(empty-stack) = $[\varphi]$

$\leftrightarrow$

(empty-stack) = [s], where (empty-stack? [s]) = #t
Constructor.

(empty-stack? $[s]$) = { #t if [s] = (empty-stack), #f otherwise }
Observer.

(push [s] val) = [g], where (top [g]) = val and (pop [g]) = [s]

$\leftrightarrow$

(push (pop [s]) val) = [s]
Constructor.

(pop (push [s] val)) = [s]
(pop $[\varphi]$) = error
Observer.

(top (push [s] val)) = val
(top $[\varphi]$) = error
Observer.