

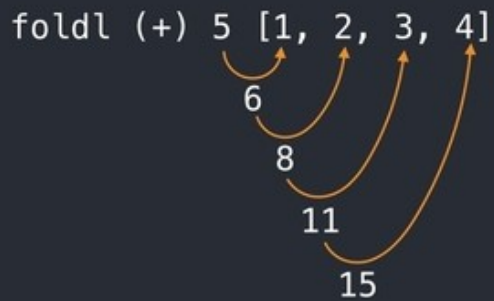
Ejercicio foldl, foldr

foldr :: (a->b->b) -> b -> [a] -> b

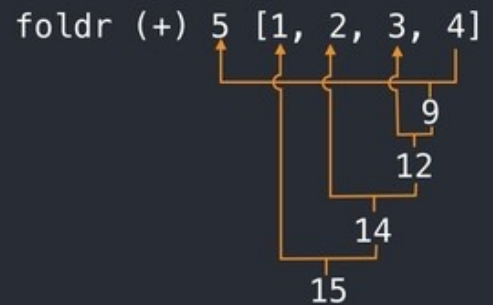
$\text{foldr } f \ e \ [] = e$

$\text{foldr } f \ e \ (x:xs) = f \ x \ (\text{foldr } f \ e \ xs)$

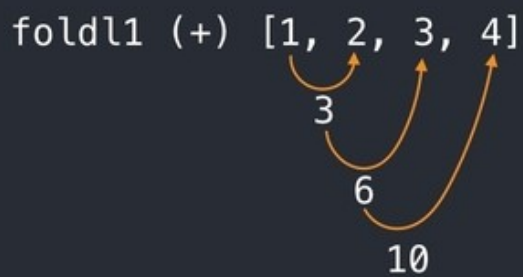
foldl



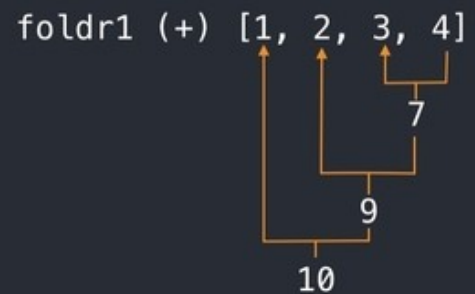
foldr



foldl1



foldr1



foldl :: (a->b->b) -> b -> [a] -> b

$\text{foldl } f \ e \ [] = e$

$\text{foldl } f \ e \ (x:xs) = \text{foldl } f \ (f \ e \ x) \ xs$

$\text{foldl } (-) \ 0 \ [1,2,3,4] \neq \text{foldr } (-) \ 0 \ [1,2,3,4]$

Ejercicio especificar y derivar

$g: [\text{Num}] \rightarrow \text{Bool}$

$g.xs = \langle \exists as, bs : xs = as ++ bs : \text{sum}.as < 0 \rangle$

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generalizamos

$gg: [\text{Num}] \rightarrow \text{Num} \rightarrow \text{Bool}$

$gg. [].n = n < 0$

$gg.(x:xs).n = n < 0 \vee gg.xs.(n+x)$

$g: [\text{Num}] \rightarrow \text{Bool}$

$g.xs = gg.xs.0$

Ejercicio función en Haskell

$f :: \text{Int} \rightarrow [\text{Int}] \rightarrow \text{Bool}$

$f _ [] = \text{False}$

$f \ 0 _ = \text{False}$

$f \ n \ (x:xs) = (\text{nApariciones}(\text{take } n \ (x:xs)) \ x) > 1$
 $\parallel f(n-1) \ xs$

$\text{nApariciones} :: [\text{Int}] \rightarrow \text{Int} \rightarrow \text{Int}$

$\text{nApariciones} \ [] _ = 0$

$\text{nApariciones} \ (x:xs) \ y \mid x == y = 1 + \text{nApariciones} \ xs \ y$
 $\mid \text{otherwise} = \text{nApariciones} \ xs \ y$