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1  --Aufgabe 1
2  --a)
3  class (Eq a) => Rotatable a where
4      cwRotCenter, ccwRotCenter, cwRotOrig, ccwRotOrig :: a -> a
5      ccwRotCenter = cwRotCenter . cwRotCenter . cwRotCenter
6      ccwRotOrig = cwRotOrig . cwRotOrig . cwRotOrig
7
8  --b)
9  data Point = P Float Float deriving (Eq, Ord)
10 data Rectangle = R Point Float Float deriving Eq
11
12 instance Show Point where
13     show (P x y) = "Punkt" ++ "(" ++ show x ++ "," ++ show y ++ ")"
14
15 instance Show Rectangle where
16     show (R (P x y) b h) = "Rechteck" ++ "[" ++ show x ++ "," ++ show (x+b) ++ "]" ++ "x" ++ "[" ++ show y
17     •   ++ "," ++ show (y+h) ++ "]"
18
19 --c)
20 instance Ord Rectangle where
21     (R (P x y) b h) <= (R (P x2 y2) b2 h2) = x == x2 && (x+b) == (x2+b2) && y == y2 && (y+h) <= (y2+h2)
22
23 --d)
24 instance Rotatable Point where
25     cwRotCenter (P x y) = (P x y)
26     cwRotOrig (P x y) = (P y (-x))
27
28 instance Rotatable Rectangle where
29     cwRotCenter (R (P x y) b h) = (R (P (x+(b-h)/2) (y-(b-h)/2)) h b )
30     cwRotOrig (R (P x y) b h) = (R (P y (-x)) h b)

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