

# Relativistic Functional Reactive Programming

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# *Can you hear me?* a.k.a. ping

```
pinger(Pid) ->  
  {ponger, Pid} ! {ping, self()};  
  receive  
    pong ->  
      pinger(Pid)  
  end.
```

```
ponger()  
  receive  
    {ping, Pid} ->  
      Pid ! pong;  
      ponger()  
  end.
```

# “functional” *Can you hear me?*

```
pinger(Pid) ->  
  {pinger, Pid} ! {ping, self()};  
  receive  
    pong ->  
      pinger(Pid)  
  end.
```

```
ponger()  
  receive  
    {ping, Pid} ->  
      Pid ! pong;  
      pinger()  
  end.
```

Impure  
ickiness



# “functional” *Can you hear me?*

```
pinger(Pid) ->  
  {pinger, Pid} ! {ping, self():  
  receive  
  pong ->  
  pi
```

**Can we do better than ickiness?**

Impure  
ickiness

```
pinger()  
  receive  
  {ping, Pid} ->  
    Pid ! pong;  
    pinger()  
end.
```





**perception**

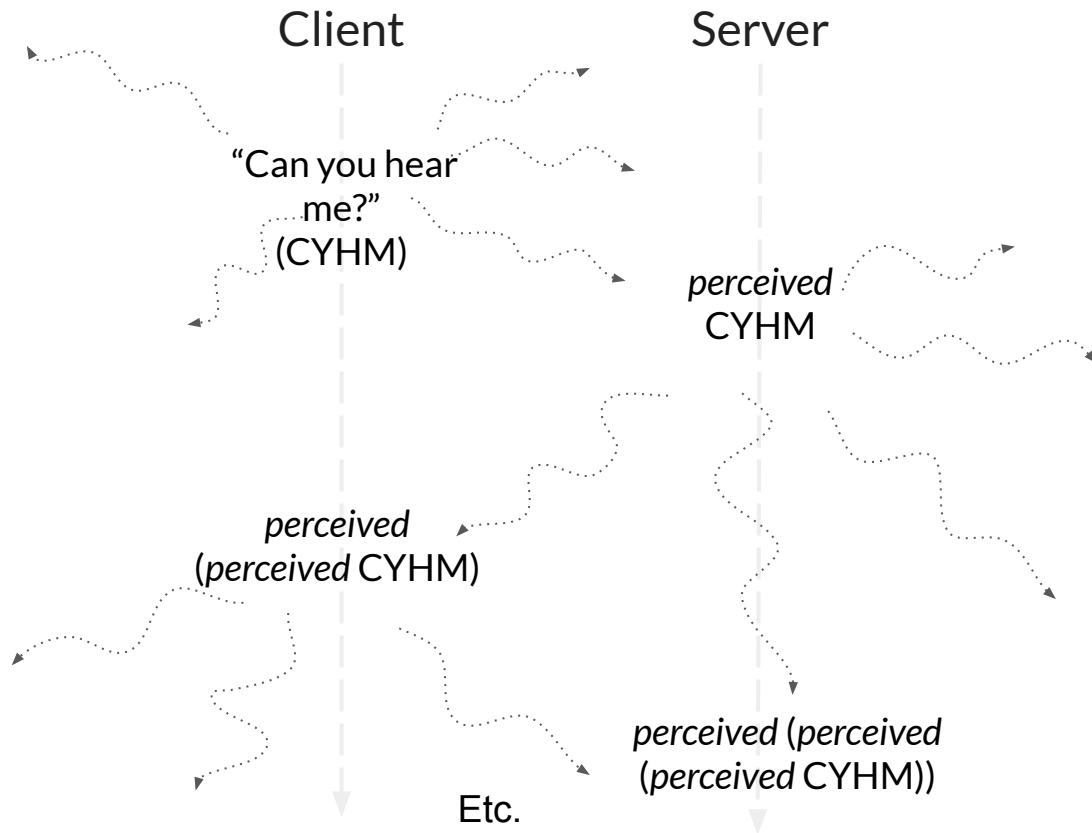


**all-knowing,  
transitive**

**perception**

**of intentions  
and facts**

# ping through the lens of perception



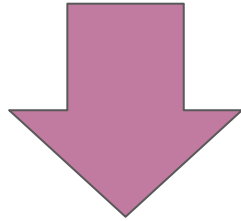
One ping-pong:

```
ping =  
  perceivedAt client  
    (perceivedAt server  
      canYouHearMe)
```

Endless ping-pongs:

```
ping =  
  perceivedAt client  
    (perceivedAt server  
      (canYouHearMe <> ping))
```

*Perception composes!*



## *Relativistic Functional Reactive Programming*

- Denotative (purely functional) distributed programming!
- Abstracts over how information travels!