

Exercise 18

```
-- using newType instead of bool
newtype All = All { getAll :: Bool }
  deriving (Eq, Ord, Read, Show, Bounded)
instance Monoid All where
  mempty = All True
  (All x) <> (All y) = All (x && y)

-- define Maybe bind
define function maybeBind :: Maybe a -> (a -> Maybe b) -> Maybe b

maybeBind Nothing _ = Nothing
maybeBind (Just x) f = f x

--define Maybe list
define function listBind :: [a] -> (a -> [b]) -> [b]

listBind xs f = concat (map f xs)

-- define Either maybe
define function eitherBind :: Either r a -> (a -> Either r b) -> Either r b

eitherBind (Left e) _ = Left e
eitherBind (right x) f = f x

-- define Arrow bind
define function arrowBind :: (r -> a) -> (a -> (r -> b)) -> (r -> b)

arrowBind h f r = f (h r) r

-- define Pairs bind
define function pairBind :: (r, a) -> (a -> (r, b)) -> (r, b)

pairBind (r1, x) f = (r1 <> r2, y)
  where (r2, y) = f x
```