Qui sème la fonction récolte le tuyau typé

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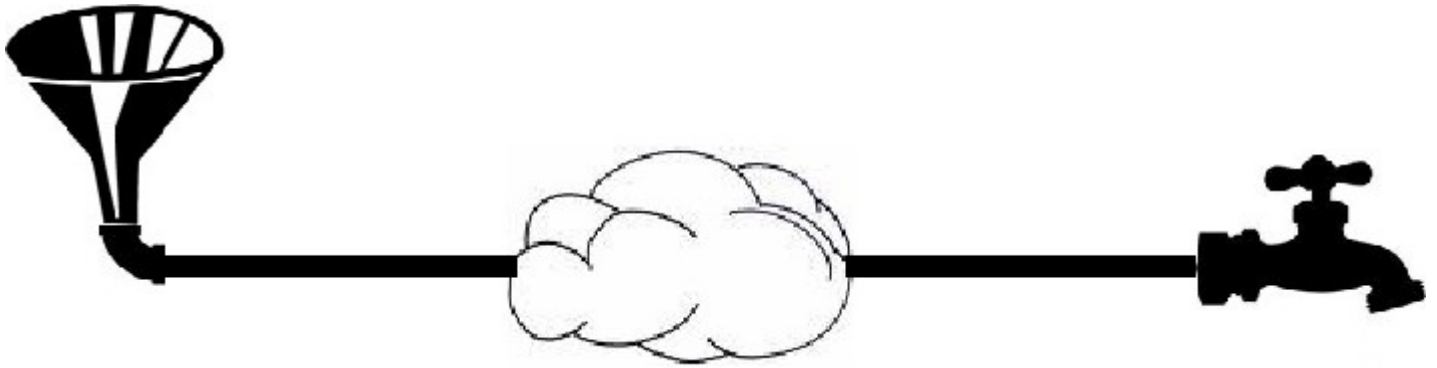
“World”

“Hello”

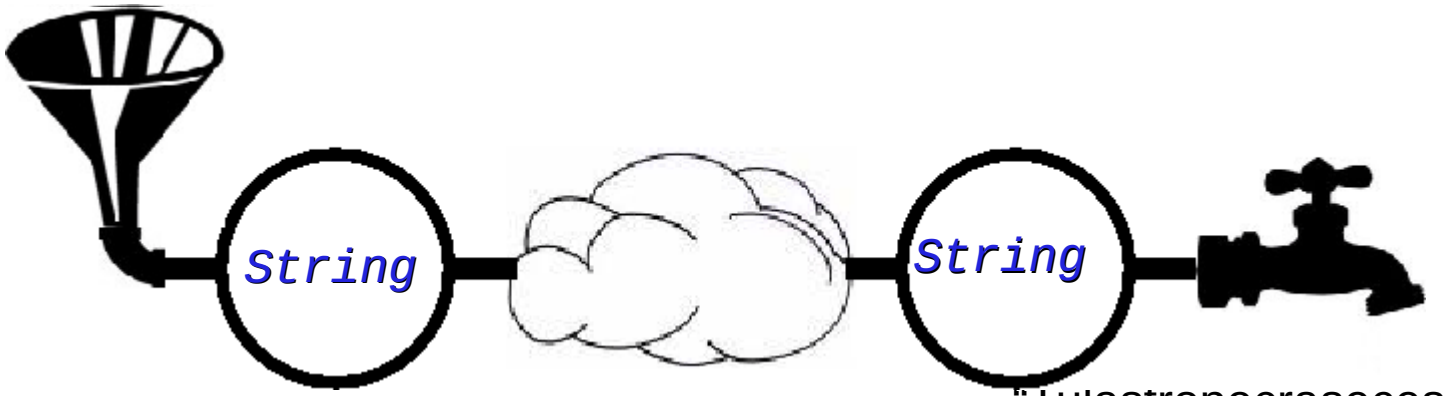


“World”

“Hello”

“World”

“Hello”



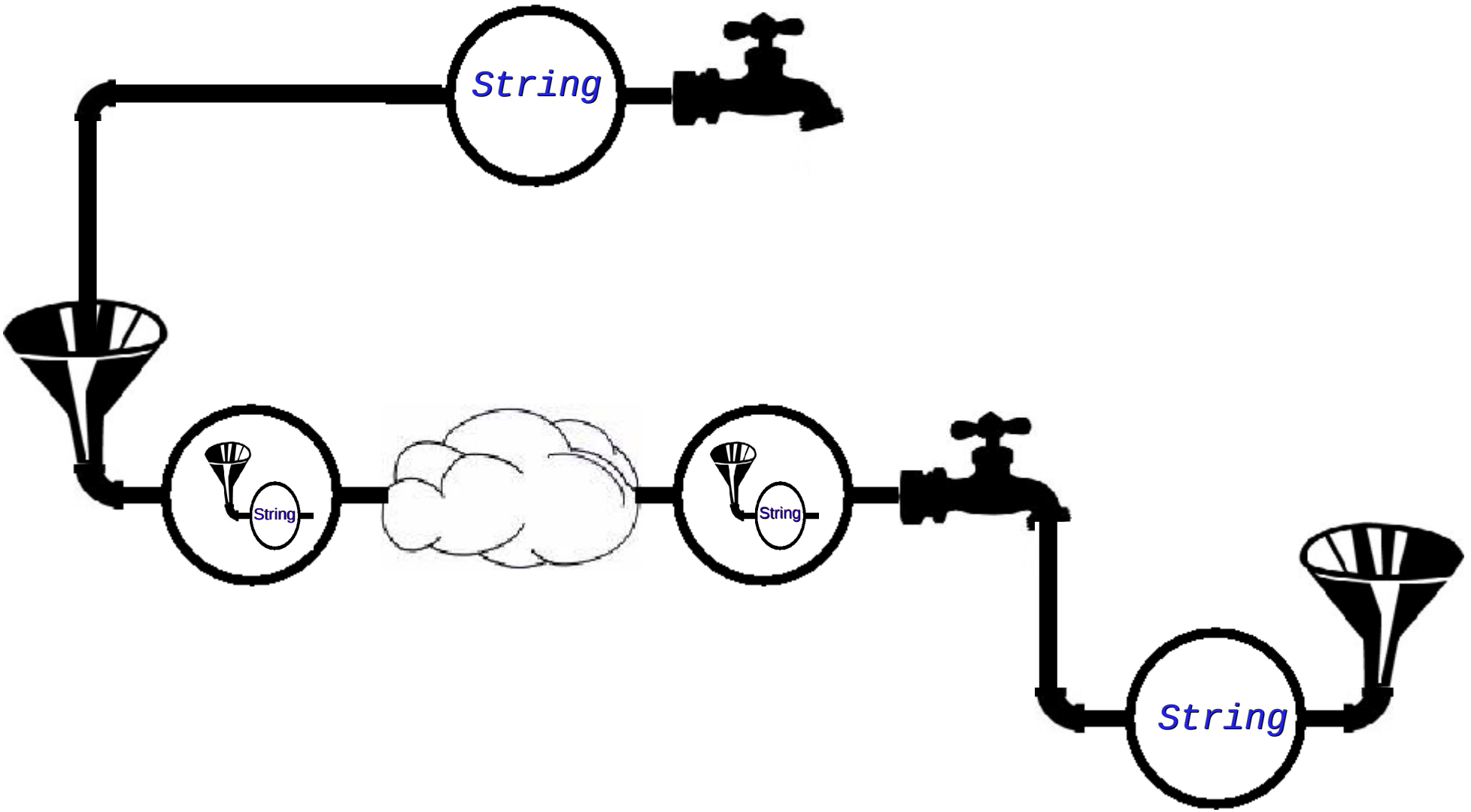
“Tulastropecrasecesarceportsalut”

“Hello World”

“Hello”

“Hello”

“World”


String
String
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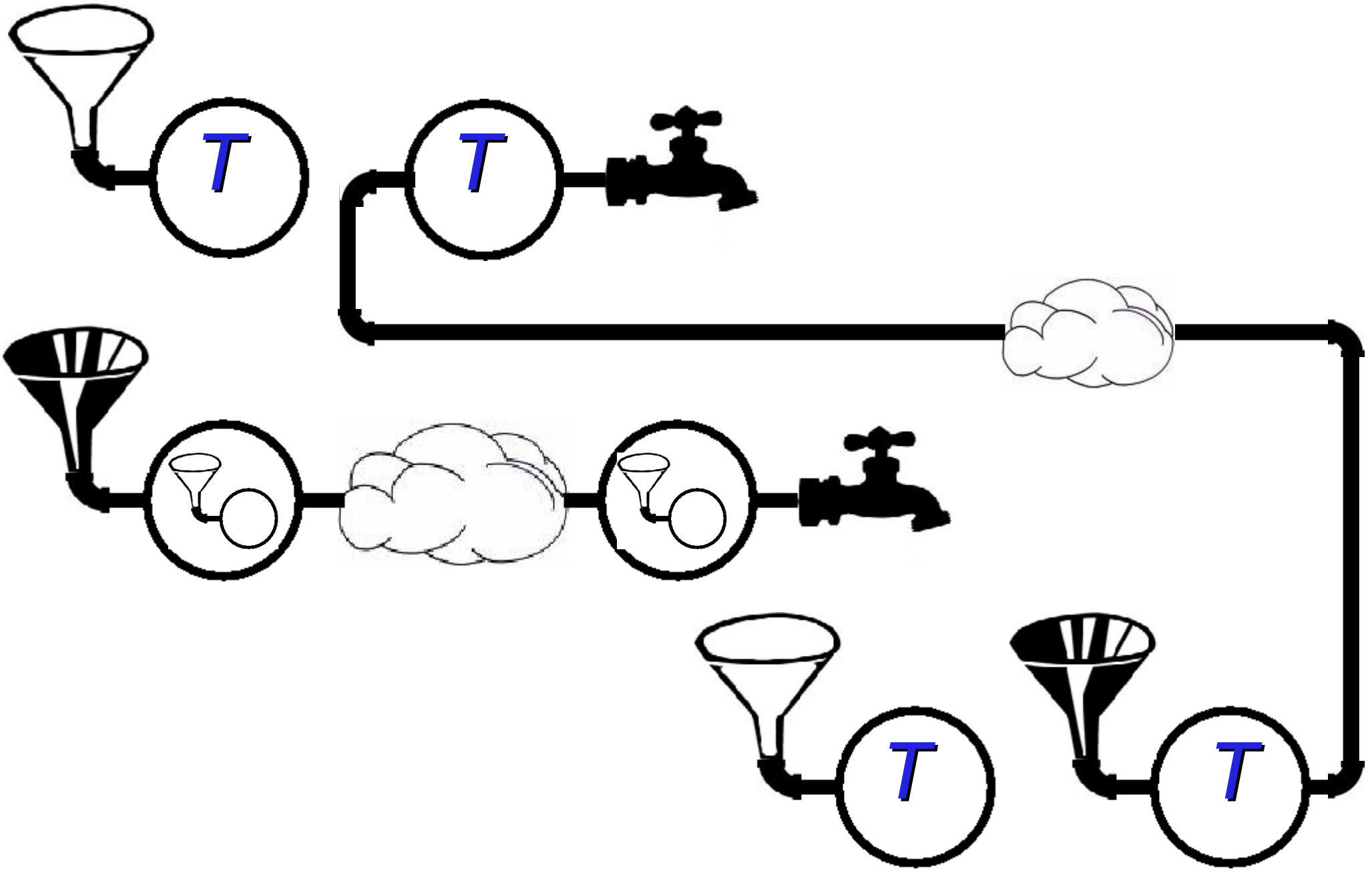
T
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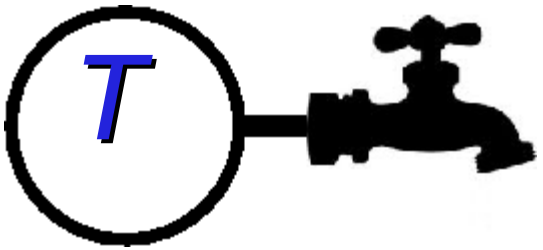
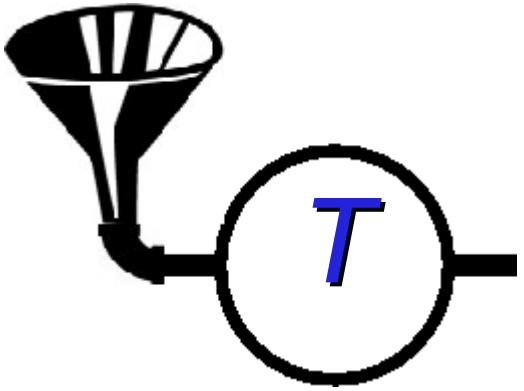
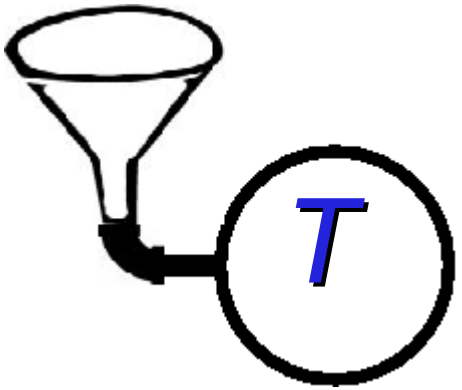
Type des protocoles



unit -> T



T -> unit



unit -> T -> unit

Un exemple de protocole

```
let qprot () =
   let q = Queue.create () in
      (fun () -> (Queue.pop q)),
      (fun () -> (fun (v) -> (Queue.push v q)))
```

*unit -> (unit -> 'a) * (unit -> 'a -> unit)*

Réflexivité

```
let self prot v =
   let (read,writer)=(prot ()) in
      ((writer ()) v);
      (read ())
```

*(unit -> (unit -> 'a) * (unit -> 'b -> 'c)) -> 'b -> 'a*

```
let id x = self qprot x
```

'a -> 'a

Symétrie

```
let sym prot out connect =
   let (read,writer)=(prot ()) in
      (out (fun (s) -> (connect s (writer ()))));
      read
```

```
(unit -> 'a * (unit -> 'b)) ->
((('c -> 'd) -> 'e) ->
 ('c -> 'b -> 'd) ->
 'a
```

Application de la symétrie

```
let call out f =
   ((sym qprot out (fun s w -> (w (f s)))) ())
```

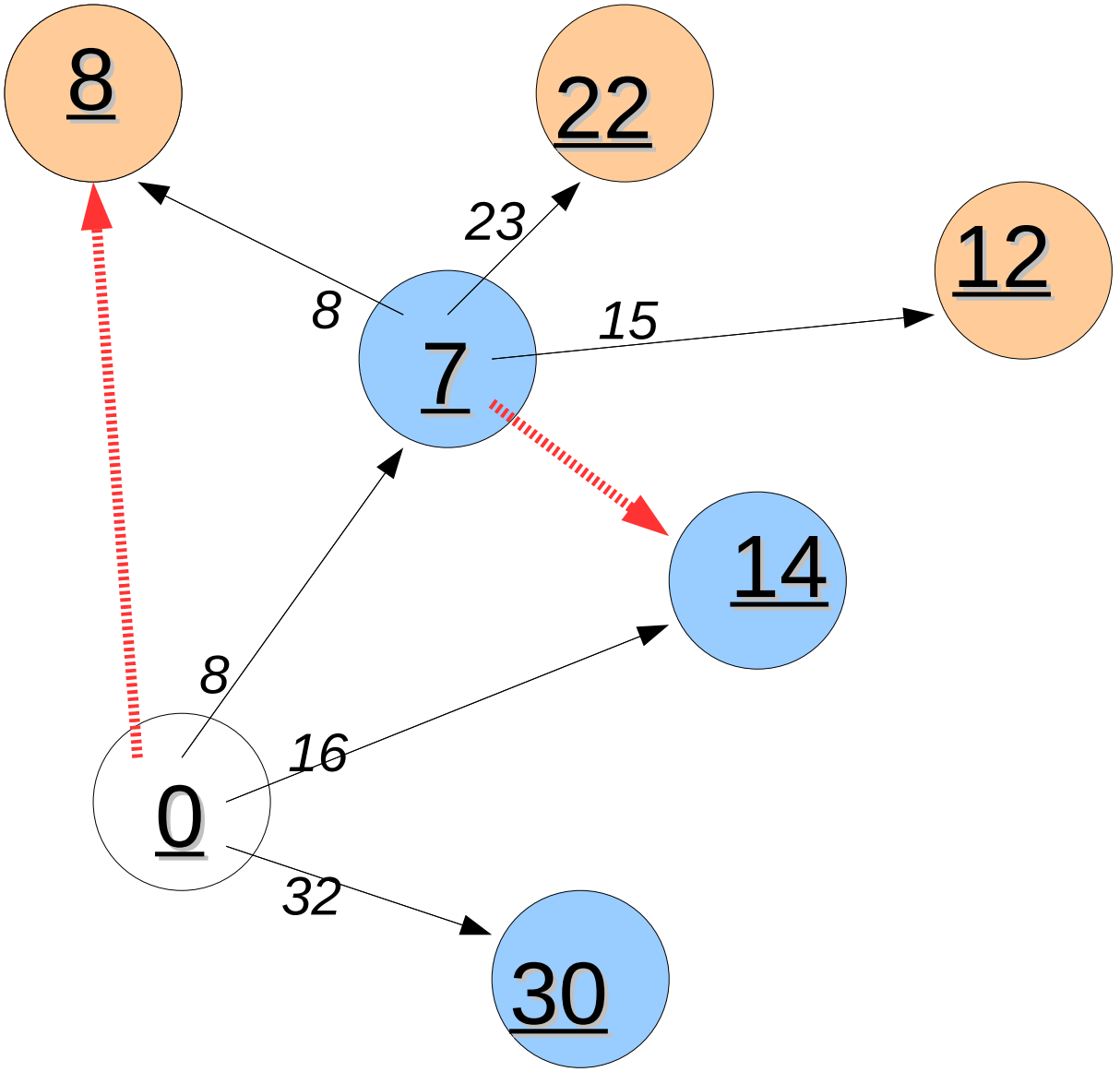
(('a -> unit) -> 'b) -> ('a -> 'c) -> 'c

Transitivité

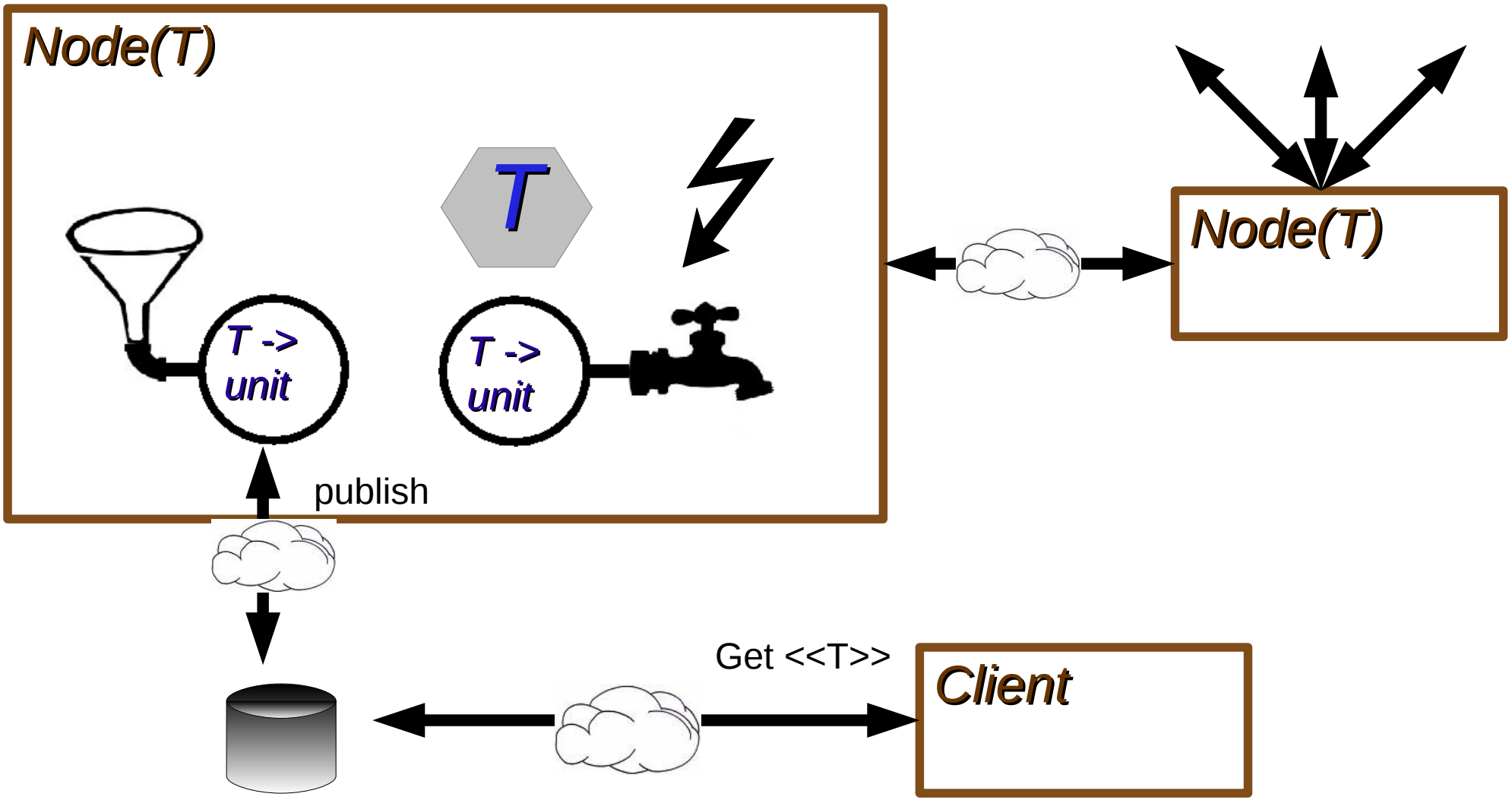
```
let strans prot out get connect =
   let (read,writer)=(prot ()) in
      (out (fun (a) ->
               ((get a)
                (fun (b) -> (connect b (writer ())))))));
      read
```

```
let sym p o c = strans p o (fun (a f) -> (f a)) c
```

Application de la transitivité

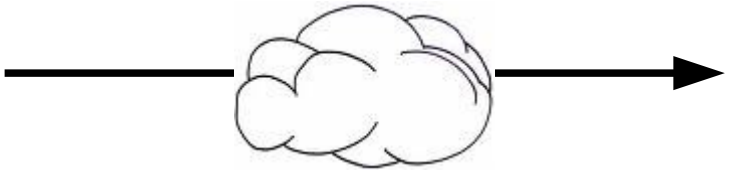


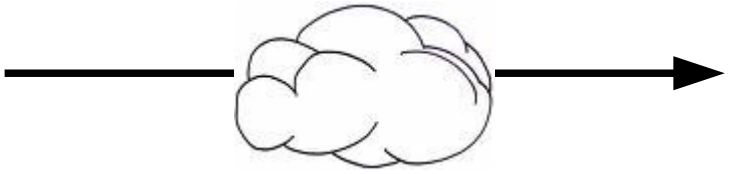
Bootstrap



TRepr('a) -> (unit -> ('a -> unit) -> unit)

Appel distant

A  fun x -> B

fun x -> B  Obj

let *v* = A in (fun f -> (f *v*))

fun x -> B

Qui sème la fonction ...

- ✔ ... s'abstrait du protocole de transport
- ✔ ... efface la génération de code (à la volée)
- ✔ ... récolte le tuyau typé
- ✗ ... requiert une machine virtuelle
- ✗ ... encourage le monolinguisme