

Phase 11 a : Function Types

$[XDR, YDR, Z]$

Total functions (every element in domain has a mapping):

| $totalF1 : XDR \rightarrow YDR$
| $totalF2 : \mathbb{N} \rightarrow \mathbb{N}$

Partial functions (some elements may not have a mapping):

| $partialF : XDR \nrightarrow YDR$

Injections (one-to-one mappings):

| $injTotal : XDR \rightarrowtail YDR$
| $injPartial : XDR \nrightarrowtail YDR$

Surjections (onto mappings):

| $surjTotal : XDR \twoheadrightarrow YDR$
| $surjPartial : XDR \nrightarrowtail YDR$

Bijections (one-to-one and onto):

| $bijection : XDR \rightleftarrows YDR$

Mixed operators (relations and function types work together):

| $relationDR : XDR \leftrightarrow YDR$
| $function : XDR \rightarrow YDR$