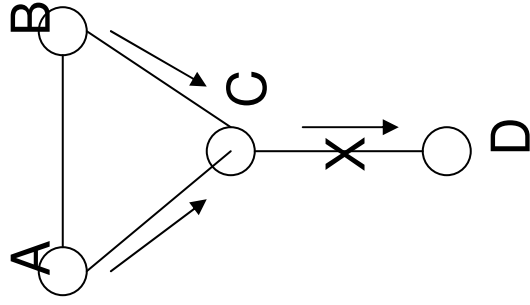# Split Horizon does not always work

Example:

Destination = D
Initially, Cost[D]

A   2
B   2
C   1

Assume link (C,D) go down

Consider the following steps:

a) C reports 1 to B, A

B reports ∞ to C

B reports 2 to A

A reports ∞ to C

A reports 2 to B

Yields:

	Cost[D]	rtbl[D]
A	2	C
B	2	C
C	∞	-

b) C reports ∞ to B, A
B reports ∞ to C
B reports 2 to A
A reports ∞ to C
A reports 2 to B
Yields

	Cost[D]	rtbl[D]
A	3	B
B	3	A
C	∞	

c) C reports ∞ to B, A
B reports 3 to C
B reports ∞ to A
A reports 3 to C
A reports ∞ to B

Yields

	Cost[D]	rtbl[D]
A	∞	
B	∞	
C	4	A

d)C reports 4 to B
C reports ∞ to A
B reports ∞ to A, C
A reports ∞ to B, C

Yields   Cost[D]   rtbl[D]

	Cost[D]	rtbl[D]
A	∞	
B	5	C
C	∞	

e) C reports ∞ to A, B
B reports ∞ to C
B reports 5 to A
A reports ∞ to C, B

Yields   Cost[D]   rtbl[D]

A	6	B
B	∞	
C	∞	

f) C reports ∞ to A, B
A reports 6 to C
A reports ∞ to B
B reports ∞ to A, C

Yields   Cost[D]   rtbl[D]

	Cost[D]	rtbl[D]
A	∞	
B	∞	
C	7	A

Note that f) is similar to c) Hence we can repeat d) e) f) forever, until all nodes reach ∞. Hence split Horizon Hack does not always work.