1

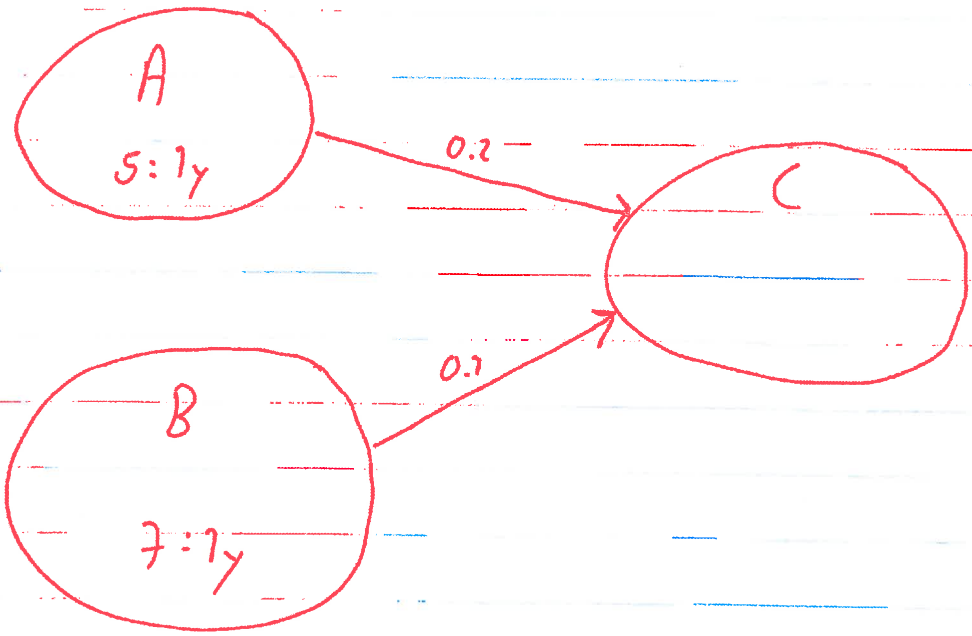
Exercise I

1a) We can say that the frequency of "Malicious ...." is 10 times the frequency of "Servers infected ..."

1b) We can say that the frequency of "Servers infected ..." is at least 10% of the frequency of "Malicious ...".

Exercise I

We simplify Figure 2 into



2a)

(using the leadsto rule)

Using the rule for separate vertices we can deduce

$$A \sqcup B\,(5:1y + 7:1y) = A \sqcup B\,(12:1y)$$

Under the assumption that the diagram is complete we can deduce that the frequency of C must be greater ~~[illegible]~~ than

$$(12:1y)\cdot 0{,}1 = 1{,}2 : 1y$$

and smaller than

$$(12:1y)\cdot 0{,}2 = 2{,}4 : 1y$$

Alternatively, we can use the leadsto rule to deduce (3)

$$A \,\Pi\, C\ (1:1_y)$$
$$B \,\Pi\, C\ (0.7:1_y)$$

If we can convince ourselves that

$A \,\Pi\, C$ and $B \,\Pi\, C$

are separate then we know that

$$C\ (1.7:1_y)$$

under the assumption that the diagram is complete. Otherwise, [if we do not know whether they are separate.] we know that $1.7:1_y$ is an upper bound.

Hence, given completeness it follows that C occurs more often than 1.2 per year and less than or equal to 1.7 per year.

If it is not complete then 1.2 per year is a lower bound.

2b) It is inconsistent if the diagram is complete; consistent otherwise

2c) Same as for 2b)

Exercise 11

1a) Sometimes

1b) Sometimes $\cdot$ 0.1 =

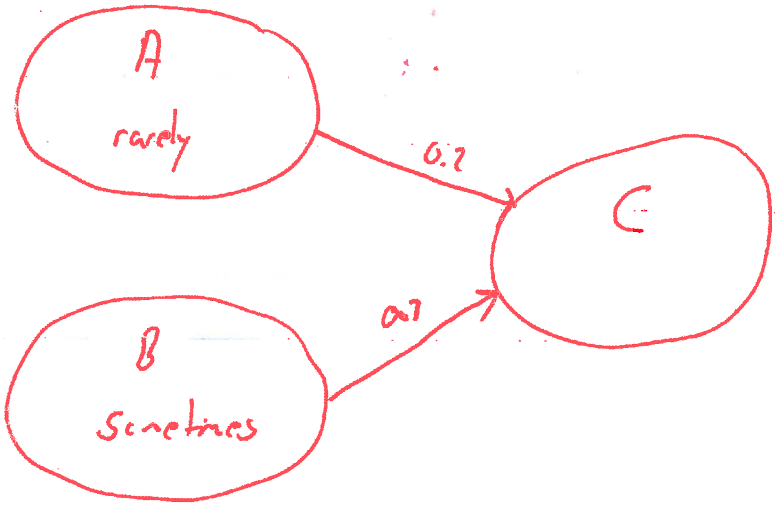
$[10 : 1_y , 1 : 1_y\rangle \cdot 0.1 =$

$[1 : 1_y , 0.1 : 1_y\rangle =$

seldom

Exercise 11

We simplify Figure 4 into



2a) Using interval arithmetic we get

$A \sqcup B$ (rarely + sometimes) =

$[1:100Y - 0\rangle + [10:1y ; 1:1y\rangle =$

$[10{,}001 : 1$[illegible]$Y - 1:1y\rangle$

$A \sqcap C$ (rarely $\cdot$ 0.2) =

$[1:100Y - 0\rangle \cdot 0.2 = [0.2 : 100Y - 0\rangle$

$B \sqcap C$ (sometimes $\cdot$ 0.1) =

$[10 \cdot 1y , 1:1y\rangle \cdot 0.1 = [1 \cdot 1y , 0.1 \cdot 1y\rangle$

We may then argue as for 2a) under Exercise 1

2b) No, this would make the diagram inconsistent independent of whether it is complete or not.