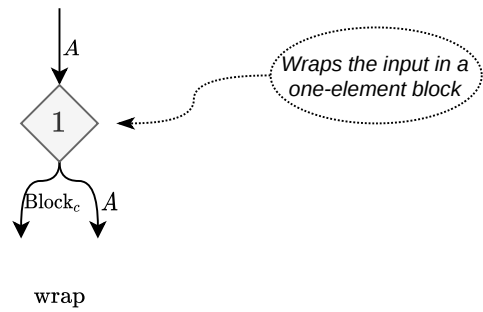


# Monadic Interface



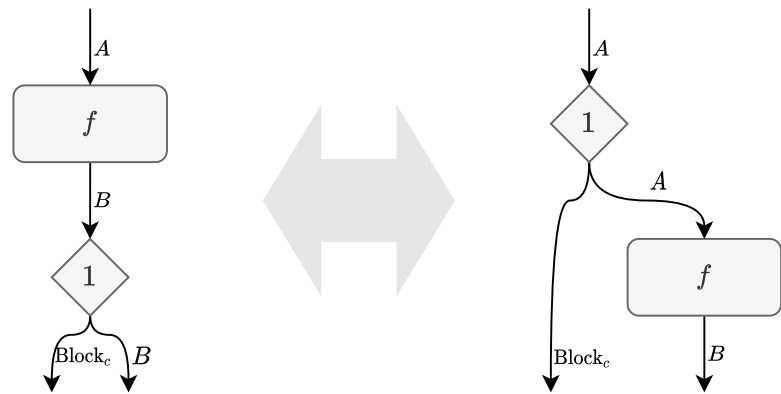
# Monadic Unit



Monadic unit is a natural transformation.



Indeed, for any  $f : A \rightarrow B$ ,



$$\text{chain\_of}(f, \text{wrap}) \equiv \text{chain\_of}(\text{wrap}, \text{with\_elements}(f))$$

# Using Monadic Unit

Monadic unit can adapt any regular transformation to the monadic interface.

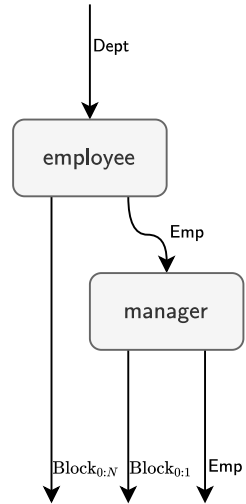
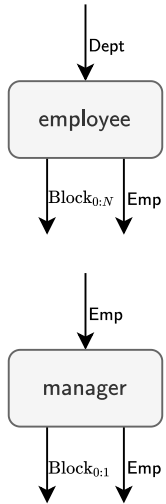


# Monadic Interface: Examples

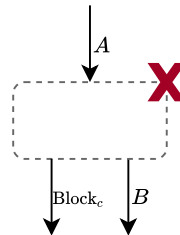


# Composition Challenge

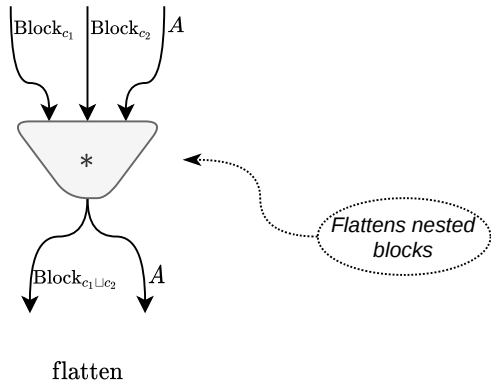
Two monadic transformations  
can be composed.



But the composition  
does not satisfy  
the monadic interface.



# Monadic Multiplication



It is easy to check that the monadic multiplication is a natural transformation.

