Tillståndsminimering – dagisversionen!

*Det går alltid att hitta det minimala tillståndsdiagrammet. Vi presenterar här en **enkel metod** som går att tillämpa på små tillståndsdiagram.*

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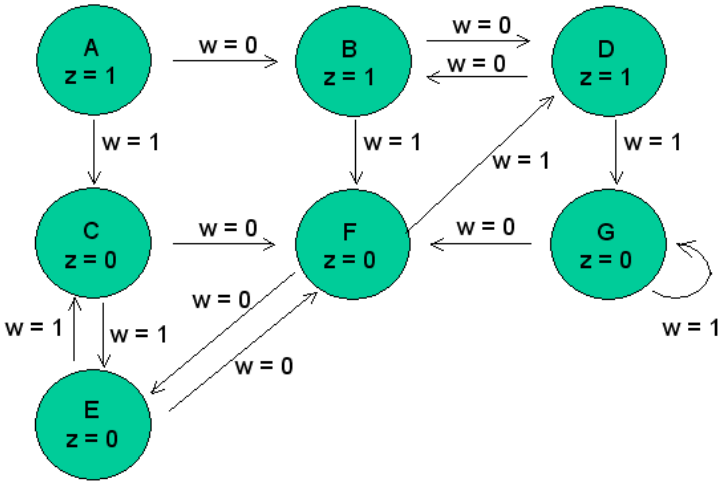
Tillståndstabell



Ursprungligt tillståndsdiagram

Present state	Next state		Output
	$w = 0$	$w = 1$	z
A	B	C	1
B	D	F	1
C	F	E	0
D	B	G	1
E	F	C	0
F	E	D	0
G	F	G	0

Ursprunglig tillståndstabell

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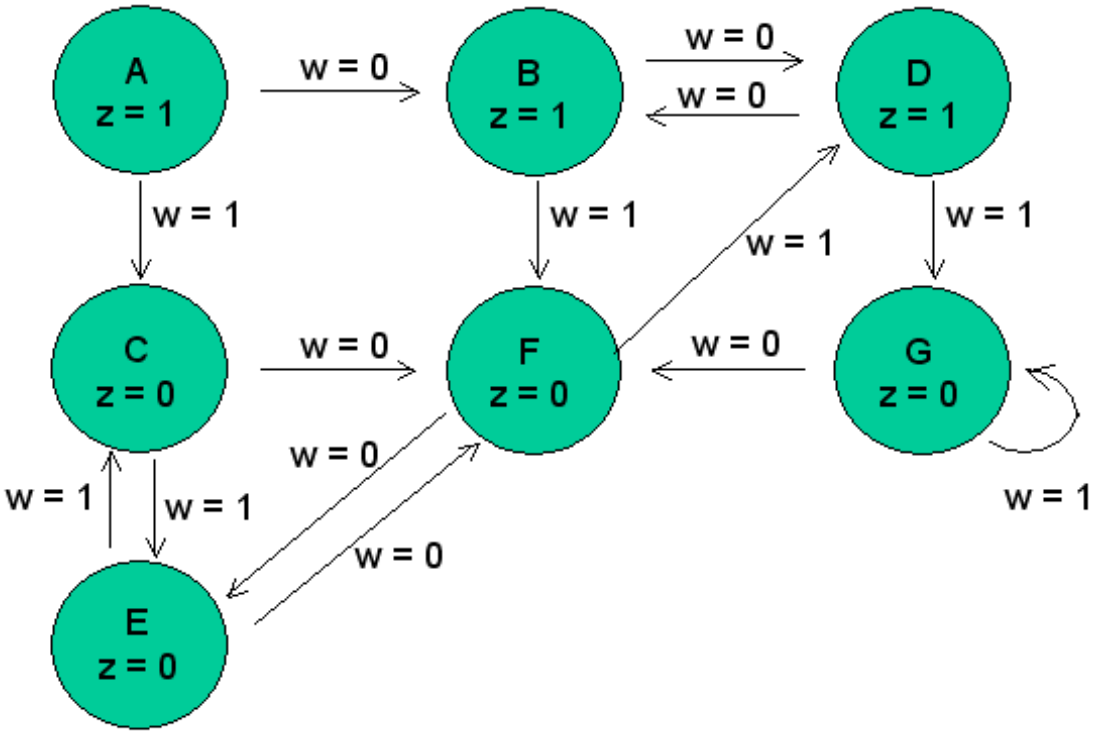
Är tillståndsminimering svårt?



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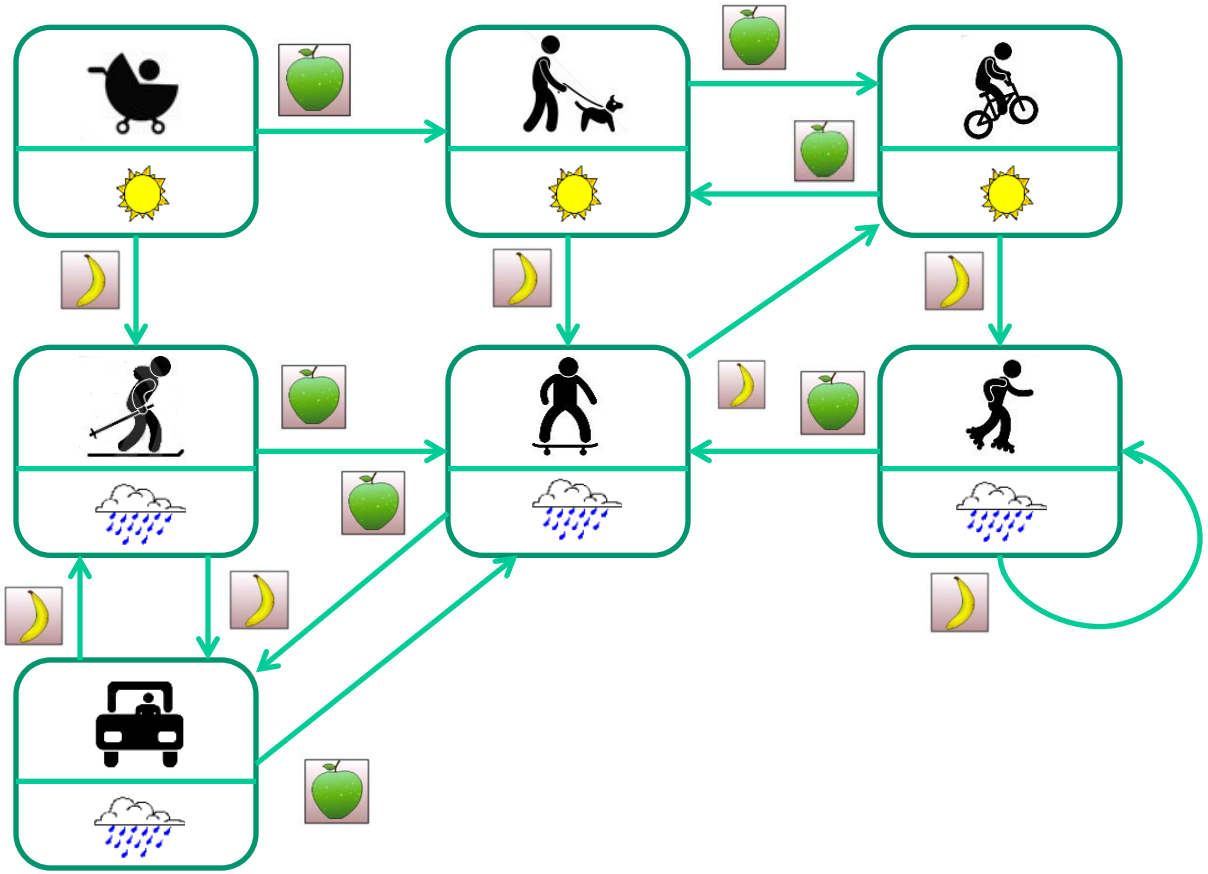
Dagisversionen …



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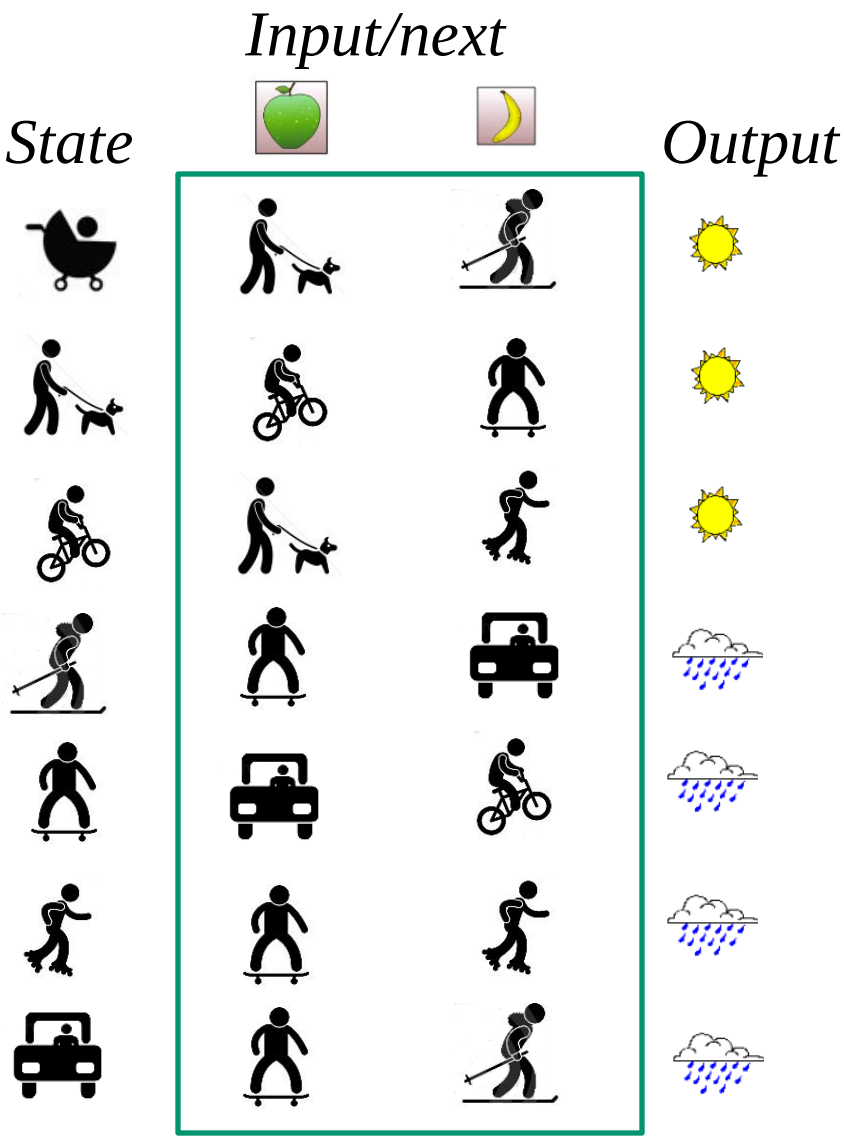

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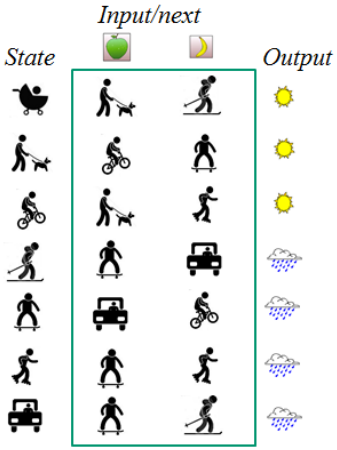

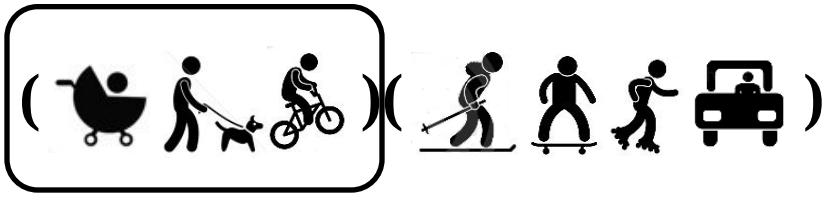

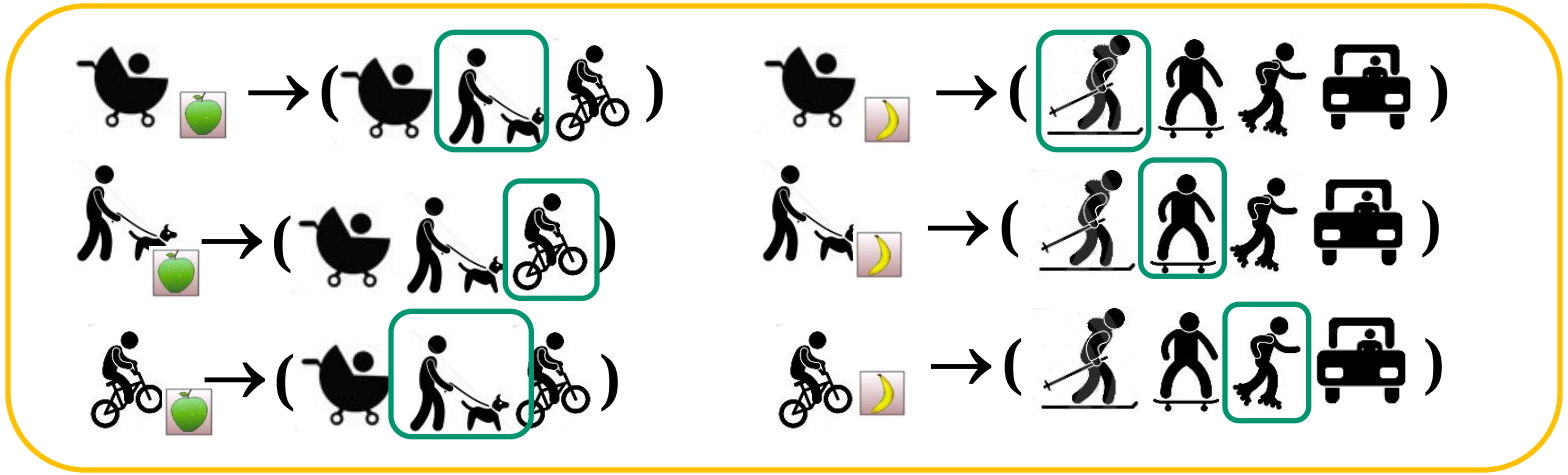

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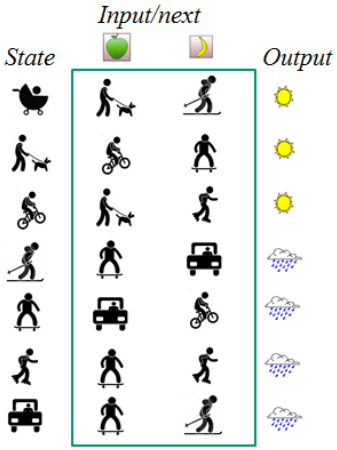

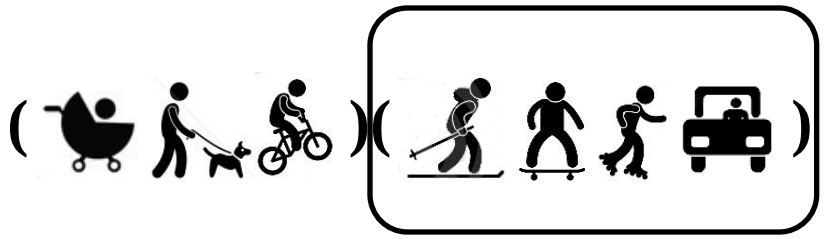

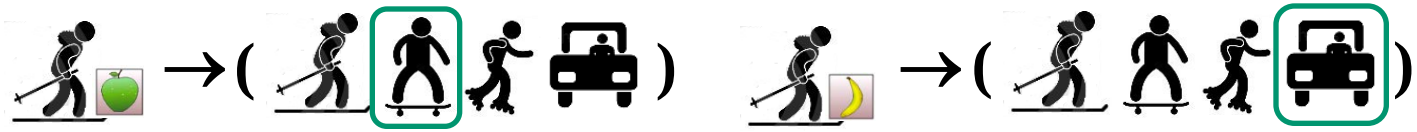

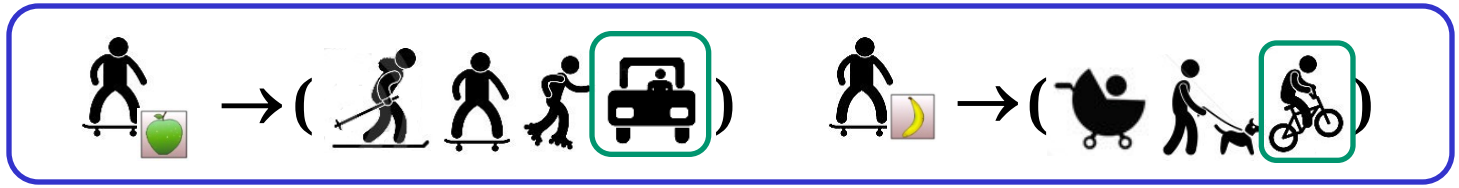

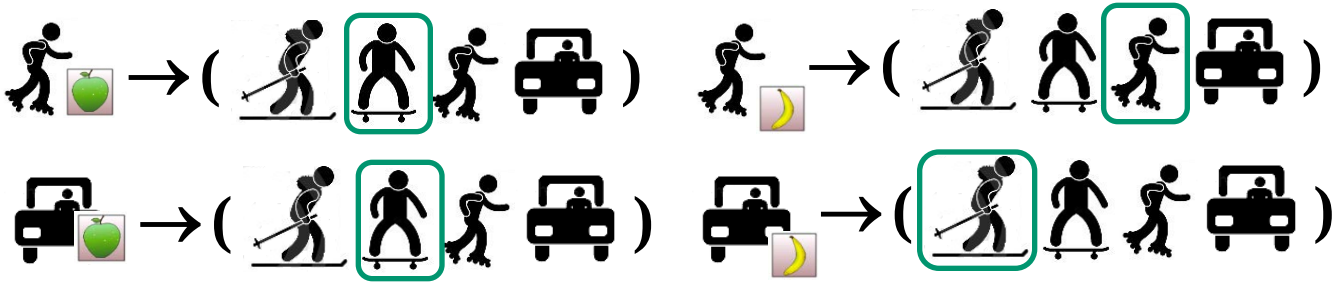

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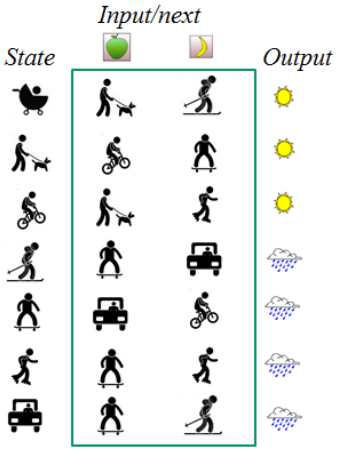

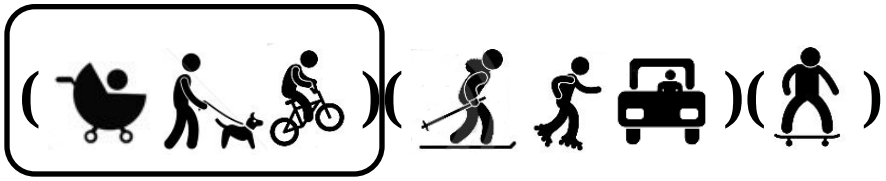

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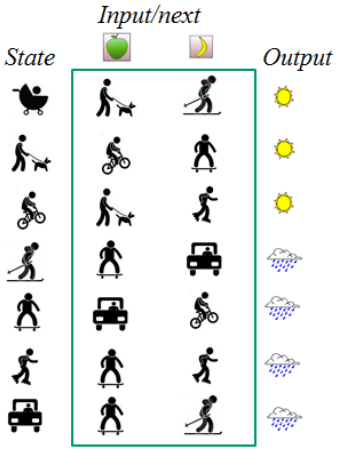

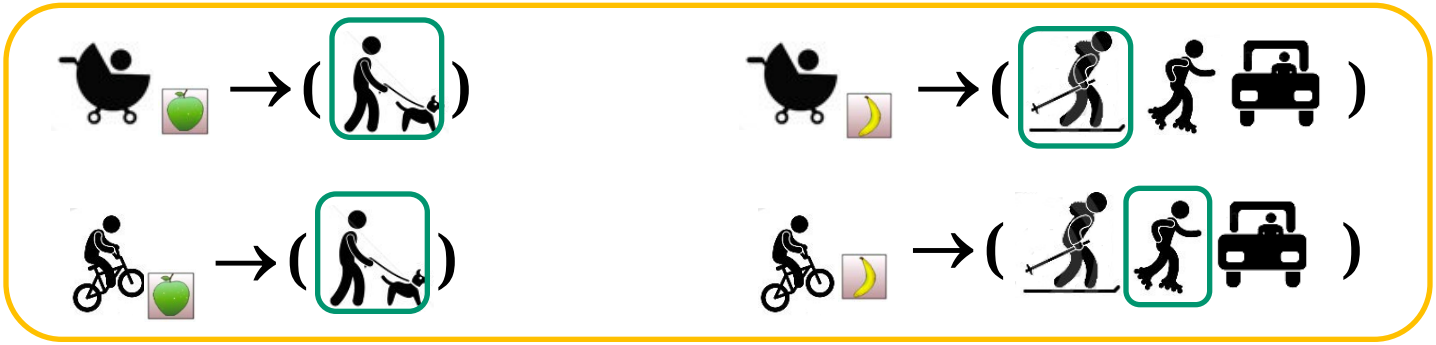

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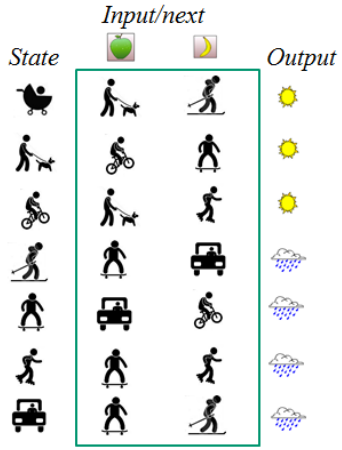

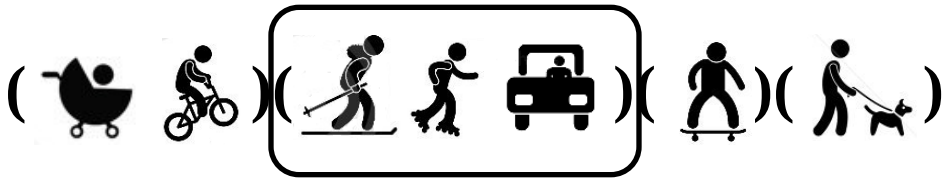

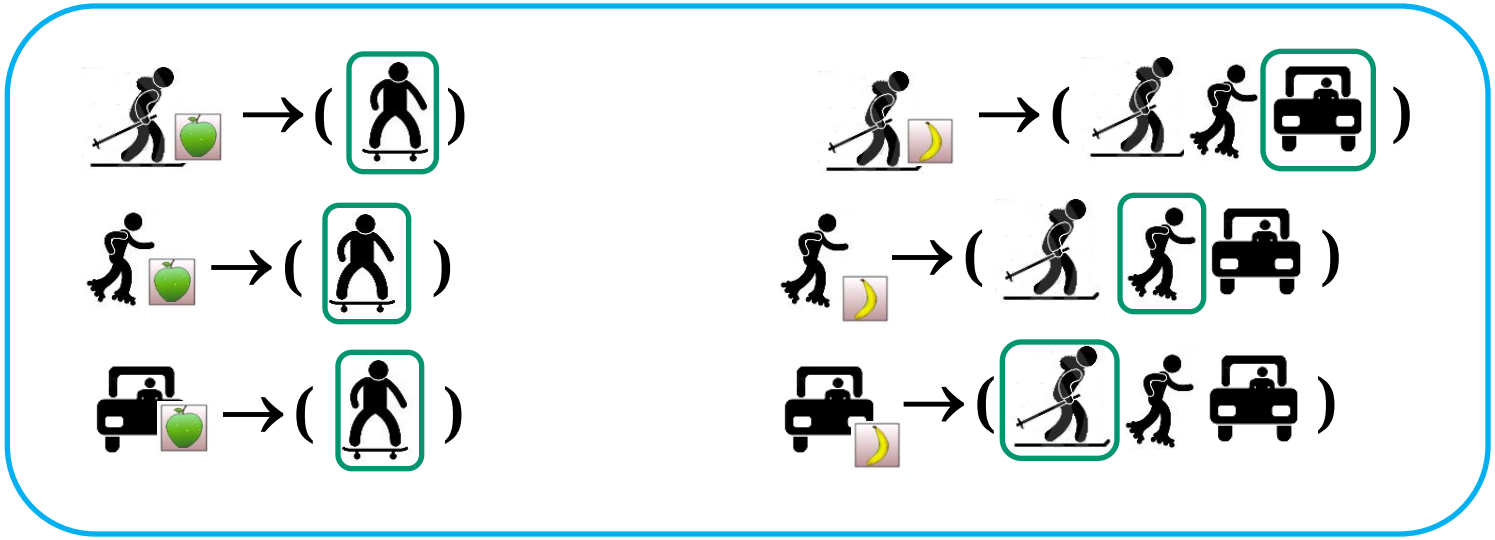

Klart!

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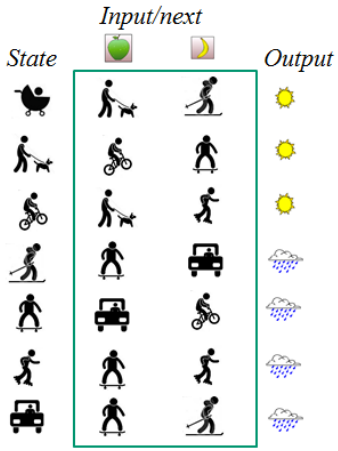

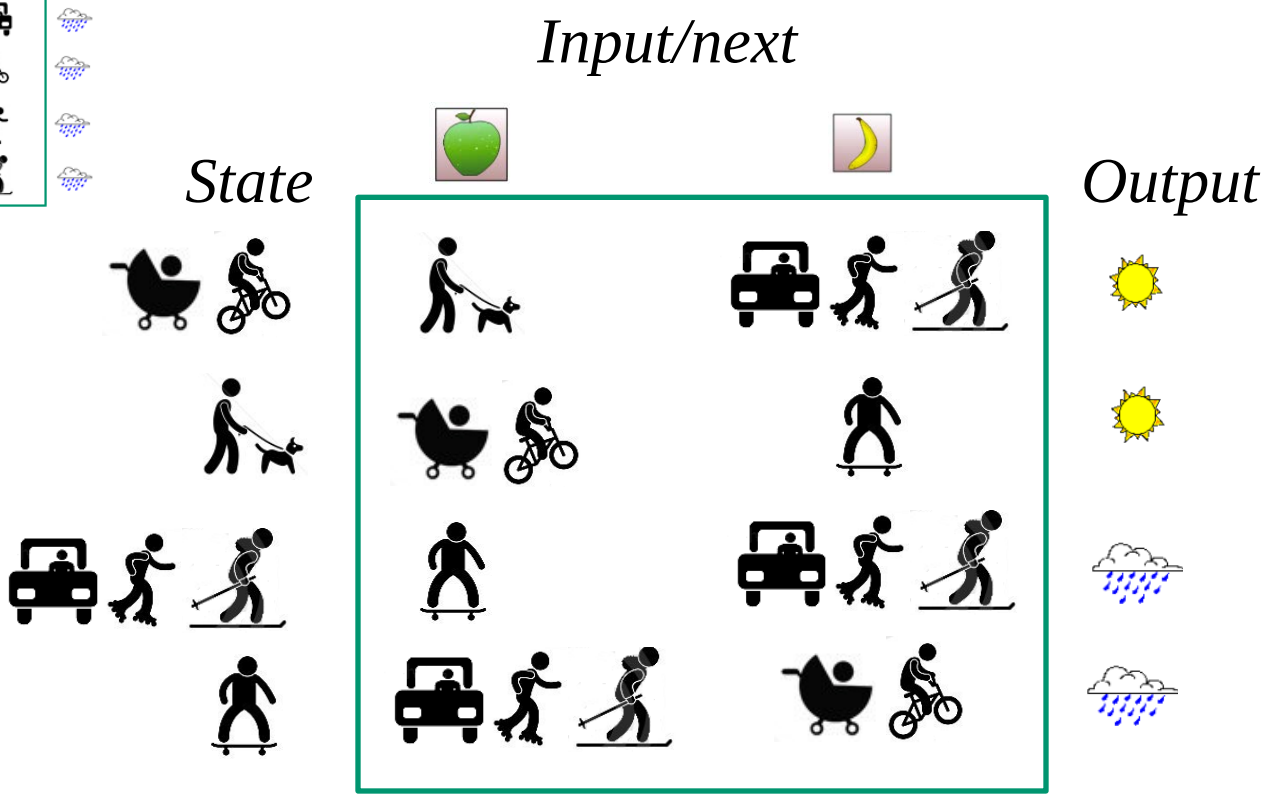

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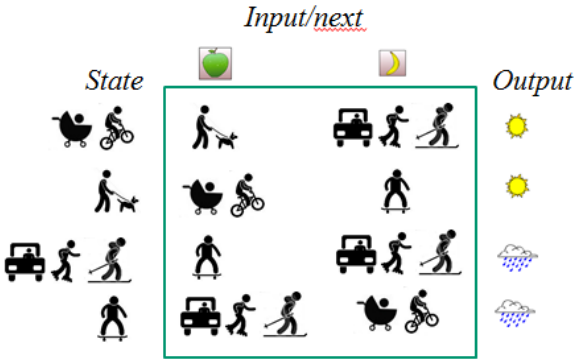
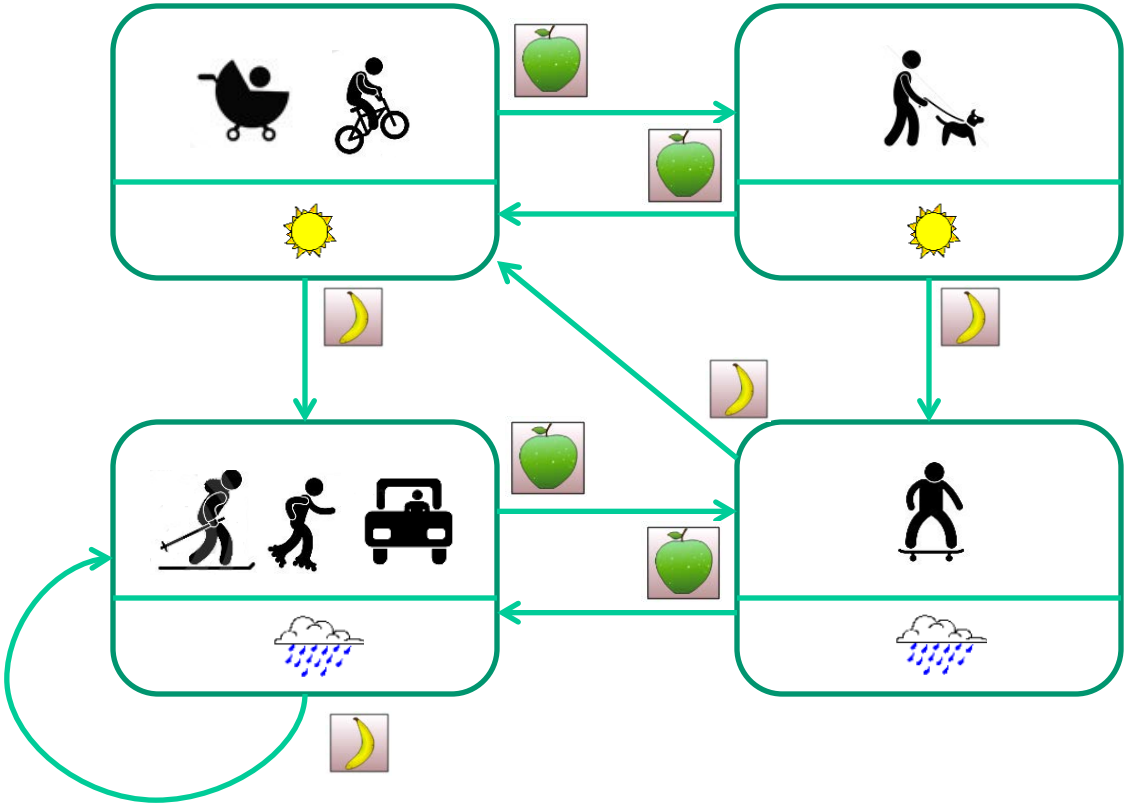


Minimalt antal tillstånd.



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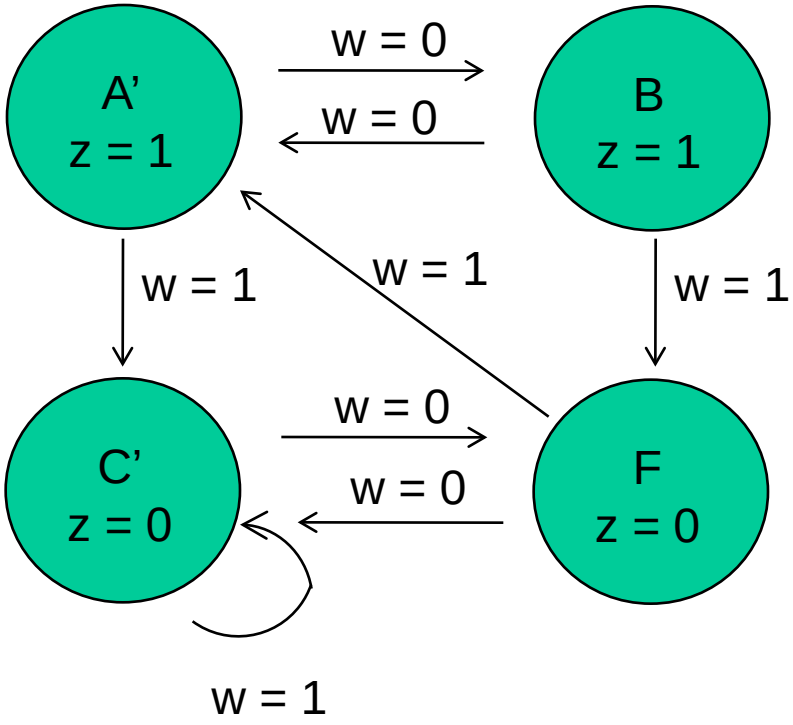
Minimerat tillståndsdiagram

Present state	Nextstate		Output z
	w = 0	w = 1	
A’	B	C’	1
B	A’	F	1
C’	F	C’	0
F	C’	A’	0



4 tillstånd kräver 2 vippor ($2^2 = 4$).

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Mer om tillståndsminimering kommer i **”Datastrukturer och Datoralgoritmer”**

- Denna metod, (Moore 1956). Tillståndsminimering av n tillstånd – **körtid** på dator blir $\propto n^2$
- Hopcroft’s algoritm (1971) – **körtid** på dator $\propto n \cdot \log(n)$

Sifferexempel: 100 tillstånd.

$100^2 =$ **10000**

$100 \cdot \log(100) =$ **460**

*Datorprogram på internet måste vara **skalbara**, de kan ”över en natt” bli mycket populära – och riskerar då att bli överbelasta servrarna!*

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