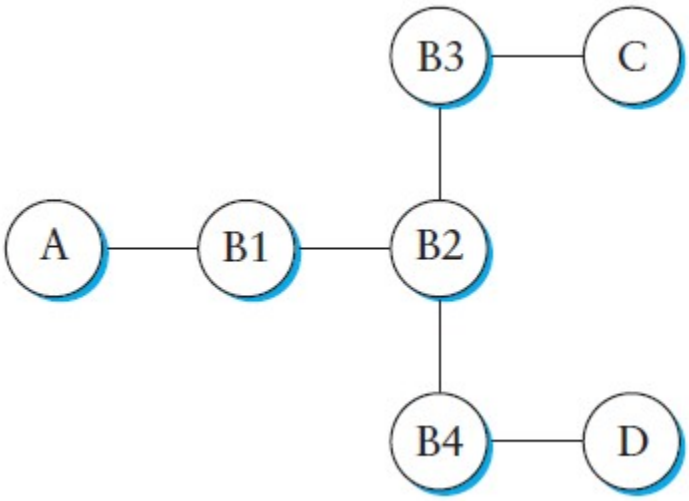
16 As in the previous problem, consider the arrangement of learning bridges shown in Figure 3.38. Assuming all are initially empty, give the forwarding tables for each of the bridges B1–B4 after the following transmissions:



- D sends to C.
- C sends to D.
- A sends to C.

16. All bridges see the packet from D to C. Only B3, B2, and B4 see the packet from C to D. Only B1, B2, and B3 see the packet from A to C.

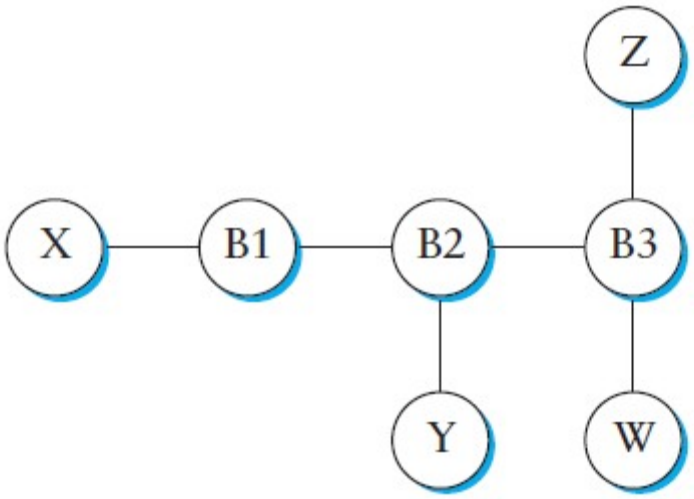
17 Consider hosts X, Y, Z, W and learning bridges B1, B2, B3, with initially empty forwarding tables, as in Figure 3.39.

(a) Suppose X sends to Z. Which bridges learn where X is? Does Y's network interface see this packet?

(b) Suppose Z now sends to X. Which bridges learn where Z is? Does Y's network interface see this packet?

(c) Suppose Y now sends to X. Which bridges learn where Y is? Does Z's network interface see this packet?

(d) Finally, suppose Z sends to Y. Which bridges learn where Z is? Does W's network interface see this packet?



17. (a) When X sends to W the packet is forwarded on all links; all bridges learn where X is. Y's network interface would see this packet.

(b) When Z sends to X, all bridges already know where X is, so each bridge forwards the packet only on the link towards X, that is, B3→B2→B1→X. Since the packet traverses all bridges, all bridges learn where Z is. Y's network interface would not see the packet as B2 would only forward it on the B1 link.

(c) When Y sends to X, B2 would forward the packet to B1, which in turn forwards it to X. Bridges B2 and B1 thus learn where Y is. B3 and Z never see the packet.

(d) When W sends to Y, B3 does not know where Y is, and so retransmits on all links; Z's network interface would thus see the packet. When the packet arrives at B2, though, it is retransmitted only to Y (and not to B1) as B2 does know where Y is from step (c). B3 and B2 now know where W is, but B1 does not learn where W is.