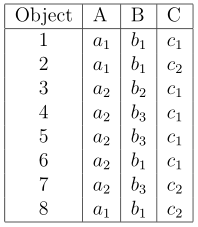
1. Consider the following information table:



a). Construct the family of all definable sets.

b). Give two undefinable sets and their lower and upper approximations.

a). The meaning sets are given by:

m(A = a1) = {o1, o2, o8}

m(A = a2) = {o3, o4, o5, o6, o7}

m(B = b1) = {o1, o2, o6, o8}

m(B = b2) = {o3}

m(B = b3) = {o4, o5, o7}

m(C = c1) = {o1, o3, o4, o5, o6}

m(C = c2) = {o2, o7, o8}

m(A = a1 ∨ A = a2) = {o1, o2, o8} ∪ {o3, o4, o5, o6, o7} = U

m(A = a1 ∨ B = b1) = {o1, o2, o8} ∪ {o1, o2, o6, o8} = {o1, o2, o6, o8}

m(A = a1 ∨ B = b2) = {o1, o2, o8} ∪ {o3} = {o1, o2, o3, o8}

m(A = a1 ∨ B = b3) = {o1, o2, o8} ∪ {o4, o5, o7} = {o1, o2, o4, o5, o7, o8}

m(A = a1 ∨ C = c1) = {o1, o2, o8} ∪ {o1, o3, o4, o5, o6} = {o1, o2, o3, o4, o5, o6, o8}

m(A = a1 ∨ C = c2) = {o1, o2, o8} ∪ {o2, o7, o8} = {o1, o2, o7, o8}

m(A = a2 ∨ B = b1) = {o3, o4, o5, o6, o7} ∪ {o1, o2, o6, o8} = U

m(A = a2 ∨ B = b2) = {o3, o4, o5, o6, o7} ∪ {o3} = {o3, o4, o5, o6, o7}

m(A = a2 ∨ B = b3) = {o3, o4, o5, o6, o7} ∪ {o4, o5, o7} = {o3, o4, o5, o6, o7}

m(A = a2 ∨ C = c1) = {o3, o4, o5, o6, o7} ∪ {o1, o3, o4, o5, o6} = {o1,o3, o4, o5, o6, o7}

m(A = a2 ∨ C = c2) = {o3, o4, o5, o6, o7} ∪ {o2, o7, o8} = {o2, o3, o4, o5, o6, o7, o8}