

$$\text{foldl}: (X \times Y \rightarrow Y) \times Y \times \mathcal{L}(X) \rightarrow Y$$

$$\text{foldl}(f, y, \text{nil}) = y$$

$$\text{foldl}(f, y, x::xr) = \text{foldl}(f, f(x, y), xr)$$

$$f = \lambda (x, a) \in X \times N. a + 1$$

$$\forall xs \in \mathcal{L}(X): |xs| = \text{foldl}(f, 0, xs)$$

$$H(xs) := |xs| = \text{foldl}(f, 0, xs)$$

Base: $H(\text{nil})$

$$|\text{nil}| = \text{foldl}(f, 0, \text{nil}) \quad ?$$

$$|\text{nil}| = 0 = \text{foldl}(f, 0, \text{nil})$$

Def 1 \rightarrow def fold 1 \leftarrow

Step: Annahme $\forall s = x::xr \quad \forall |xr| = \text{foldl}(f, 0, xr)$

$$H(xs) := |x::xr| = \text{foldl}(f, 0, x::xr)$$

$$|x::xr| = 1 + |xr|$$

def 1, 1 \rightarrow

$$\text{foldl}(f, 0, x::xr) = \text{foldl}(f, f(0, x), xr)$$

def fold 2, \rightarrow

$$= \text{foldl}(f, 1, xr)$$

Stuck!

Base case for $x::\text{nil}$?

$x::y::\text{nil}$?

$\dots \text{nil}$?



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