Totally ordered/Atomic broadcast

Total ordering

Order

m1
m2
m5
m4
m8
m7

Order

Partial ordering

m1 m5 m7
m2 m10 m11
m3 m4 m8
m6 m9 m12

R1: Total ordering 10 messages

R2: Partial ordering 10 messages in 3 groups

Commutative property

Operation +

X + Y = Y + X

P1
P2
P3

Consistent