0.0.1 Remove

The inverse of the *append* Operations.

$$remove(coll, idx) =^{\sim} append(coll, idx)$$

The operation *remove* will return a Collection minus the Value removed from the specified Numeric Index

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$remove[Collection, \mathbb{N}]$ ────────────────────────────
$coll?, coll! : Collection$
$idx? : \mathbb{N}$
$remove\_ : Collection \times \mathbb{N} \twoheadrightarrow Collection$

$coll! = remove(coll?, idx?) \bullet$
$\quad let \; coll' == front(\{\, i : \mathbb{N} \mid i \in 0 .. idx? \,\} \upharpoonright coll?)$
$\quad\quad coll'' == tail(\{\, j : \mathbb{N} \mid j \in idx? .. \# coll? \,\} \upharpoonright coll?) \bullet$
$\quad\quad = coll' \frown coll'' \Rightarrow coll?_{idx?} \notin coll' \wedge coll?_{idx?} \notin coll'' \wedge \# coll! = \# coll? - 1$

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such that

$$X = \langle x_0, x_1, x_2 \rangle$$
$$x_0 = 0$$
$$x_1 = foo$$
$$x_2 = baz$$

$remove(X, 0) = \langle foo, baz \rangle$ [0 was removed from X]
$remove(X, 1) = \langle 0, baz \rangle$ [foo was removed from X]
$remove(X, 2) = \langle 0, foo \rangle$ [baz was removed from X]
$remove(X, 3) = \langle 0, foo, baz \rangle = X$ [nothing at 3, X unaltered]