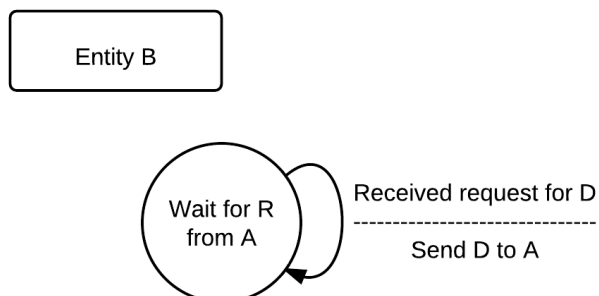
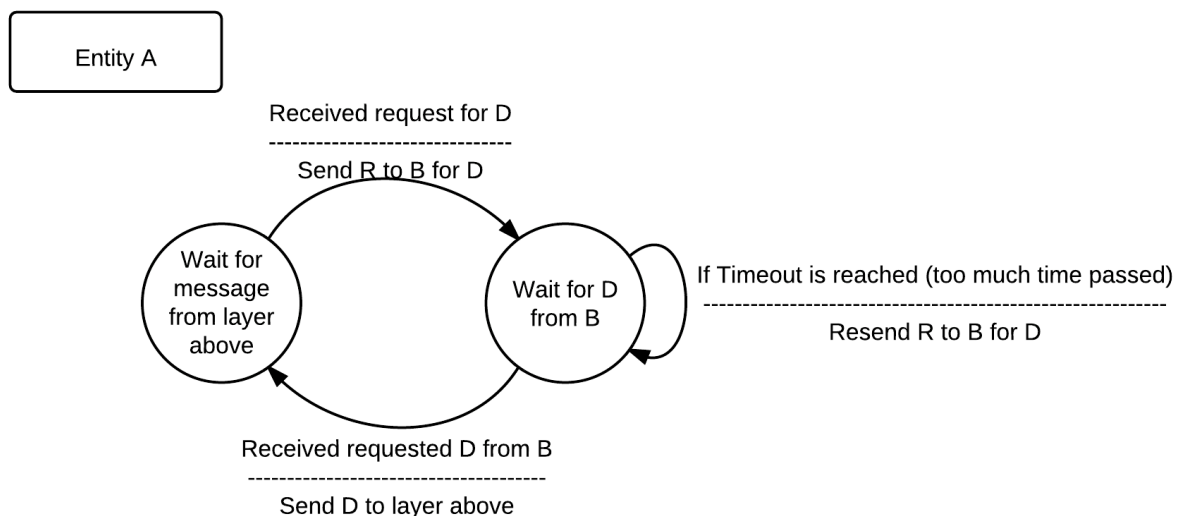


Assignment 3

1 (pg 301 #13):

When the data is sent infrequently a NAK-only protocol would not be preferred to a protocol that utilizes ACKs because noticing an error (lost packet) would have a long turnaround since you would not know to send a NAK until the next successful packet is sent and you could compare its number in the sequence to the last successful transmission. However, when data is sent frequently, a NAK-only protocol would be preferred because comparatively, there would be a much larger overhead in an ACK protocol due to waiting for an ACK after every packet.

2 (pg 303 #20):



3 (pg 425 #4):

A.

Forwarding Table in Router A (Datagram)

Destination Address	Link Interface
H3	3

B. No because deciding the forwarding link interface is based upon the destination address not the host sending the information (thus we can not differentiate between messages destined to H3 from H1 versus messages destined to H3 from H2)

C.

Forwarding Table in Router A (VC)

Incoming Interface	Incoming VC #	Outgoing Interface	Outgoing VC #
1	13	3	31
2	24	4	41

D.

Forwarding Table in B (VC)

Incoming Interface	Incoming VC #	Outgoing Interface	Outgoing VC #
1	31	2	21

Forwarding Table in C (VC)

Incoming Interface	Incoming VC #	Outgoing Interface	Outgoing VC #
1	41	2	22

Forwarding Table in D (VC)

Incoming Interface	Incoming VC #	Outgoing Interface	Outgoing VC #
1	21	3	39
2	22	3	40

4 (pg 427 #9):

A.

Prefix Match	Link Interface
11100000-00	0
11100000-01000000	1
11100000-0100000	2
11100001-0	2
otherwise	3

B.

for 11001000-100100001-01010001-01010101:

Clearly there is no match, link interface 3

for **11100001-0**1000000-11000011-00111100:

Matches prefix 4, link interface 2

for 11100001-**1**0000000-00010001-01110111:

There is no matching prefix (off by 1 bit to prefix 4), link interface 3

EC (pg 431 #31):

Since at each step, a node will only update the values in its own distance vector if there is a decrease in path value, $D(x)$ is clearly non-increasing. Also, since there are no updates to the actual link values, the vector will eventual stabilize as each node reaches the wait in Lines 10-11 of the DV algorithm (pg 383 of KR).