**Filter algorithm:**

flow1=6, flow2=3, flow3=1

total flows = 10

original probability to get into channels 1, 2, 3:

channel1: 60%

channel2: 30%

channel3: 10%

Reduce probability to channel 1 50%

Calculate new flow distributions:

flow1new = 6\*0.5 = 3

flow not counted in channel 1: flow\_left = flow1 – flow1new = 6 – 3 = 3

How to distribute flow\_left to flow2new and flow3new:

flow2\_distributed = flow\_left\*(flow2/(flow2+flow3)) = 3\*(3/(3+1)) =9/4

flow3\_distributed = flow\_left\*(flow3/(flow2+flow3)) = 3\*(1/(3+1)) =3/4

flow2new = 3 + 9/4 = 21/4

flow3new = 1 + 3/4 =7/4

New probability to get into channels 1, 2, 3:

Channel1: 3/10 = 12/40 = 30%

Channel2: 21/4/10 = 21/40

Channel3:5/4/10 = 7/40

**Another way to calculate the new probabilities:**

Calculate new probability distributions:

Probability of channel1 = (6/10)\*0.5 = 3/10

Probability of channel1 reduced = 6/10 – 3/10 = 3/10

Channel 2 and channel 3 probability will increase 30%, they are distributed:

Channel2 probability increase = (3/4)\*30% = 9/40

Channel3 probability increase = (1/4)\*30% = 3/40

Channel 2 probability: 3/10 + 9/40 = 21/40

Channel 3 probability: 1/10 + 3/40 = 7/40

**Current incorrect way to calculate new probability**:

Flow1new = 6\*0.5 = 3

New probabilities

Channel1: 3/(3+3+1) = 3/7

Channel2: 3/(3+3+1) = 3/7

Channel3: 1/(3+3+1) = 1/7