Bridges

S1   S2   S3   S4

LAN1   LAN2

Repeater
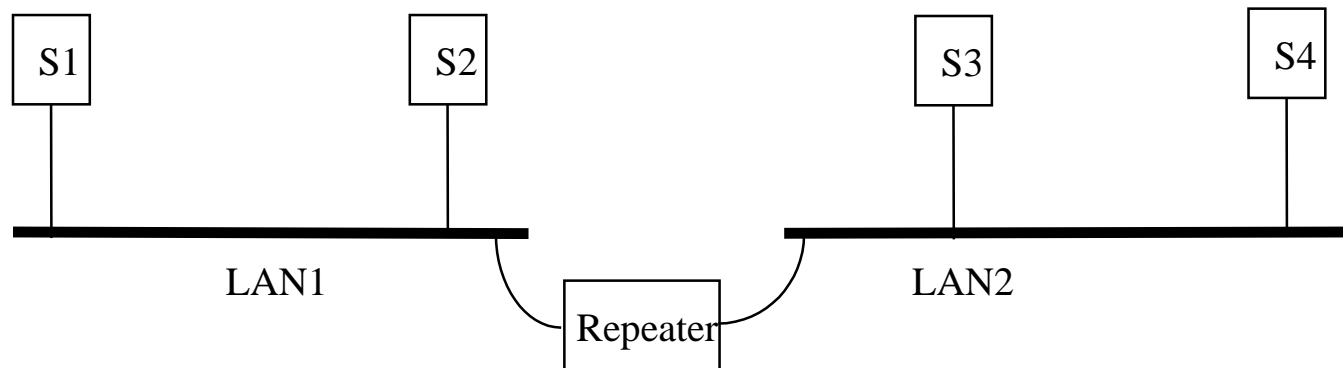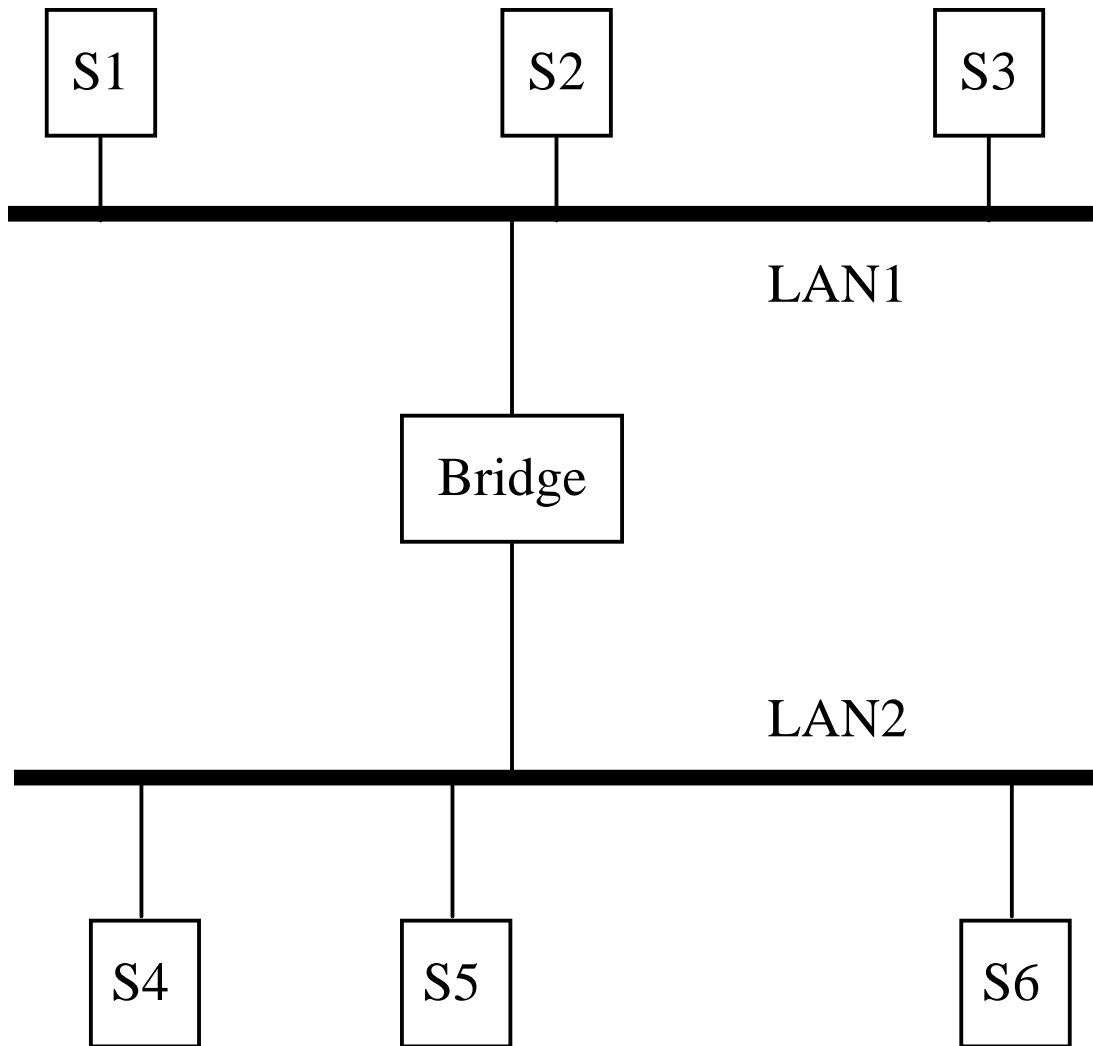
A repeater operates at the physical layer and forwards everything between the two LANs.
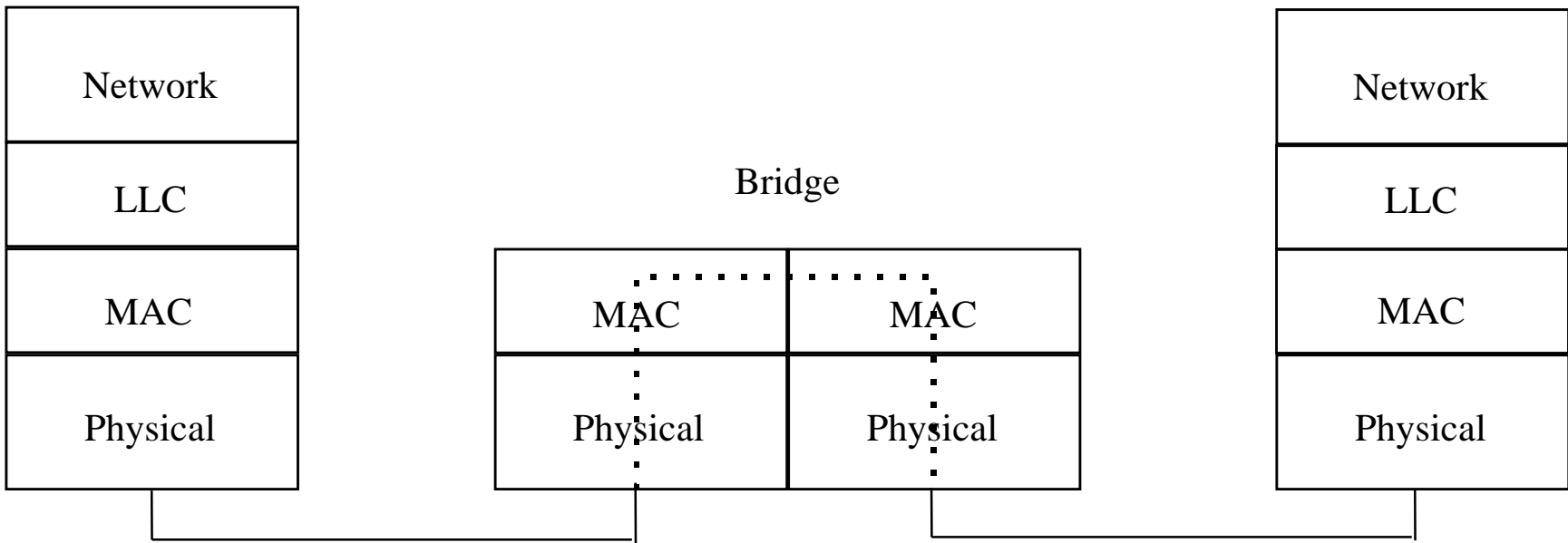
LAN1 and LAN2 are in the same collision domain.

Bridges

- Operate at the data link layer
- Bridges use backward learning in recording source address on transmissions
- Unlike repeaters, bridges will not forward a frame onto another LAN segment if it knows about location of destination node
- *Bridge management gets more complicated when **loops** are possible in the frame route.*

Bridge

Network			Network
LLC	Bridge		LLC
MAC	MAC	MAC	MAC
Physical	Physical	Physical	Physical

A bridge is a store and forward device that <u>separates</u> collision domains.

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Figure 6.80

Networks: Bridges   5

S1　　S2　　　　　　　　　S3　　　　　　　　　S4　　S5

LAN1　　　　　　　　　　LAN2　　　　　　　　LAN3

B1

port 1　　　　port 2　　　　port 1　　　　port 2

B2

Address	Port

Address	Port

　　　Leon-Garcia & Widjaja: *Communication Networks*　　　　Figure 6.81

Networks: Bridges　　　　　　　　　　　　　　　6

| S1 | S2 | | S3 | | S4 | S5 |

S1 → S5

LAN1   LAN2   LAN3

port 1 B1 port 2   port 1 B2 port 2
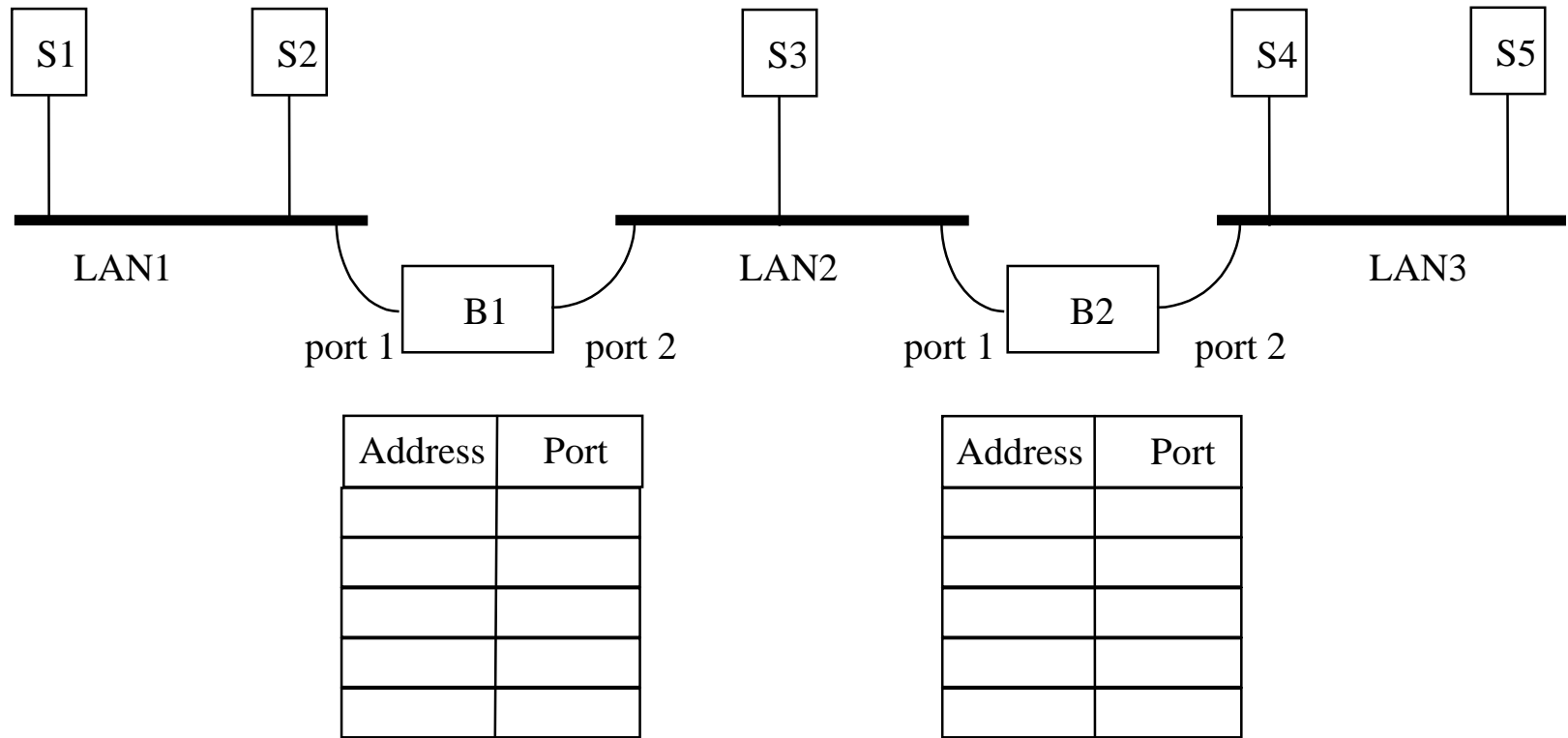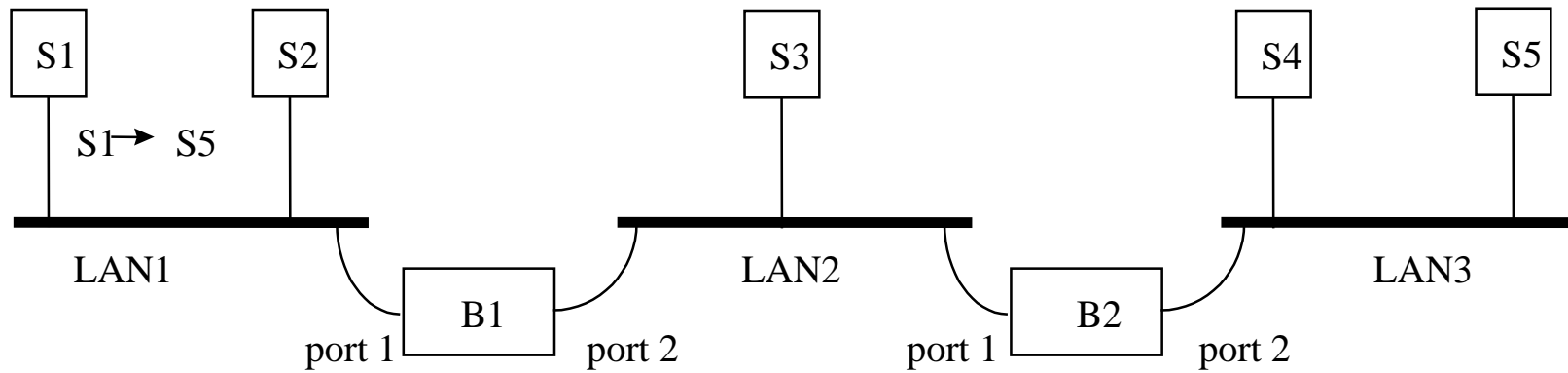
Address	Port
S1	1

Address	Port
S1	1

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Figure 6.82

Networks: Bridges
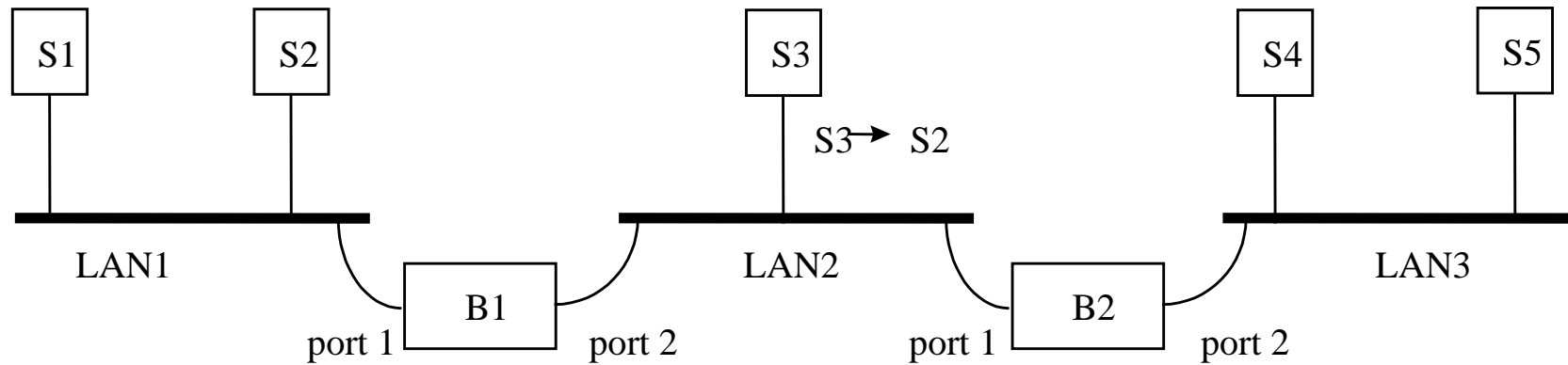
Address	Port
S1	1
S3	2

Address	Port
S1	1
S3	1

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Networks: Bridges   8
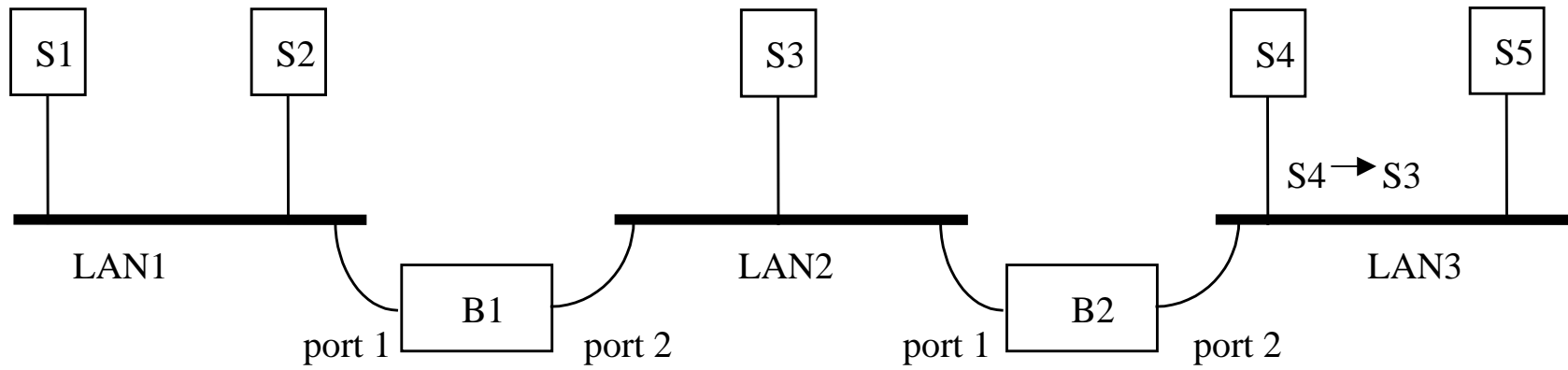
Address	Port
S1	1
S3	2
S4	2

Address	Port
S1	1
S3	1
S4	2

Leon-Garcia & Widjaja: *Communication Networks*   Figure 6.84

Networks: Bridges   9
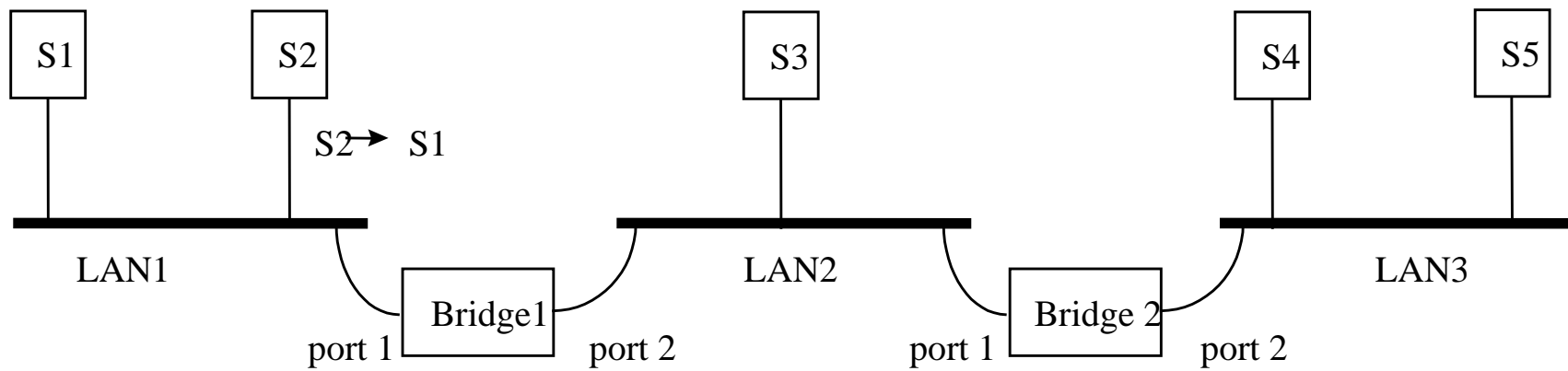
Address	Port
S1	1
S3	2
S4	2
S2	1

Address	Port
S1	1
S3	1
S4	2

S1   S2   S3   S4   S5

S2 → S1

LAN1   LAN2   LAN3

Bridge1   Bridge 2

port 1   port 2   port 1   port 2

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Figure 6.85

Networks: Bridges

LAN1

(1)   (1)

B1   B2

(2)   (2)   (1)

LAN2   B3   (3)

(1)

B4   (2)

(2)

LAN3

(1)

B5

(2)

LAN4

Leon-Garcia & Widjaja: *Communication Networks*   Figure 6.86

Figure 6.87

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Networks: Bridges

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