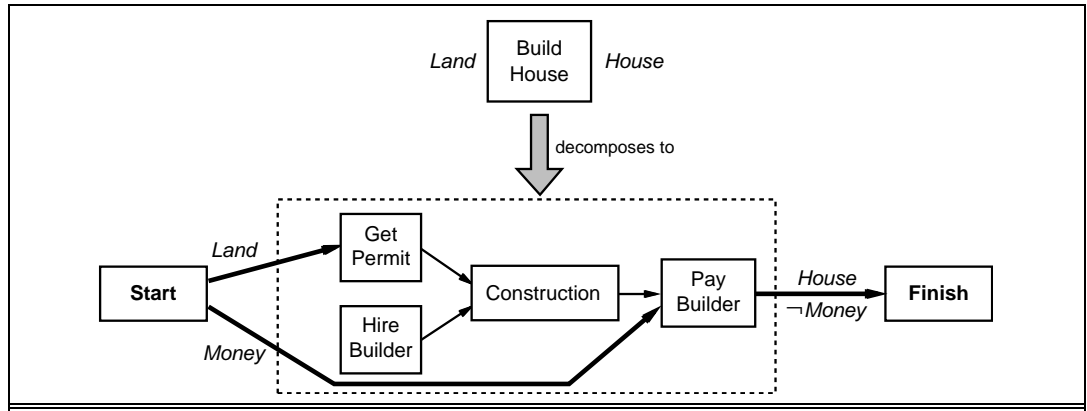
Figure 103   figures/house-decomposition.eps

SOme text

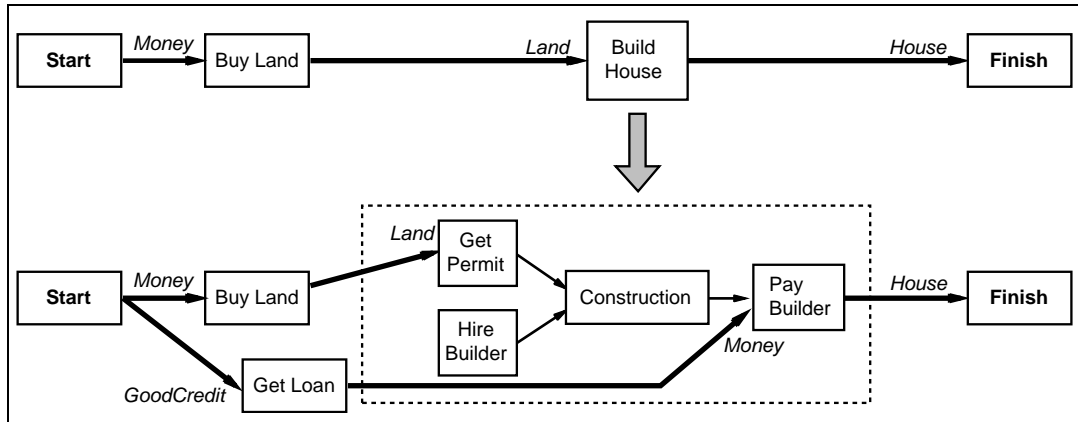**Figure 104**   figures/house-hybrid-htn.eps

SOme text

(a) Initial Problem

(b) Abstract Inconsistent Plan

(c) Decomposition of (b) into a Consistent Solution

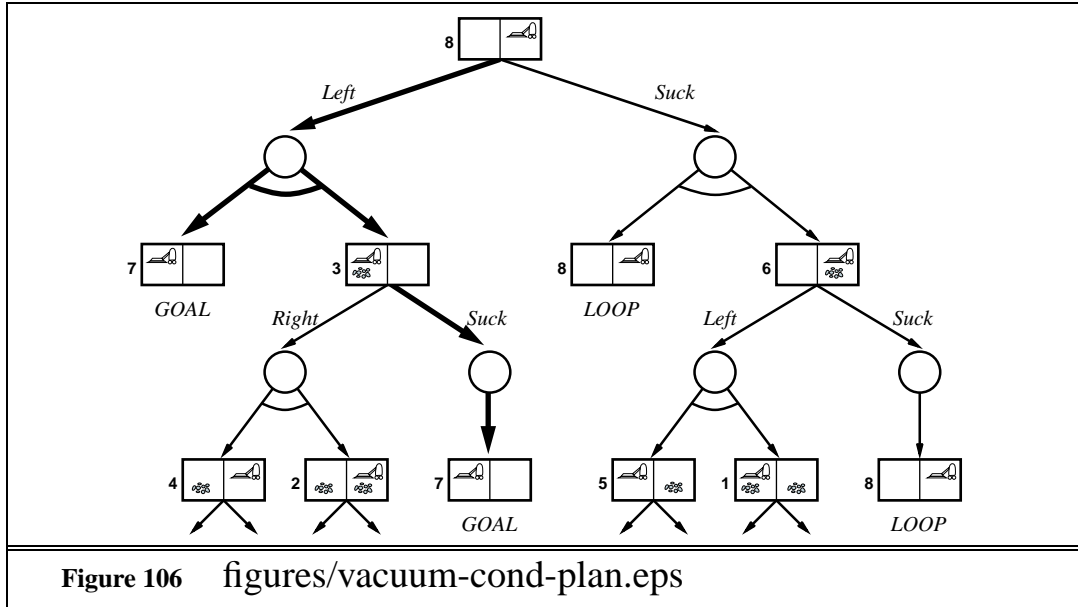**Figure 105**   figures/magi.eps
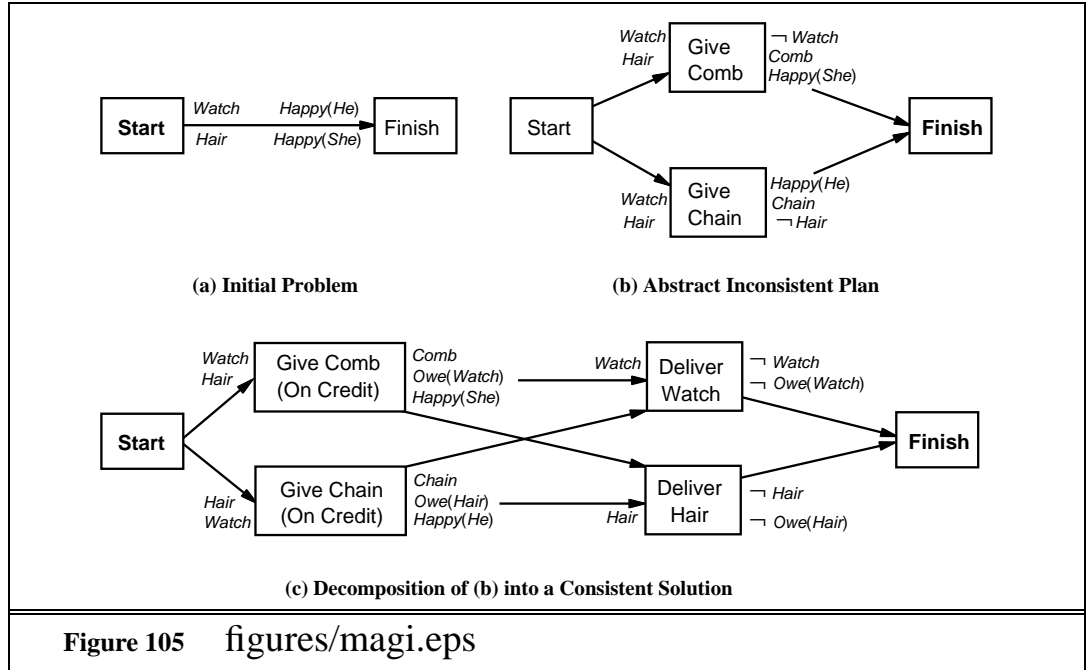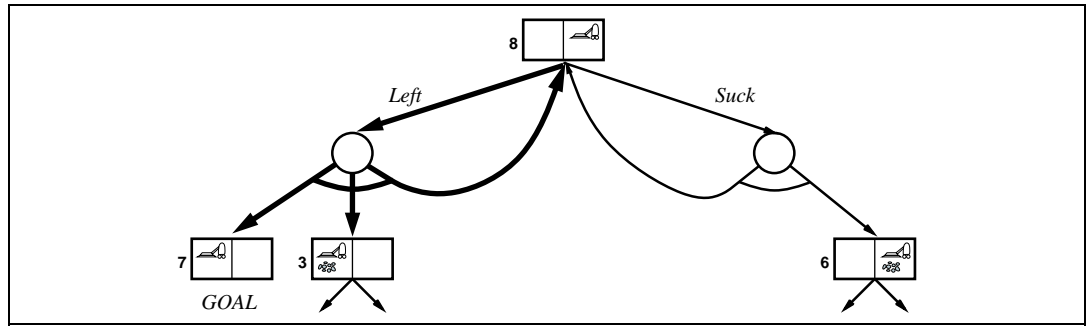
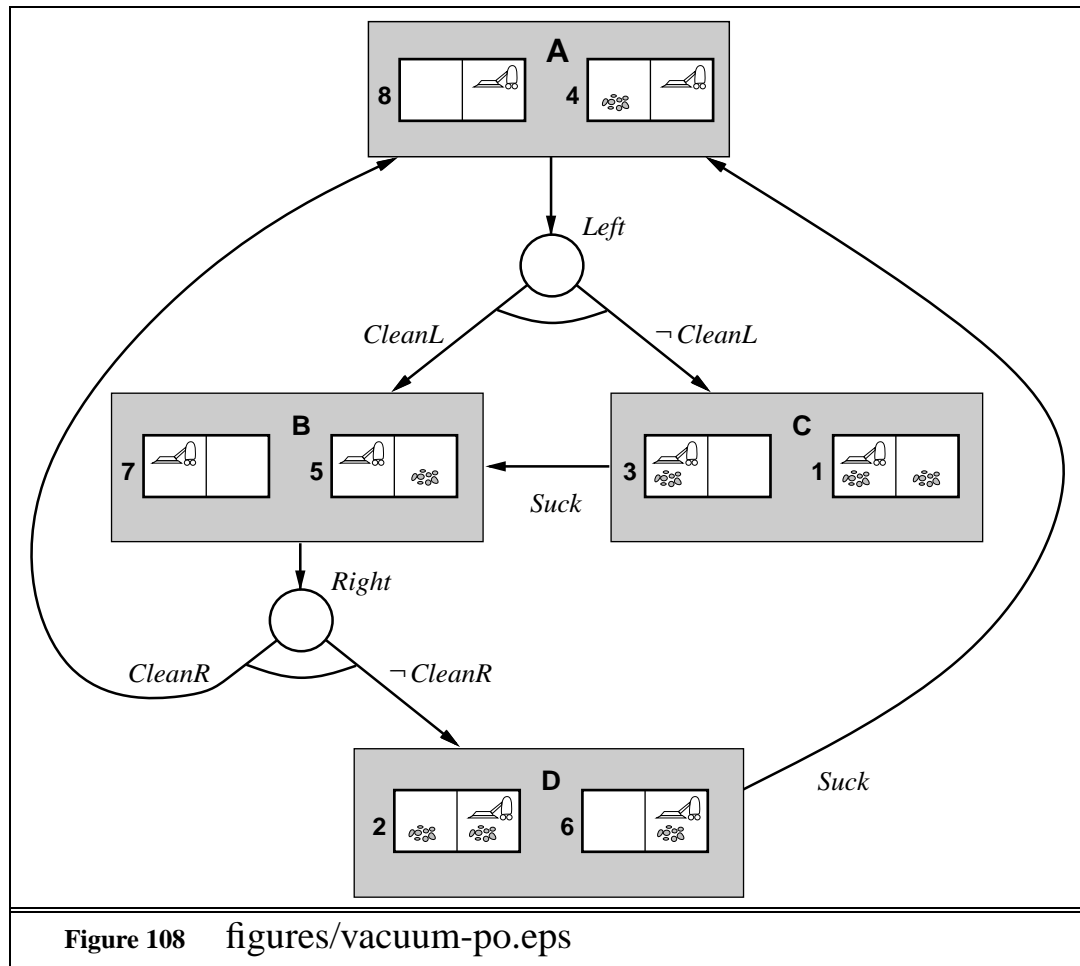SOme text

Figure 106   figures/vacuum-cond-plan.eps

SOme text

Figure 107   figures/vacuum-loop-plan.eps
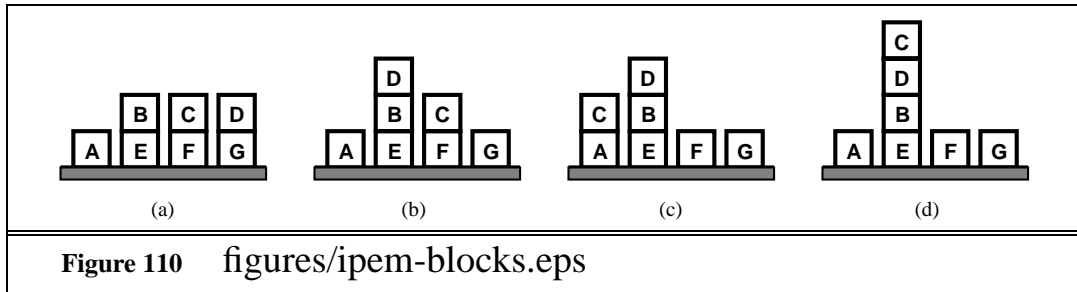
SOme text

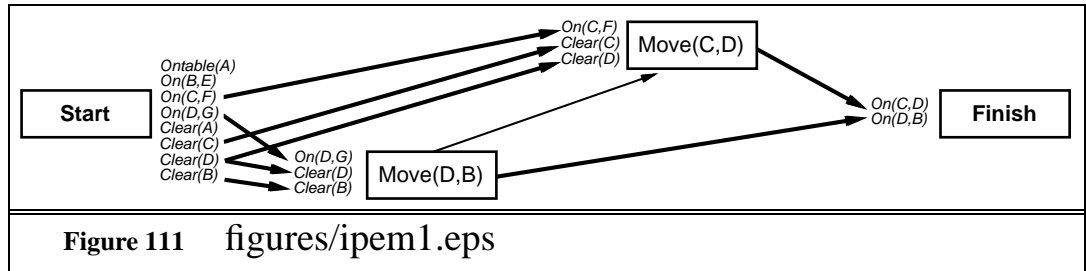**Figure 108**   figures/vacuum-po.eps
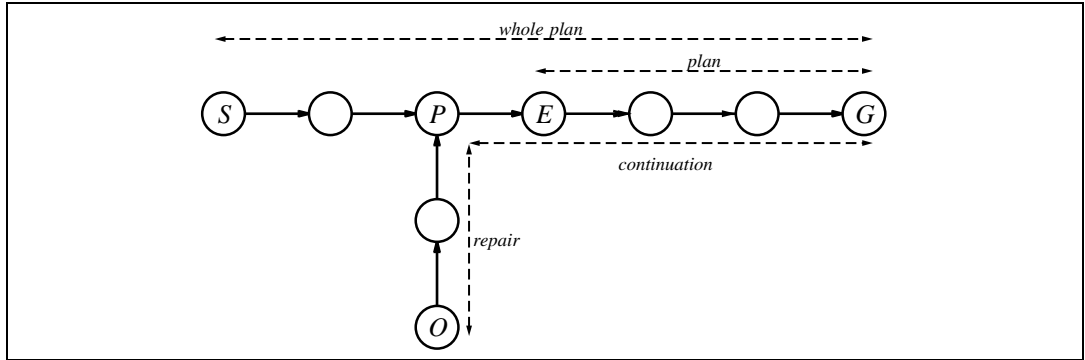
SOme text

Figure 109   figures/plan-repair.eps

SOme text

Figure 110   figures/ipem-blocks.eps

SOme text

Figure 111   figures/ipem1.eps

SOme text

Figure 112   figures/ipem2.eps

SOme text

On(C,F)
Clear(C)
Clear(D)

Move(C,D)

Ontable(A)
On(B,E)
On(C,F)
On(D,B)
Clear(A)
Clear(C)
Clear(D)
Clear(G)

Start

On(C,D)
On(D,B)

Finish
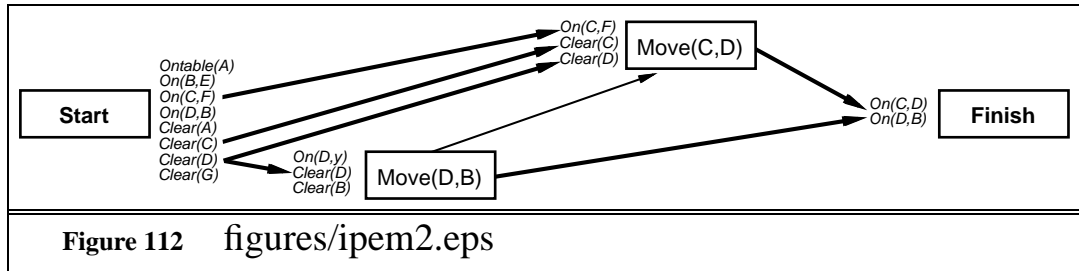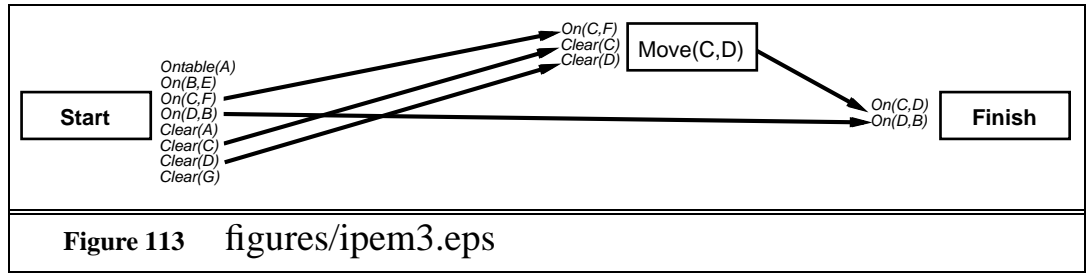
Figure 113   figures/ipem3.eps

SOme text

Ontable(A)
On(B,E)
On(C,A)
On(D,B)
Clear(F)
Clear(C)
Clear(D)
Clear(G)

Start

On(C,D)
On(D,B)

Finish

Figure 114   figures/ipem4.eps

SOme text

| Figure 115 | figures/ipem5.eps |

SOme text

Start

Ontable(A)
On(B,E)
On(C,D)
On(D,B)
Clear(F)
Clear(C)
Clear(A)
Clear(G)

On(C,D)
On(D,B)

Finish
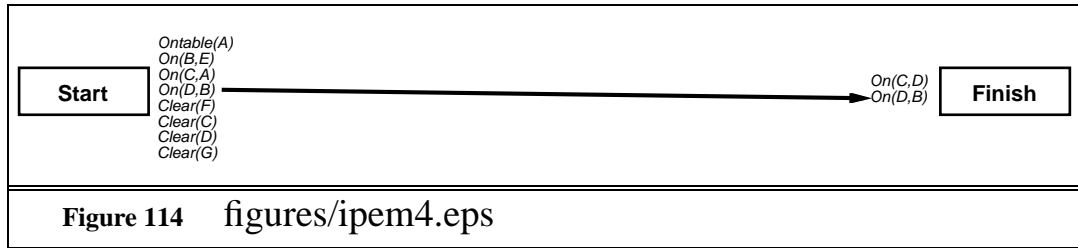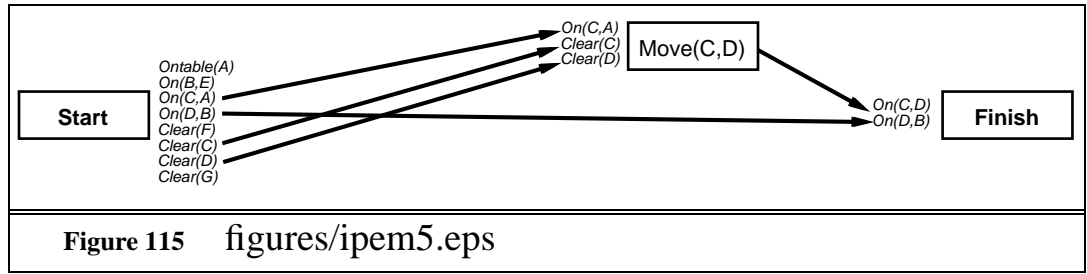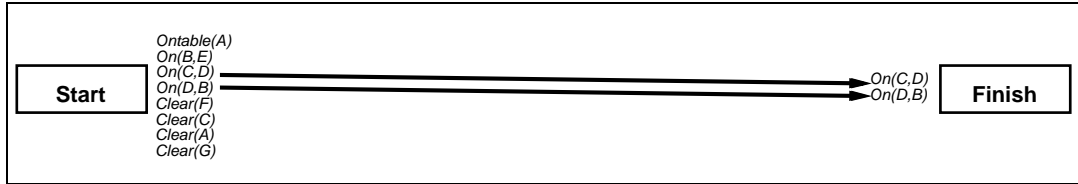
Figure 116   figures/ipem6.eps

SOme text

(a)

(b)

Figure 117 figures/weather-independence.eps + figures/coin-independence.eps

SOme text

1,4	2,4	3,4	4,4
1,3	2,3	3,3	4,3
1,2 B OK	2,2	3,2	4,2
1,1 OK	2,1 B OK	3,1	4,1

(a)

QUERY

OTHER

1,2   2

FRINGE

KNOWN

(b)

Figure 118 figures/wumpus-stuck.eps + figures/wumpus-variables.eps

SOme text

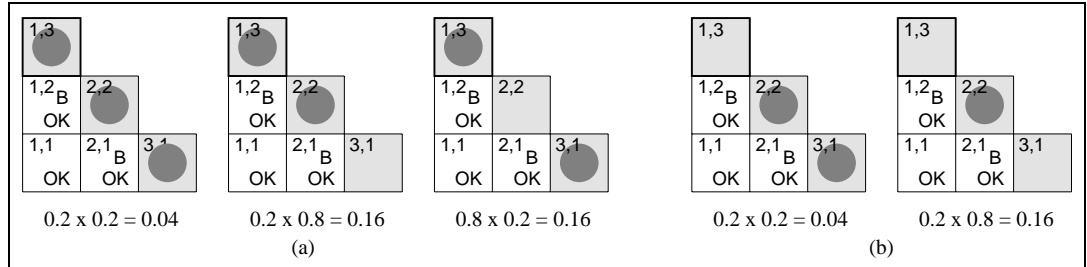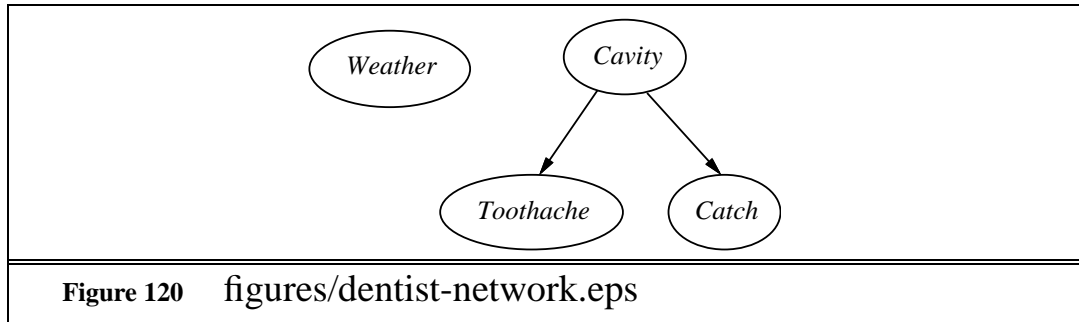|				
0.2 x 0.2 = 0.04	0.2 x 0.8 = 0.16	0.8 x 0.2 = 0.16	0.2 x 0.2 = 0.04	0.2 x 0.8 = 0.16
	(a)			(b)
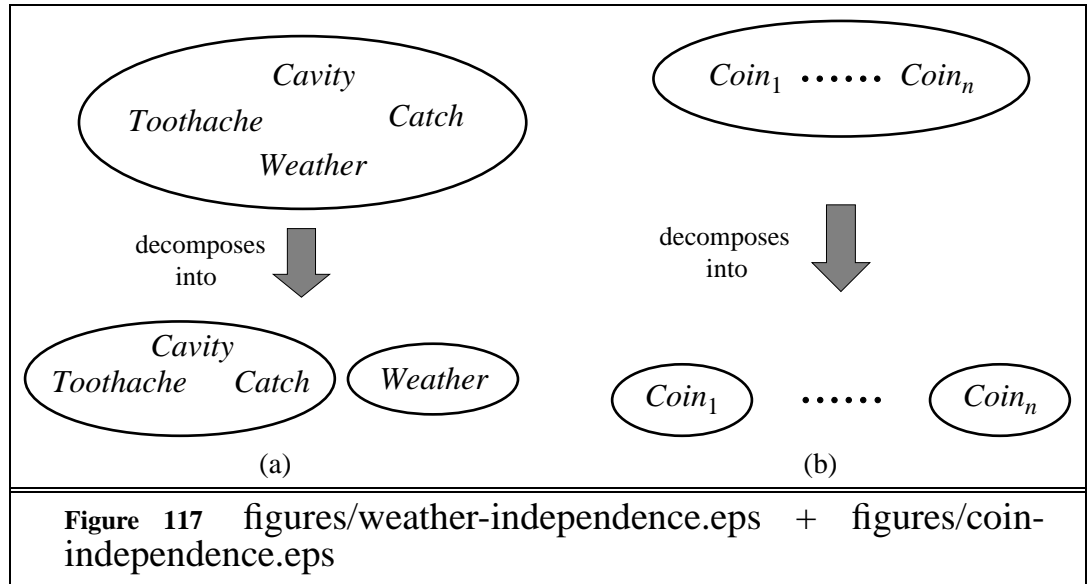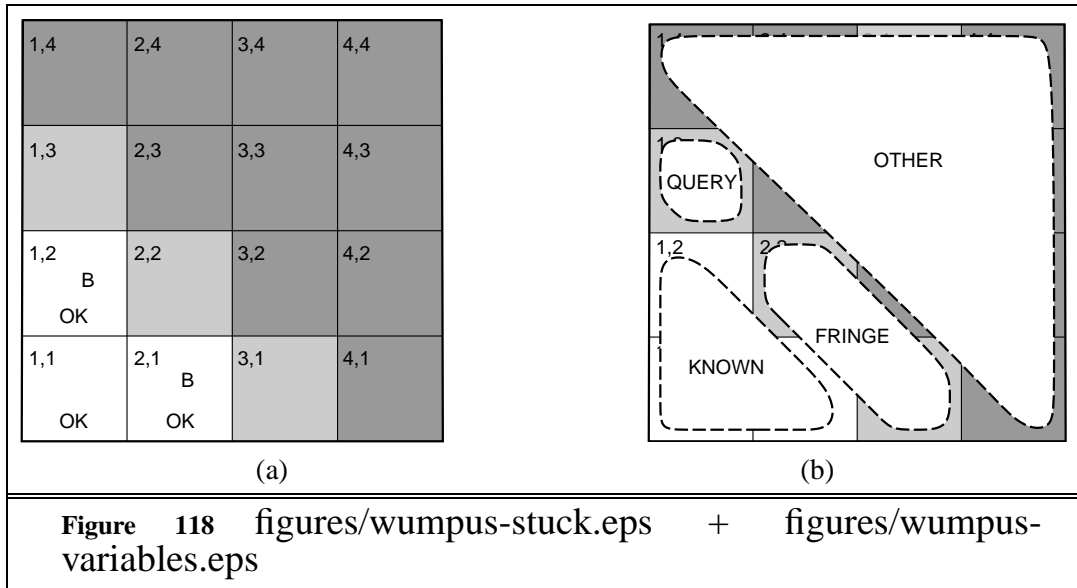
Figure 119   figures/wumpus-fringe-models.eps

SOme text

Figure 120   figures/dentist-network.eps

SOme text

B	E	P(A)
t	t	.95
t	f	.94
f	t	.29
f	f	.001

	P(B)
	.001

	P(E)
	.002

A	P(J)
t	.90
f	.05

A	P(M)
t	.70
f	.01

Figure 121   figures/burglary2.eps

SOme text

Figure 122   figures/burglary-mess.eps

SOme text

Figure 123 figures/nondescendants.eps + figures/markov-blanket.eps
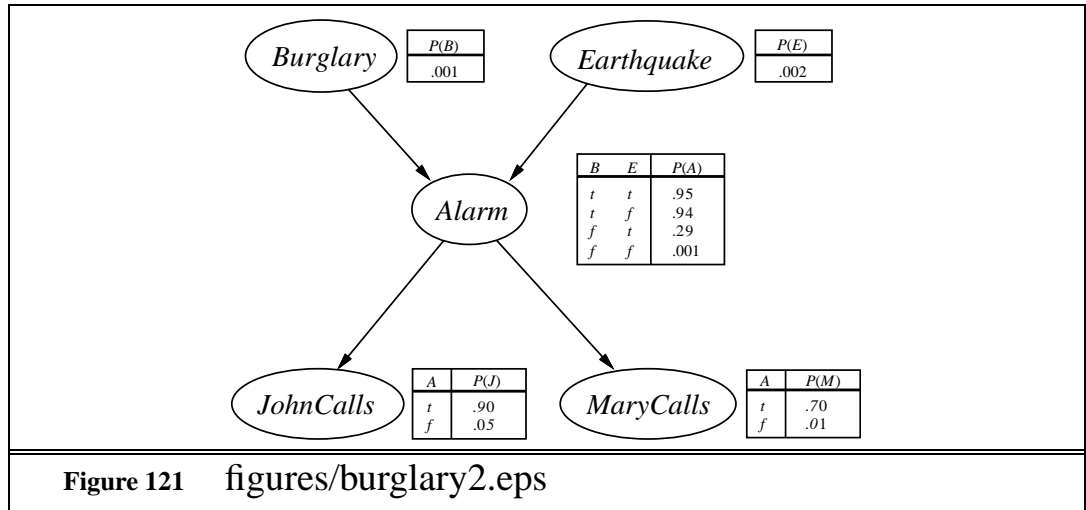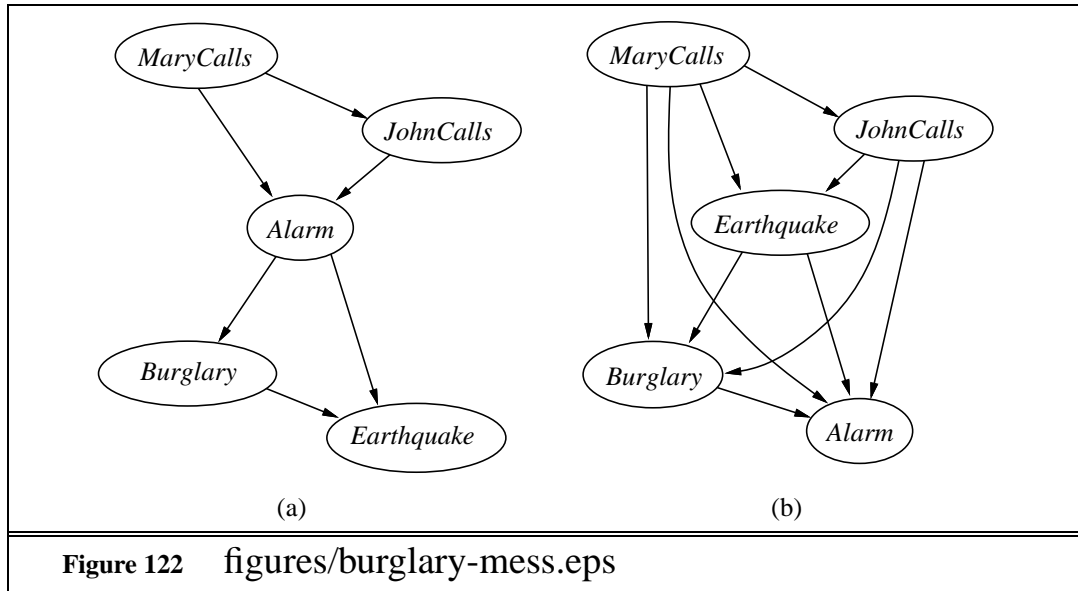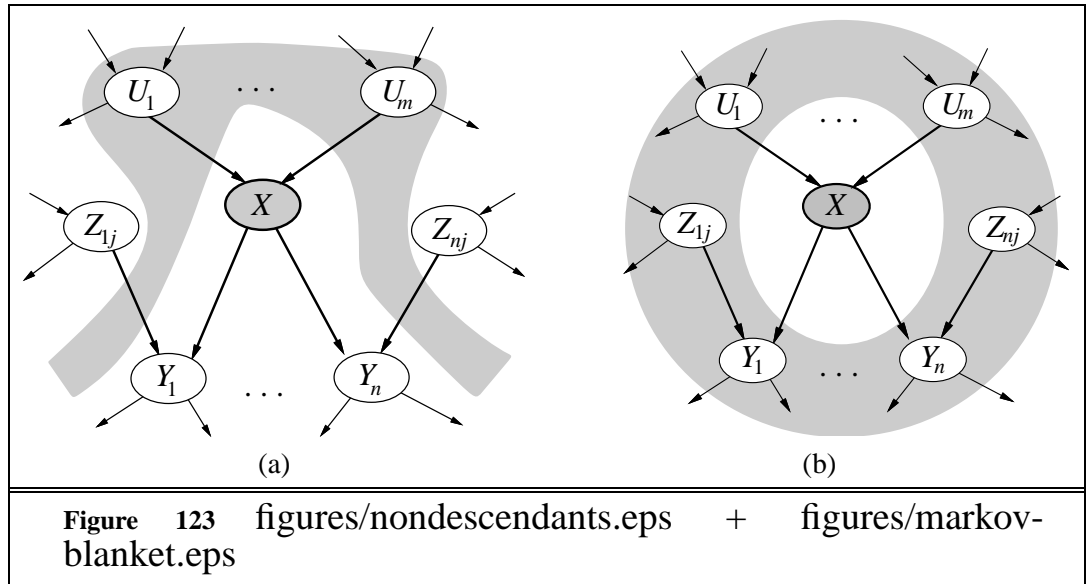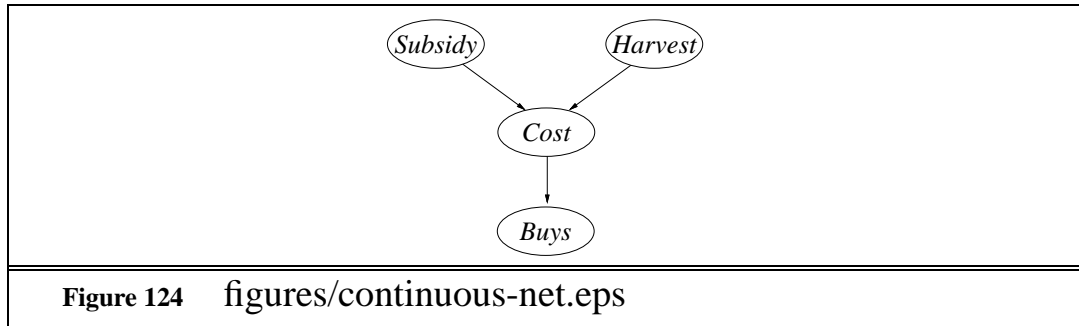
SOme text

Figure 124   figures/continuous-net.eps

SOme text

Figure 125   figures/enumeration-tree.eps

SOme text

C	P(S)
t	.10
f	.50

P(C)=.5

Cloudy

Sprinkler   Rain

C	P(R)
t	.80
f	.20

Wet Grass

S	R	P(W)
t	t	.99
t	f	.90
f	t	.90
f	f	.00

(a)

P(C)=.5

Cloudy

Spr+Rain

Wet Grass

S+R	P(W)
t t	.99
t f	.90
f t	.90
f f	.00

C	P(S+R=x)			
	t t	t f	f t	f f
t	.08	.02	.72	.18
f	.10	.40	.10	.40

(b)

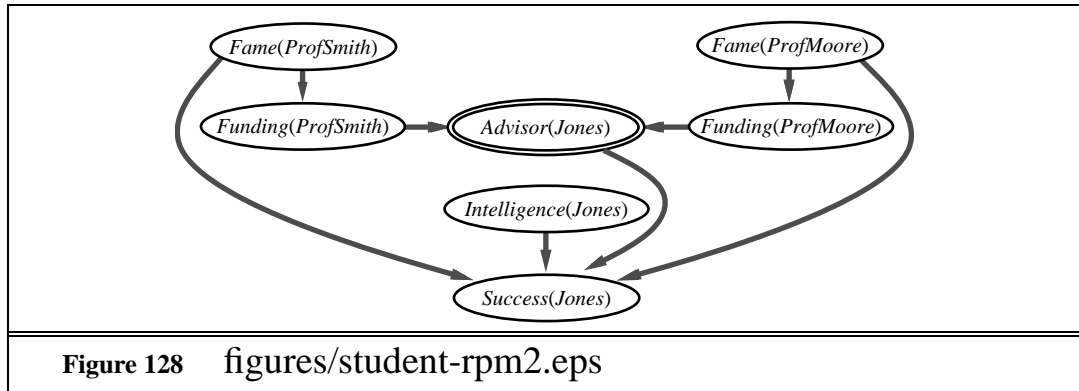**Figure** **126** figures/rain-clustering1.eps + figures/rain-clustering2.eps
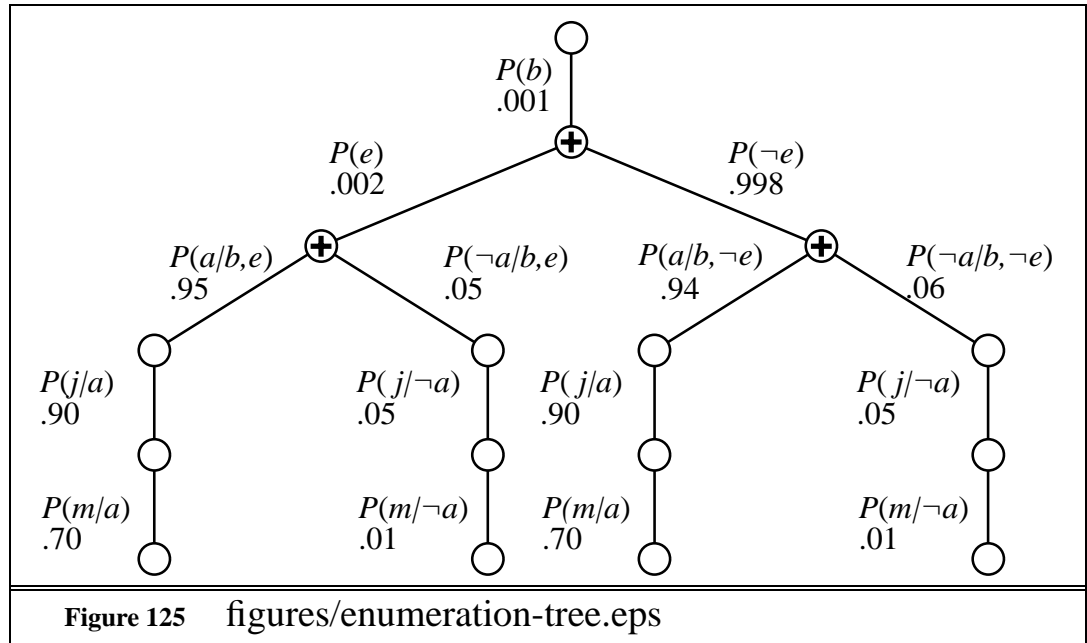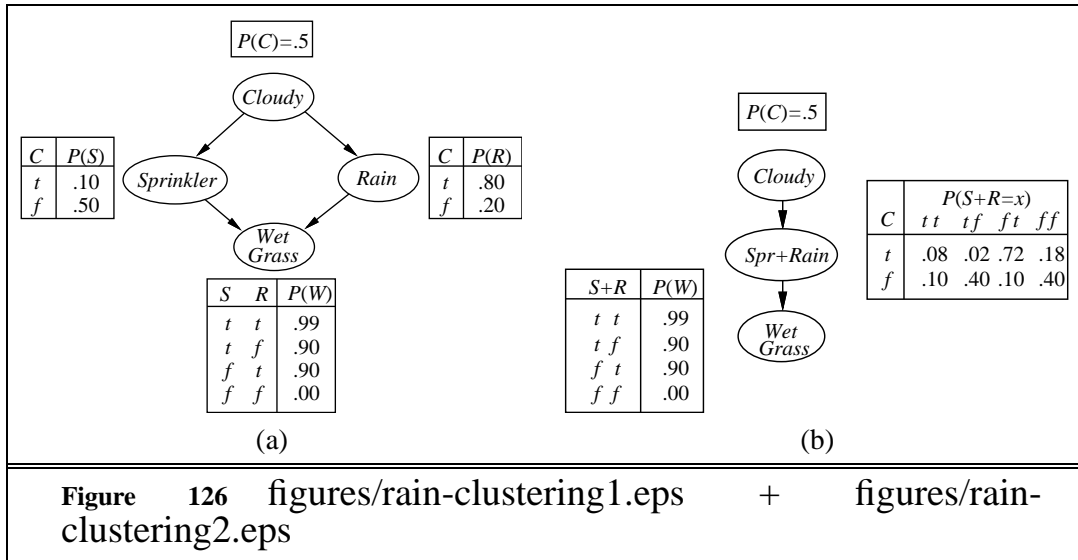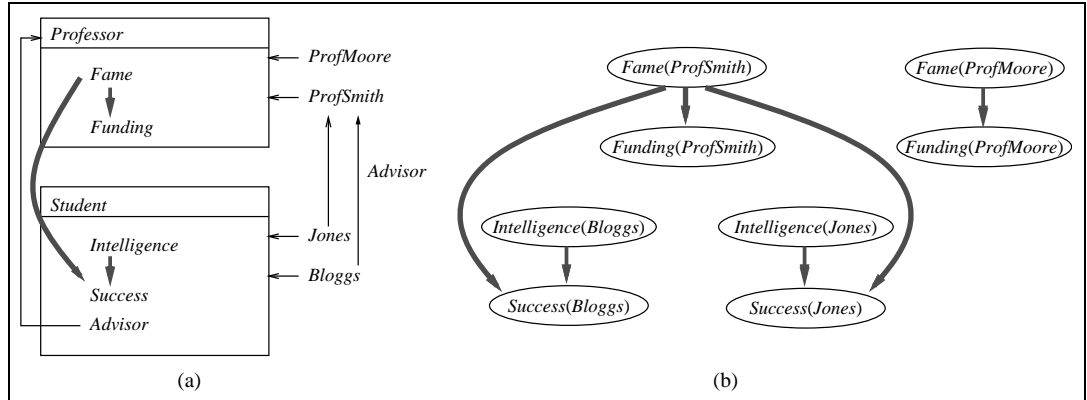
SOme text

Figure 127   figures/student-rpm.eps

SOme text

Figure 128   figures/student-rpm2.eps
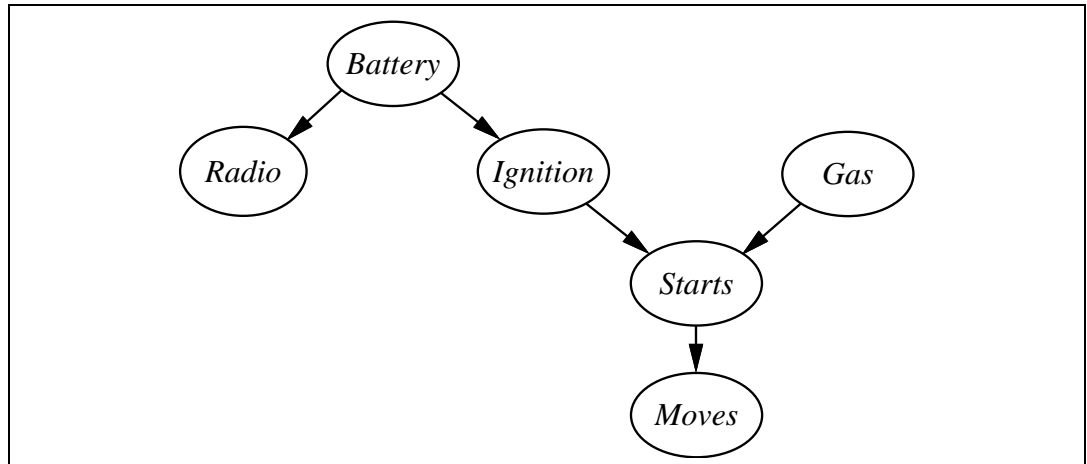
SOme text

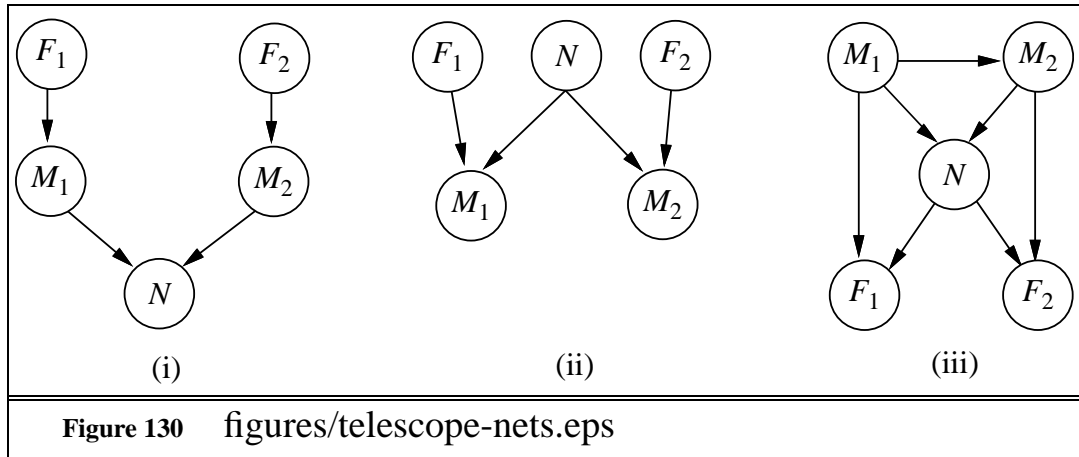**Figure 129**   figures/car-starts.eps

SOme text

(i)   (ii)   (iii)

Figure 130   figures/telescope-nets.eps

SOme text

Figure 131   figures/markov-processes.eps

SOme text

R_{t-1}	$P(R_t)$
t	0.7
f	0.3

R_t	$P(U_t)$
t	0.9
f	0.2

Figure 132   figures/umbrella-dbn.eps
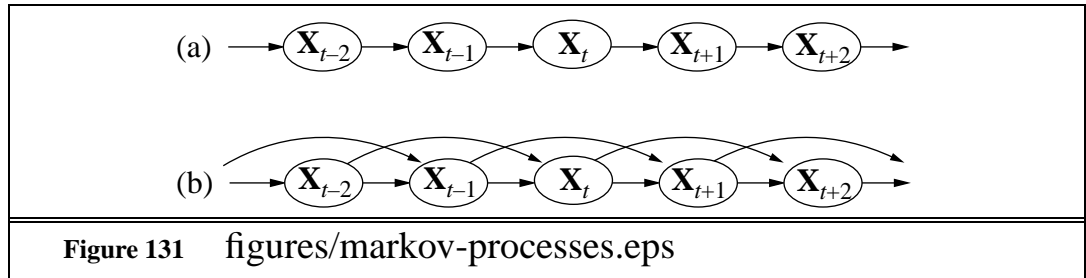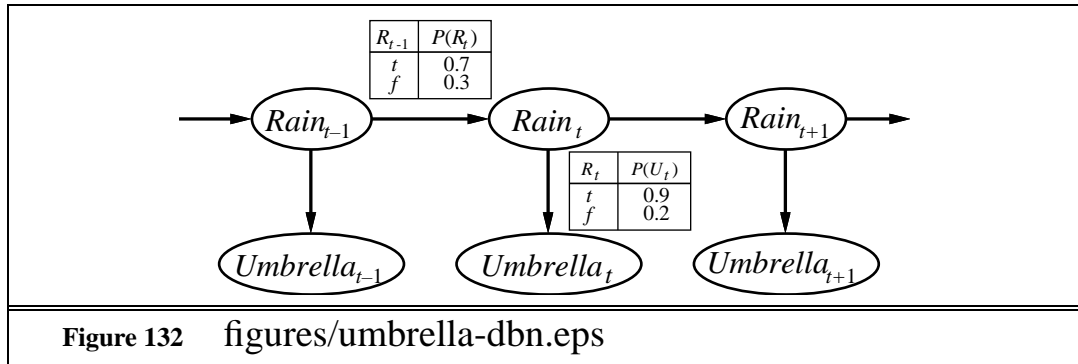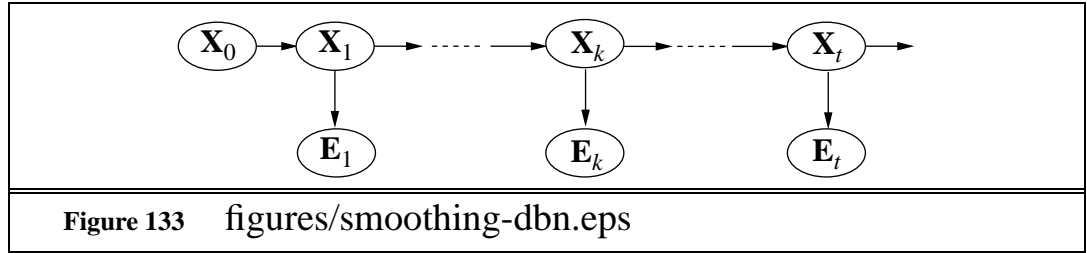
SOme text

Figure 133   figures/smoothing-dbn.eps

SOme text

Figure 134   figures/umbrella-paths.eps
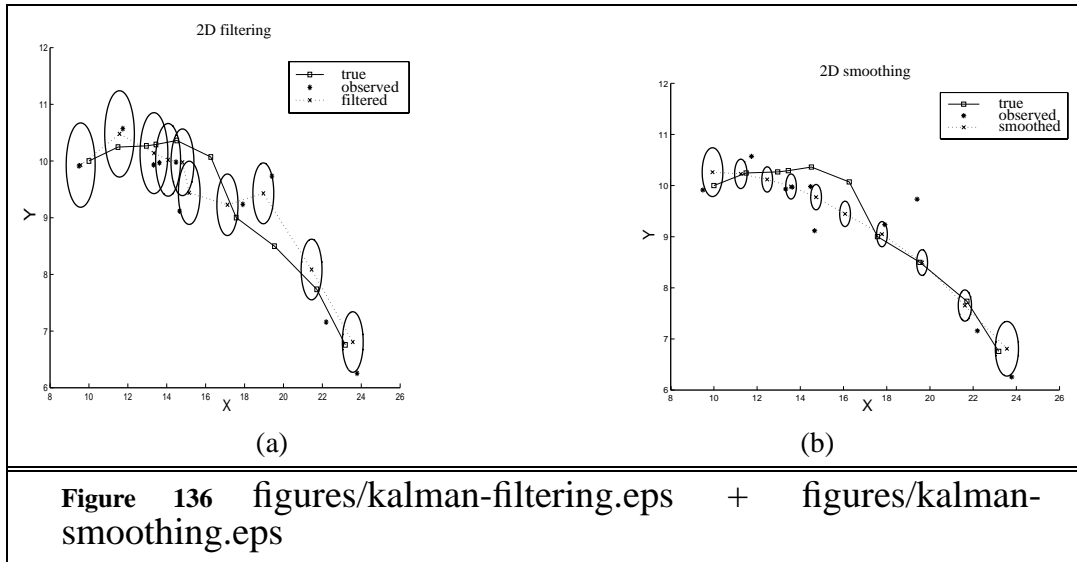
SOme text

Figure 135   figures/kalman-network.eps

SOme text

Figure 136 figures/kalman-filtering.eps + figures/kalman-smoothing.eps

SOme text

<div align="center">(a)   (b)</div>
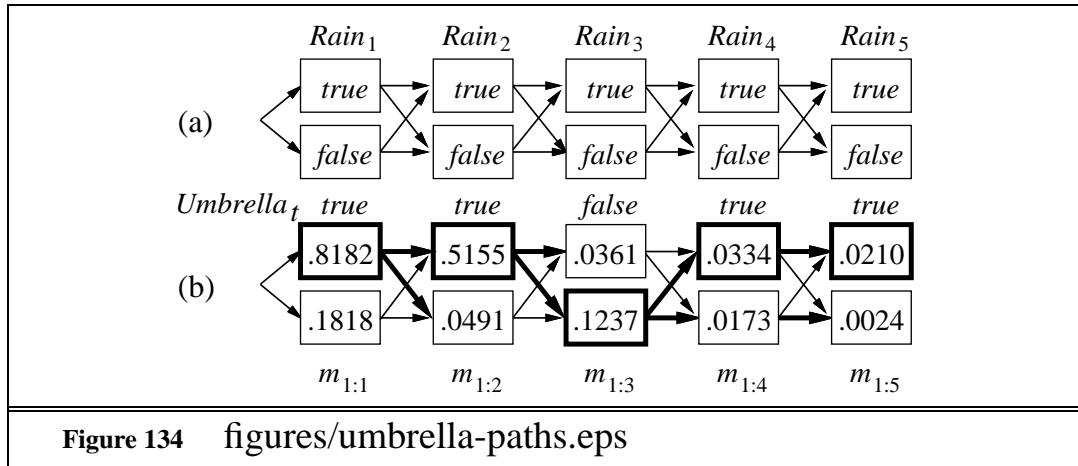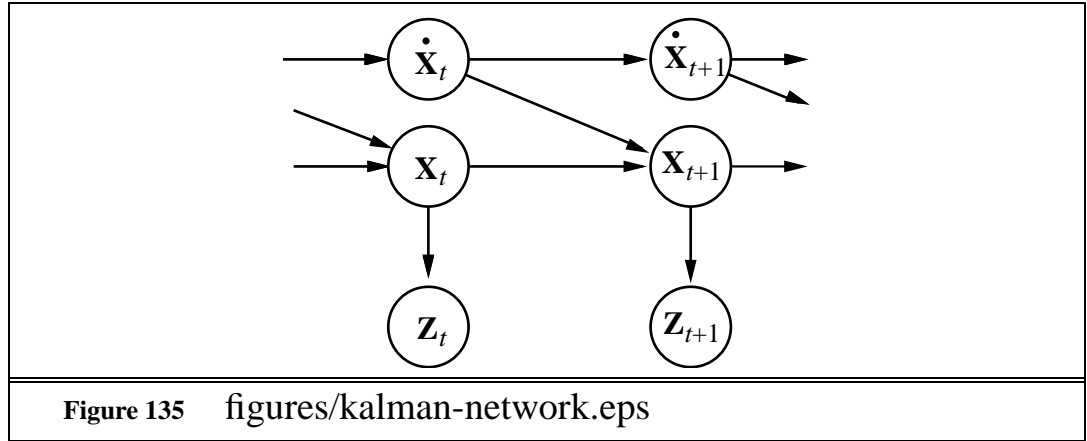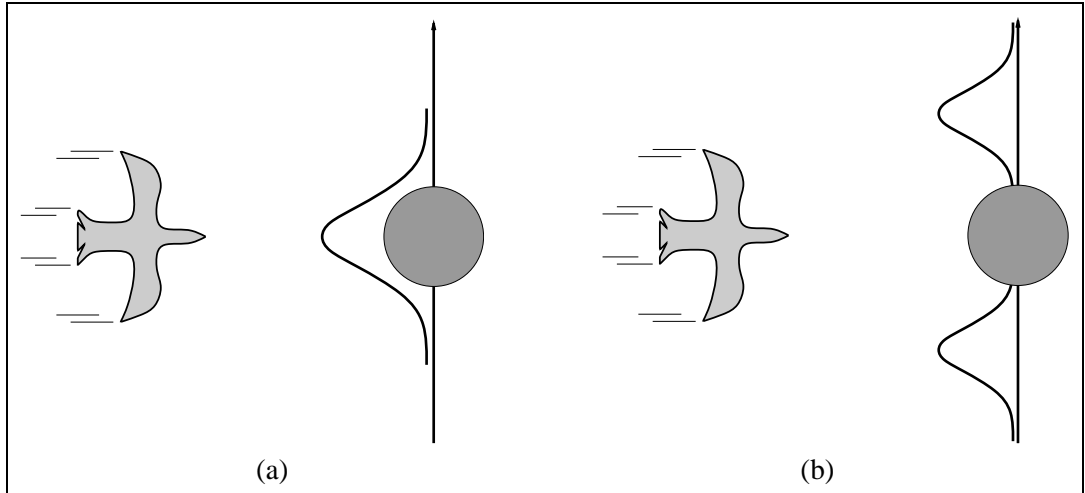
Figure 137   figures/kalman-bird1.eps + figures/kalman-bird2.eps

SOme text

$P(R_0)$
0.7

R_0	$P(R_1)$
t	0.7
f	0.3

R_1	$P(U_1)$
t	0.9
f	0.2

$Rain_0$ → $Rain_1$ → $Umbrella_1$

$Battery_0$, $Battery_1$, $BMeter_1$, $\dot{\mathbf{X}}_0$, $\dot{\mathbf{X}}_1$, $\mathbf{X}_0$, $\mathbf{X}_1$, $\mathbf{Z}_1$

(a)

(b)

Figure 138   figures/umbrella-1slice.eps + figures/robot-dbn1.eps

SOme text

B_0	$P(B_1)$
t	1.000
f	0.001

$BMBroken_0$ → $BMBroken_1$

$BMeter_1$

$Battery_0$ → $Battery_1$

(a)

$E(Battery_t |...5555005555...)$

$E(Battery_t |...5555000000...)$

$P(BMBroken_t |...5555000000...)$

$P(BMBroken_t |...5555005555...)$

$E(Battery_t)$

Time step

(b)

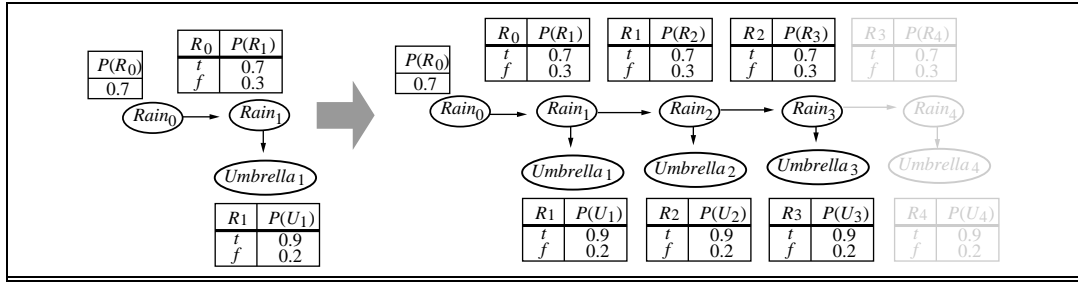**Figure 139**   figures/battery-persistence.eps + graphs/battery8.eps

SOme text

Figure 140   figures/dbn-unrolling.eps

SOme text

	$Rain_t$	$Rain_{t+1}$	$Rain_{t+1}$	$Rain_{t+1}$
true				
false				

(a) Propagate   (b) Weight   (c) Resample

Figure 141   figures/umbrella-particle.eps

SOme text

| | Analog acoustic signal: | |
| | Sampled, quantized digital signal: | |

Frames with features:

10 15 38

22 63 24

10 12 73

52 47 82

89 94 11

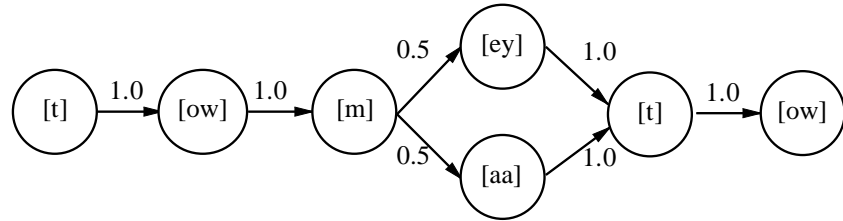**Figure 142**   figures/sr-acoustic-frames.eps
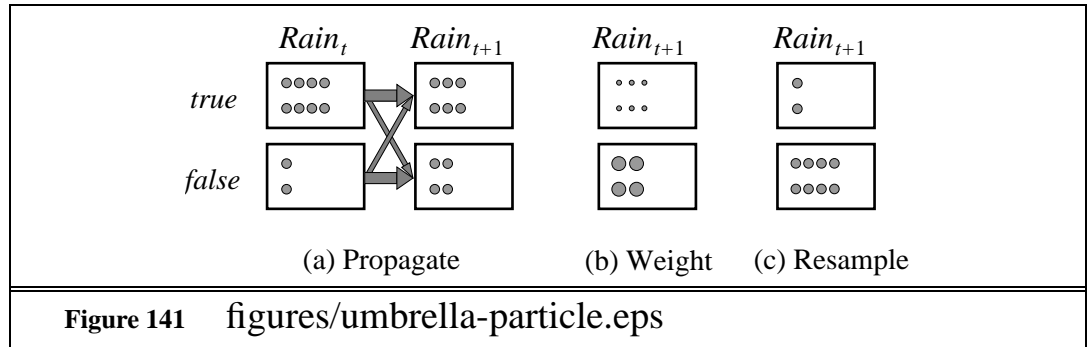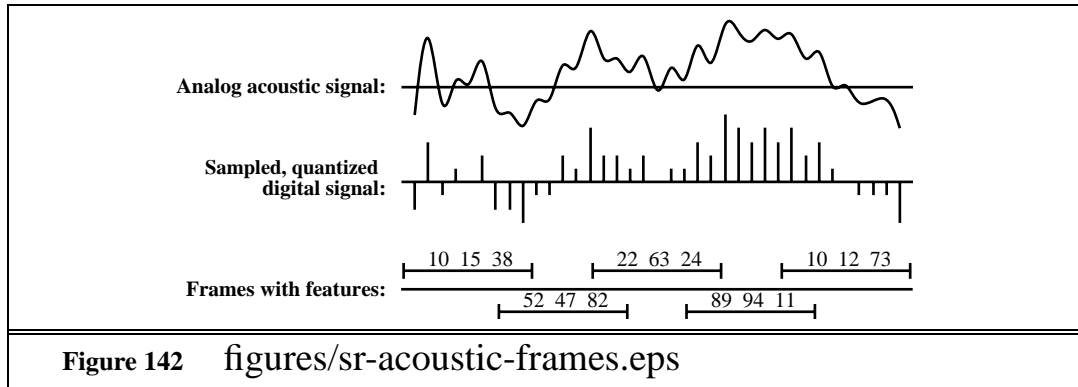
SOme text

(a) Word model with dialect variation:

(b) Word model with coarticulation and dialect variations

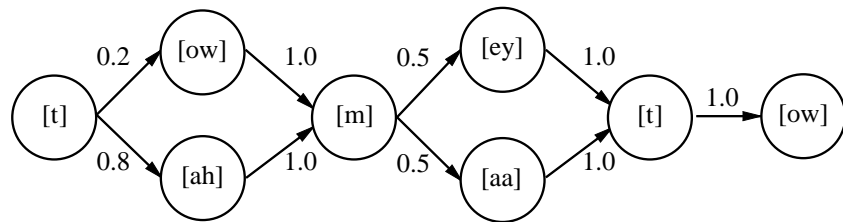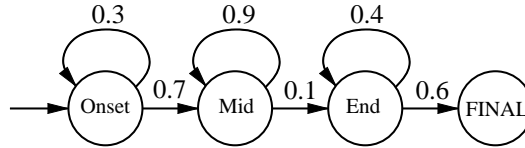**Figure 143**   figures/sr-tomato.eps

SOme text

Phone HMM for [m]:

Output probabilities for the phone HMM:

Onset:	Mid:	End:
C_1: 0.5	C_3: 0.2	C_4: 0.1
C_2: 0.2	C_4: 0.7	C_6: 0.5
C_3: 0.3	C_5: 0.1	C_7: 0.4

Figure 144   figures/sr-hmm.eps

SOme text
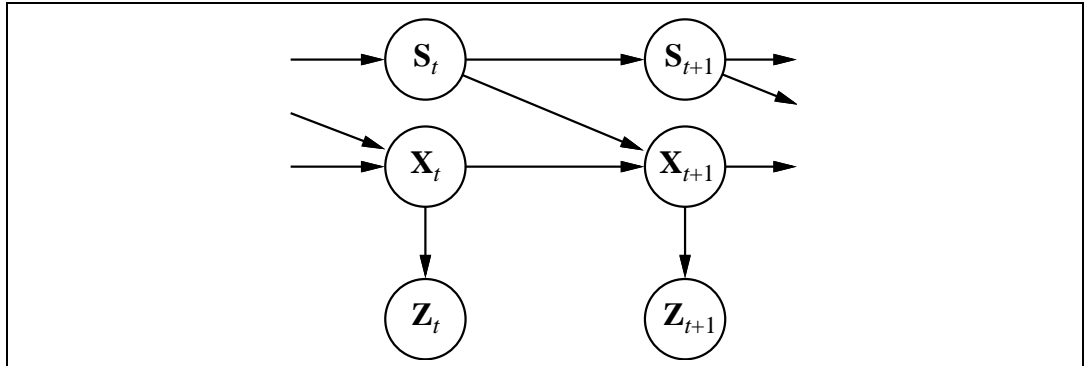
Figure 145   figures/switching-kf.eps

SOme text

p

A

(1−*p*)

q

B

(1−*q*)

C

is equivalent to

A

p

B

(1−*p*)(1−*q*)

C

A

1¢

1¢

B

C

1¢

(a)

(b)

Figure **146** figures/cash-machine.eps + figures/decomposability.eps
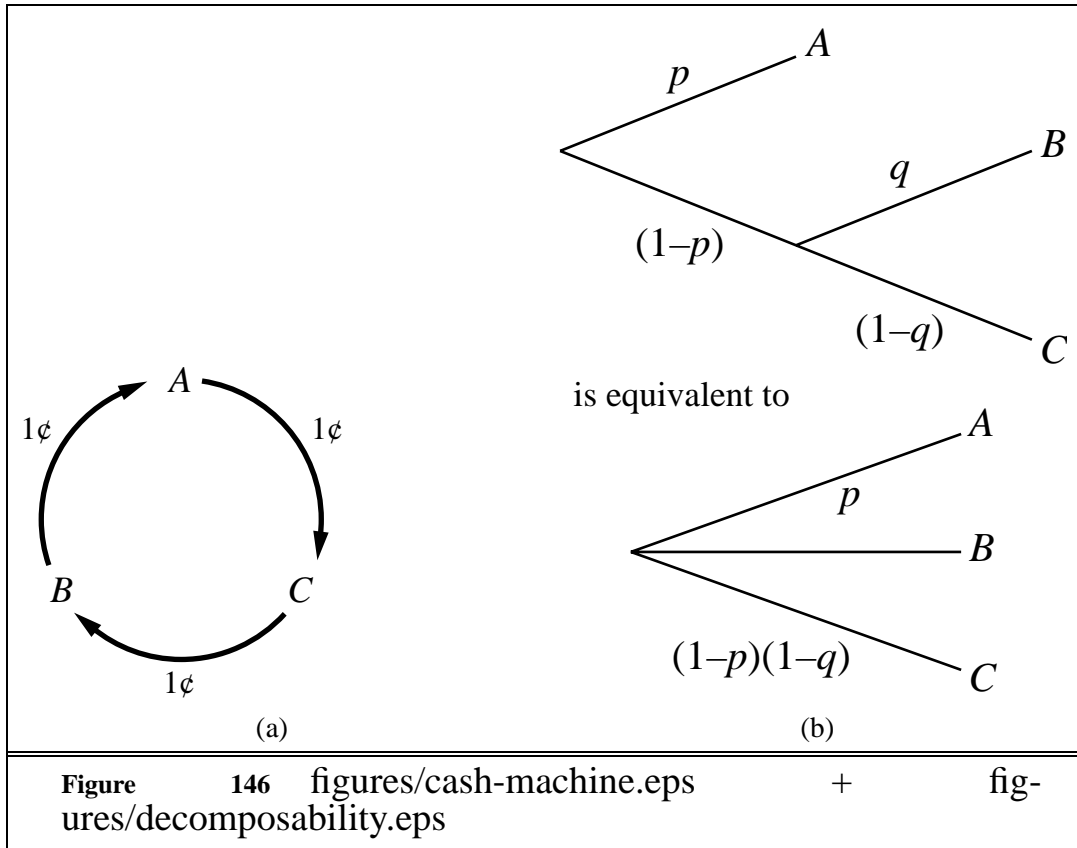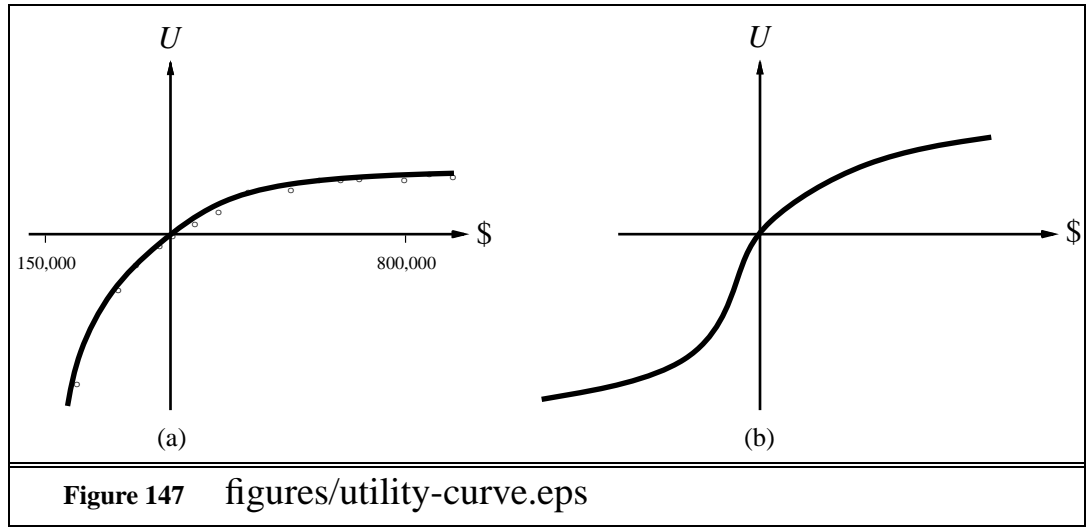
SOme text

Figure 147   figures/utility-curve.eps

SOme text

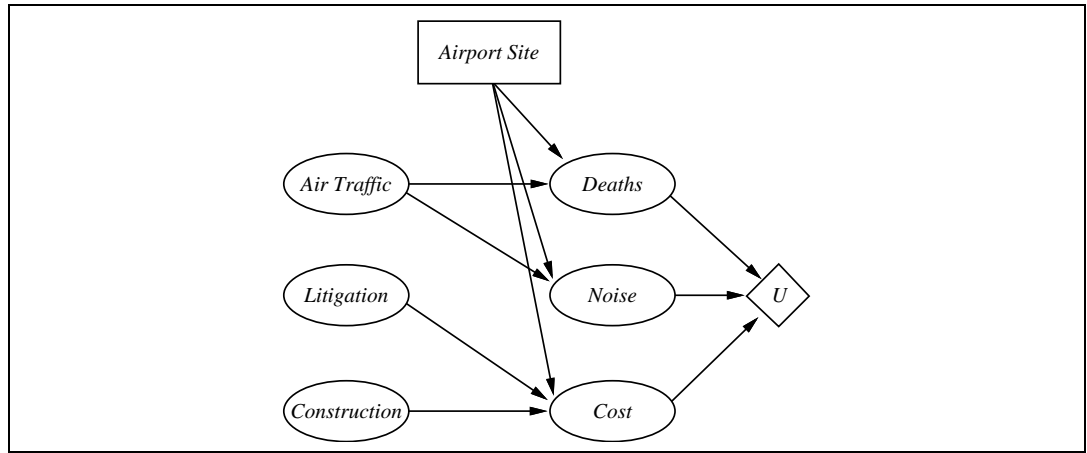**Figure 148**   figures/strict-dominance.eps
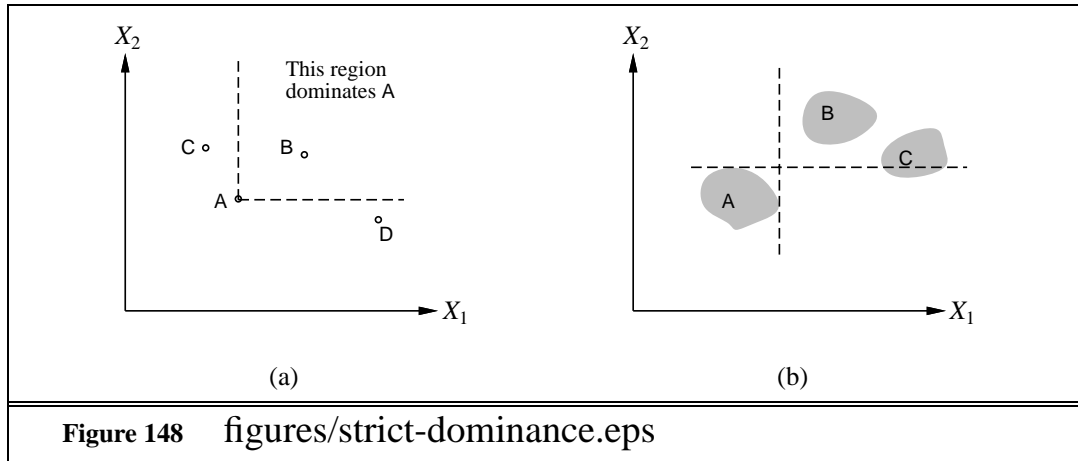
SOme text

Figure 149   figures/airport-id.eps

SOme text
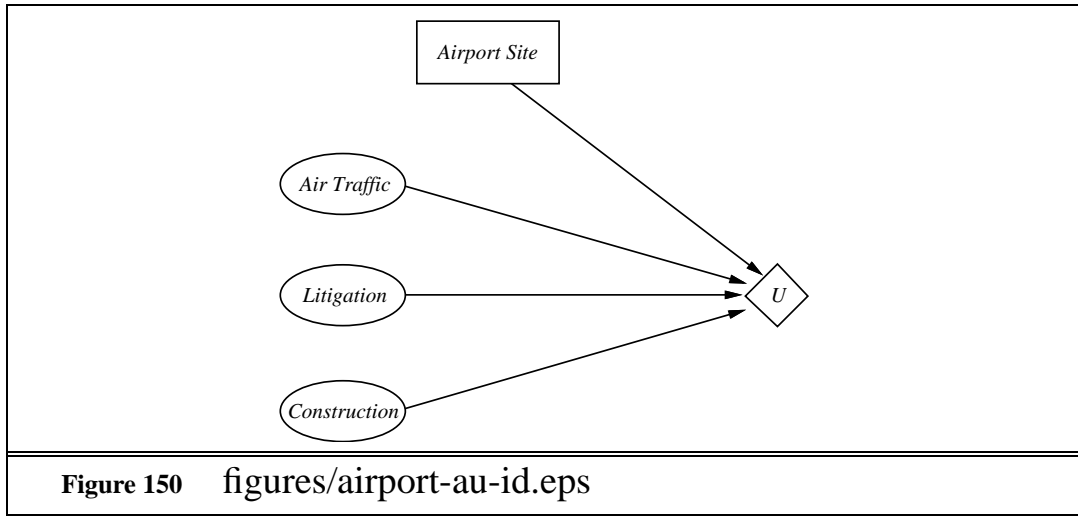
Figure 150   figures/airport-au-id.eps

SOme text
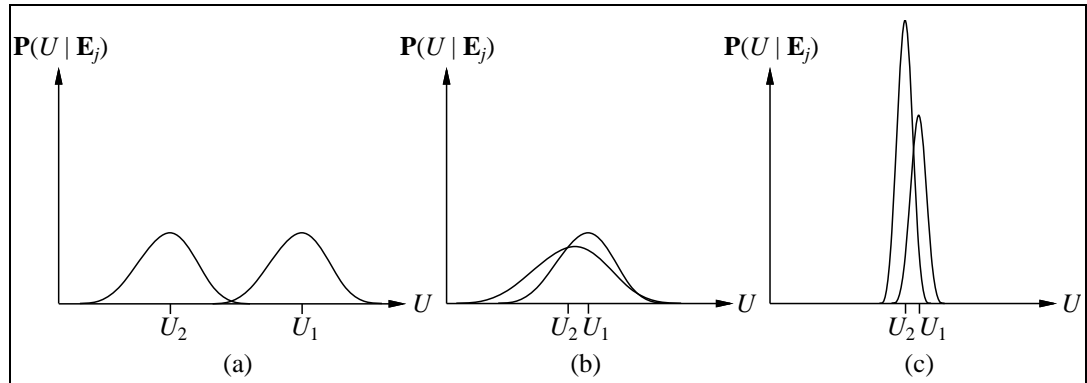
Figure 151   figures/3cases.eps

SOme text

3   +1

2

1   START

    1   2   3   4

(a)

0.8

0.1   0.1

(b)

Figure 152   figures/sequential-decision-world.eps

SOme text

$R(s) < 1.6284$	$0.4278 < R(s) < 0.0850$
$0.0221 < R(s) < 0$	$R(s) > 0$

(a)   (b)
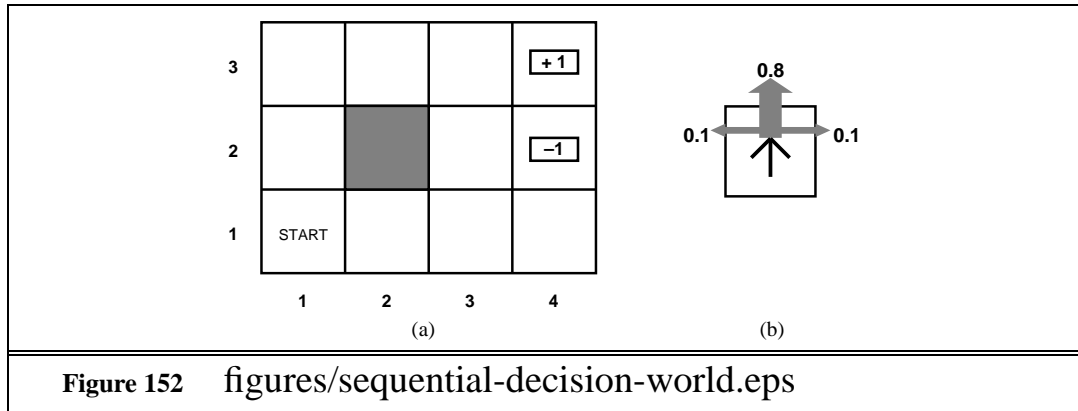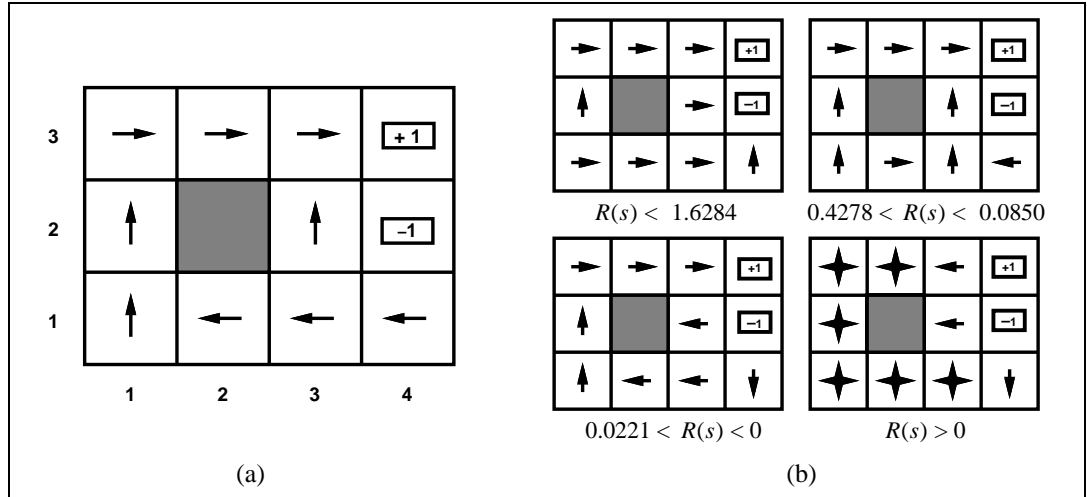
Figure 153   figures/sequential-decision-policies.eps

SOme text

	1	2	3	4
3	0.812	0.868	0.918	+1
2	0.762		0.660	−1
1	0.705	0.655	0.611	0.388

Figure 154   figures/sequential-decision-values.eps

SOme text

0.111	0.111	0.111	0.000
0.111		0.111	0.000
0.111	0.111	0.111	0.111

(a)

0.300	0.010	0.008	0.000
0.221		0.059	0.012
0.371	0.012	0.008	0.000

(b)

0.622	0.221	0.071	0.024
0.005		0.003	0.022
0.003	0.024	0.003	0.000

(c)

0.005	0.007	0.019	0.775
0.034		0.007	0.105
0.005	0.006	0.008	0.030

(d)

Figure 155   figures/pomdp-progress.eps

SOme text

Figure 156   figures/generic-ddn.eps

SOme text

D_t in $\mathbf{P}(\mathbf{X}_t \mid \mathbf{E}_{1:t})$

$\mathbf{E}_{t+1}$

D_{t+1} in $\mathbf{P}(\mathbf{X}_{t+1} \mid \mathbf{E}_{1:t+1})$

$\mathbf{E}_{t+2}$

D_{t+2} in $\mathbf{P}(\mathbf{X}_{t+2} \mid \mathbf{E}_{1:t+2})$

$\mathbf{E}_{t+3}$

$U(\mathbf{X}_{t+3})$
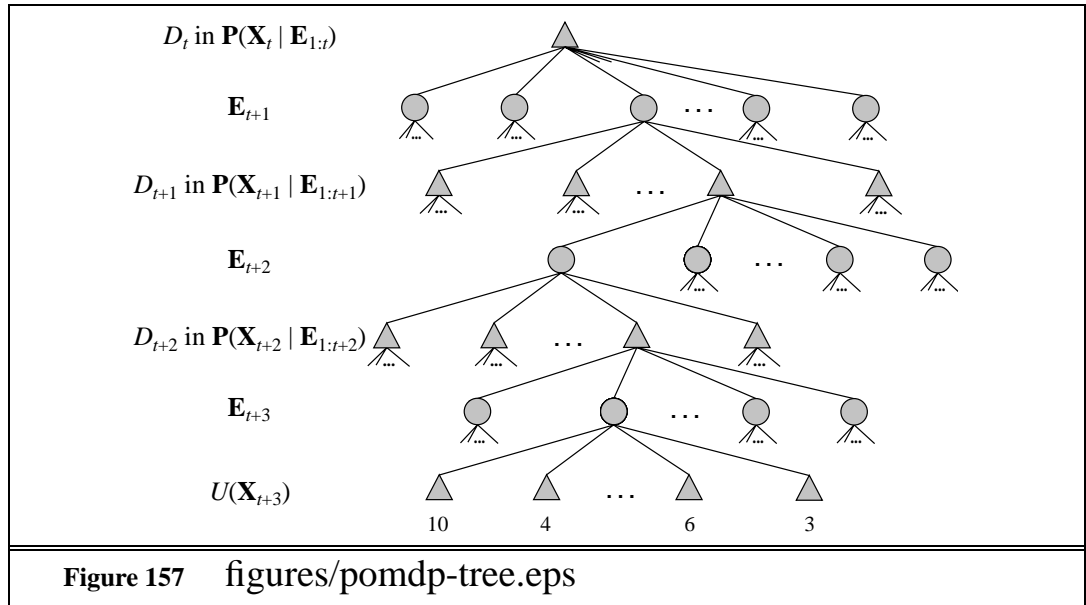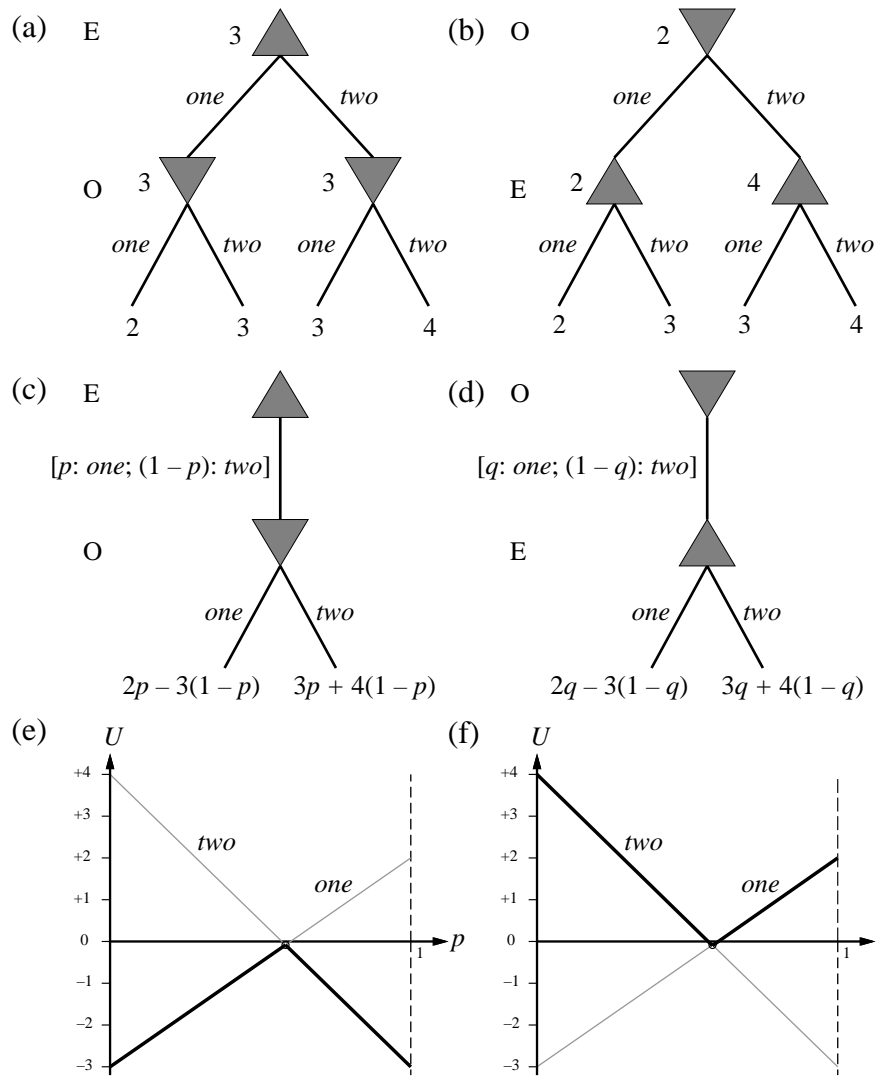
10   4   ...   6   3
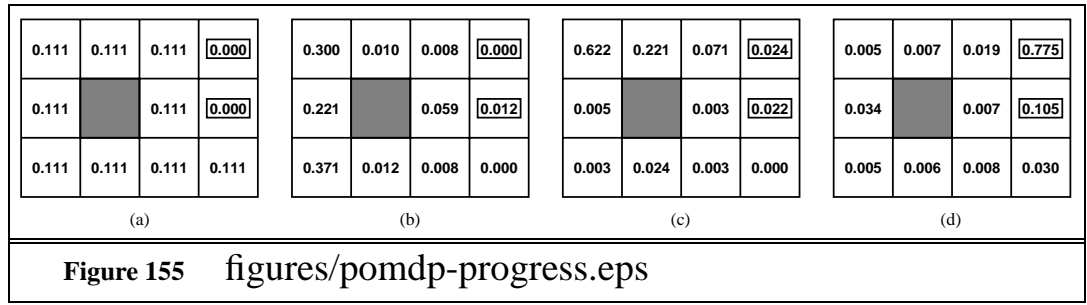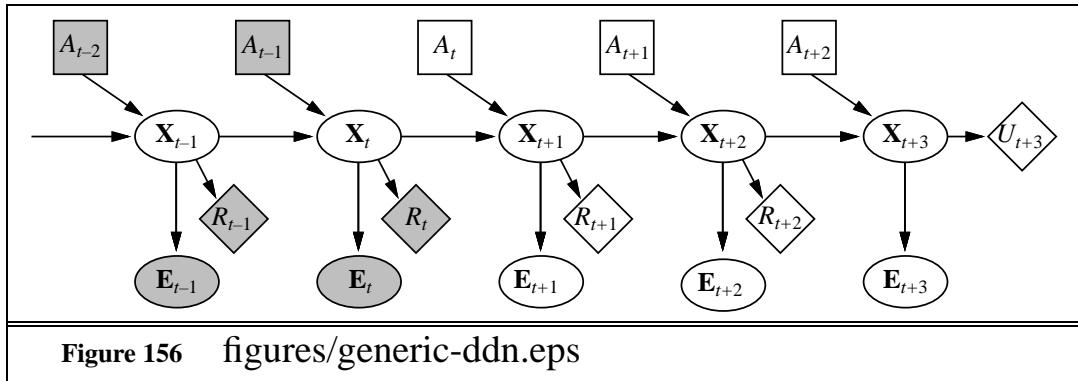
Figure 157   figures/pomdp-tree.eps

158

SOme text

Figure 158   figures/morra-trees.eps