1. Our neighbour, Mr. Jones, receives each early morning a bottle of milk, which is left in front of his door. However, when he opens the door the bottle is usually open and empty. Mr. Jones thinks that the cause of not finding milk is one of the following animals: a cat, a dog or an owl. He asks other neighbours in order to find more evidences:

   - On Monday, Mrs. Pink says that it must be the dog or the cat, with a confidence of 80%.
   - On Tuesday, Mr. Black thinks that it is the cat or the owl, with 70%.
   - On Wednesday, Ms. Brown believes that it is a bird (thus, the owl) with 60%.

   Indicate which is the frame of discernment and model the mass functions of these three clues. After that, calculate the belief and plausibility of the facts for each of the three days. At the end, is there any animal free of suspect? And which animal is the cause of drinking the milk?

Monday $\qquad m_1(DC) = 0.8$

$\qquad\qquad m_1(DCO) = 0.2$

Tuesday $\qquad m_2(CO) = 0.7$

$\qquad\qquad m_2(DCO) = 0.3$

Wedn. $\qquad m_3(O) = 0.6$

$\qquad\qquad m_3(DCO) = 0.4$

Pink

	m_1	B_1	P_1
∅	0	0	0
D	0	0	1
C	0	0	1
O	0	0	0.2
DC	0.8	0.8	1
DO	0	0	1
CO	0	0	1
DCO	0.2	1.0	1

m_1 / m_2	DC 0.8	DCO 0.2
CO 0.7	C 0.56	CO 0.14
DCO 0.3	DC 0.24	DCO 0.06

No conflict $K=0$

	m_1+m_2	B_2	P_2
∅	0	0	0
D	0	0	0.3
C	0.56	0.56	1
O	0	0	0.2
DC	0.24	0.8	1
DO	0	0	0.44
CO	0.14	0.7	1
DCO	0.06	1	1

$m_1 \cdot m_2$ / m_3	C 0.56	DC 0.24	CO 0.14	DCO 0.06
O 0.6	∅ / 0.336	∅ / 0.144	O 0.084	O 0.036
DCO 0.4	C 0.224	DC 0.096	CO 0.056	DCO 0.024

Degree of conflict

$K = 0.336 + 0.144 = 0.48$

$$mass_3(O) = \frac{0.084 + 0.036}{1 - 0.48} = \frac{0.12}{0.52}$$

	$m_1 + m_2 + m_3$	B_3	P_3
$\emptyset$	0	0	0
D	0	0	0.231
C	0.431	0.431	0.769
O	0.231	0.231	0.384
DC	0.185	0.616	0.769
DO	0	0.231	0.569
CO	0.107	0.769	1
DCO	0.046	1	1

Dog is free of suspect.

Cat seems to drink the meal