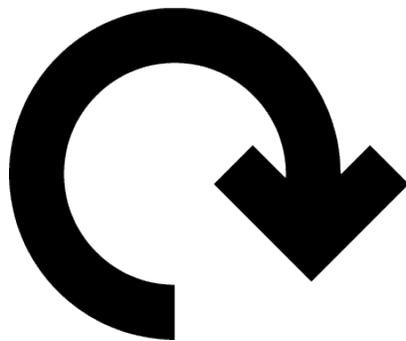


paskian environments

usman haque
usman@haque.co.uk

paul pangaro
pan@pangaro.com

CYBERNETICS



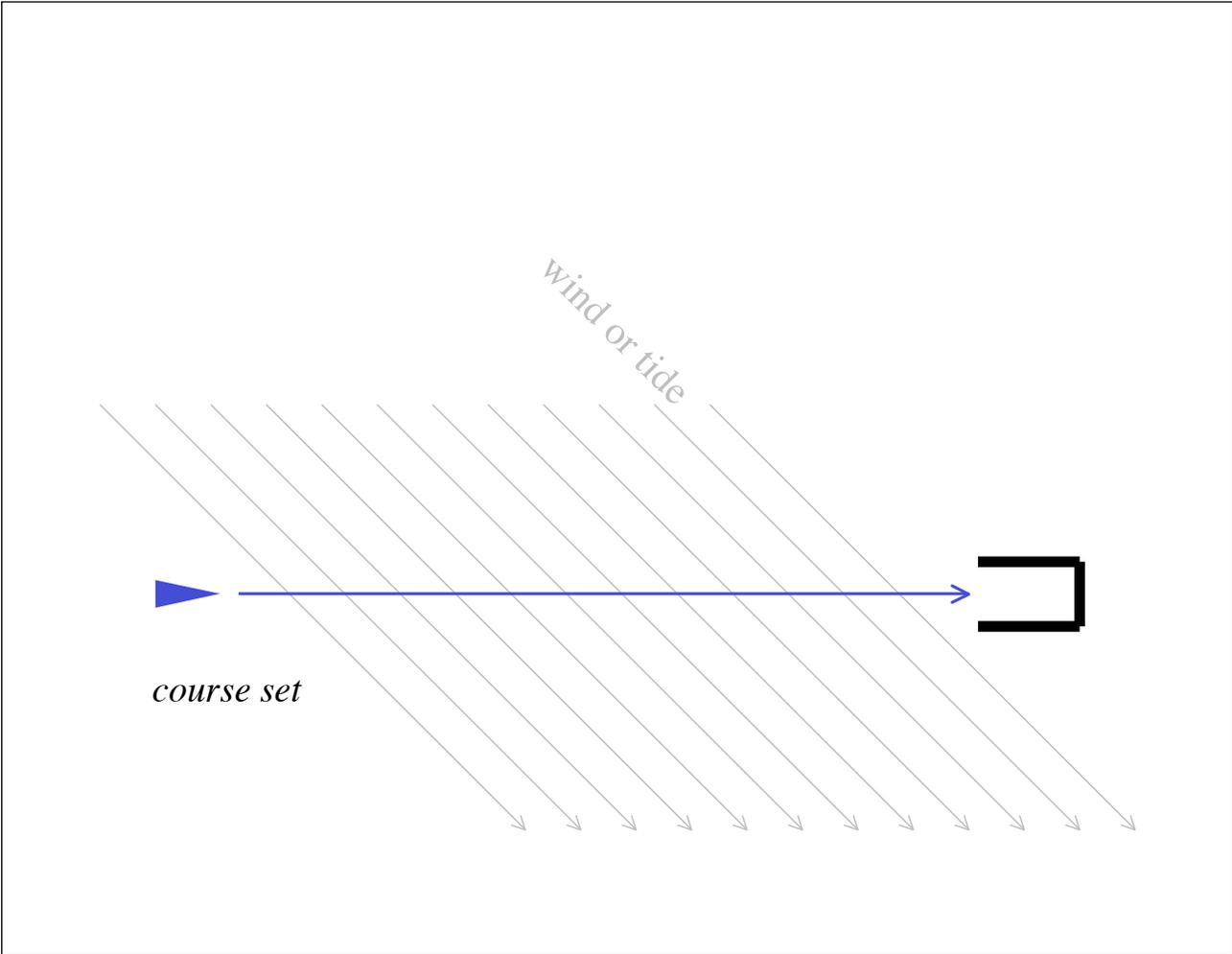
CYBERNETICS

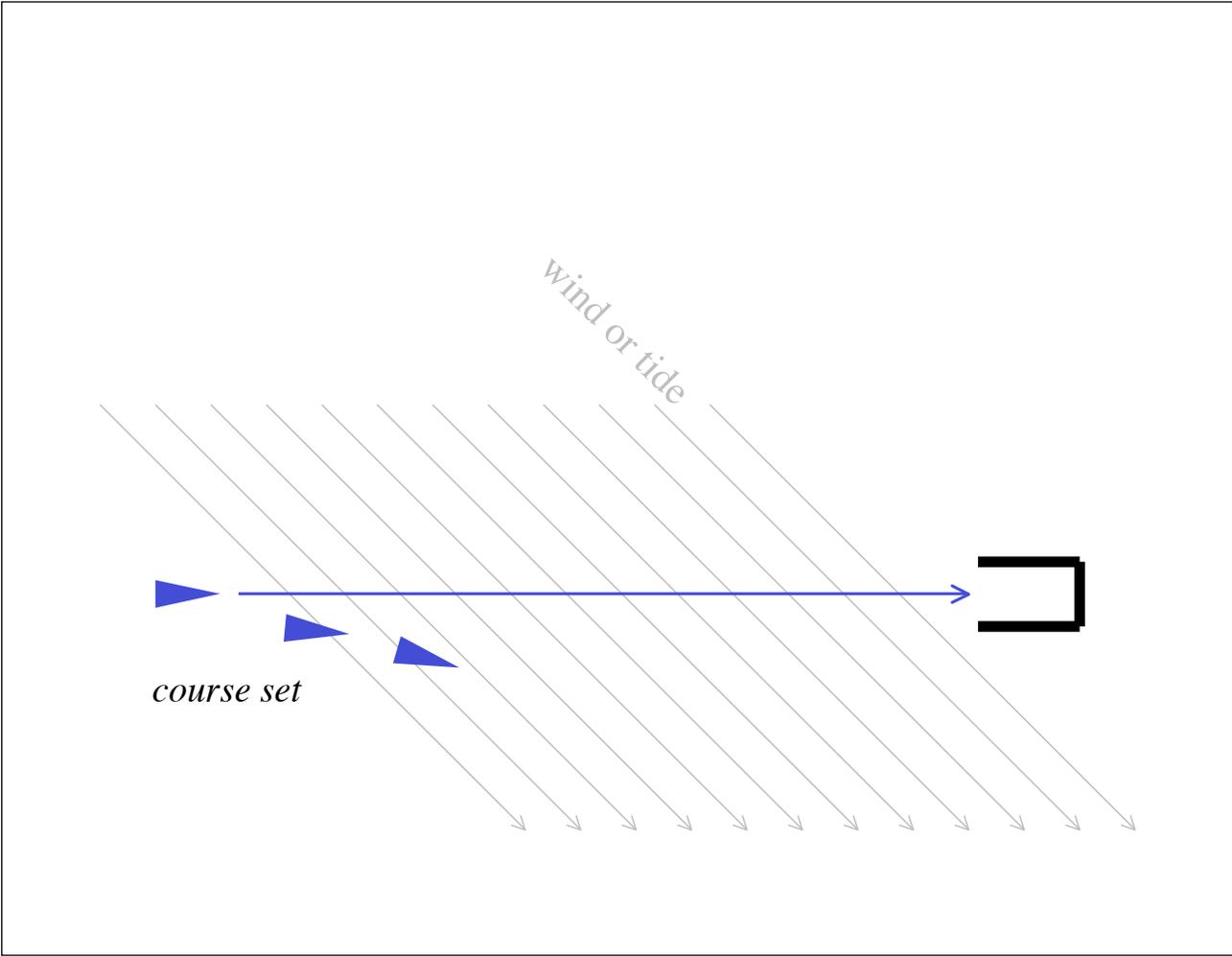
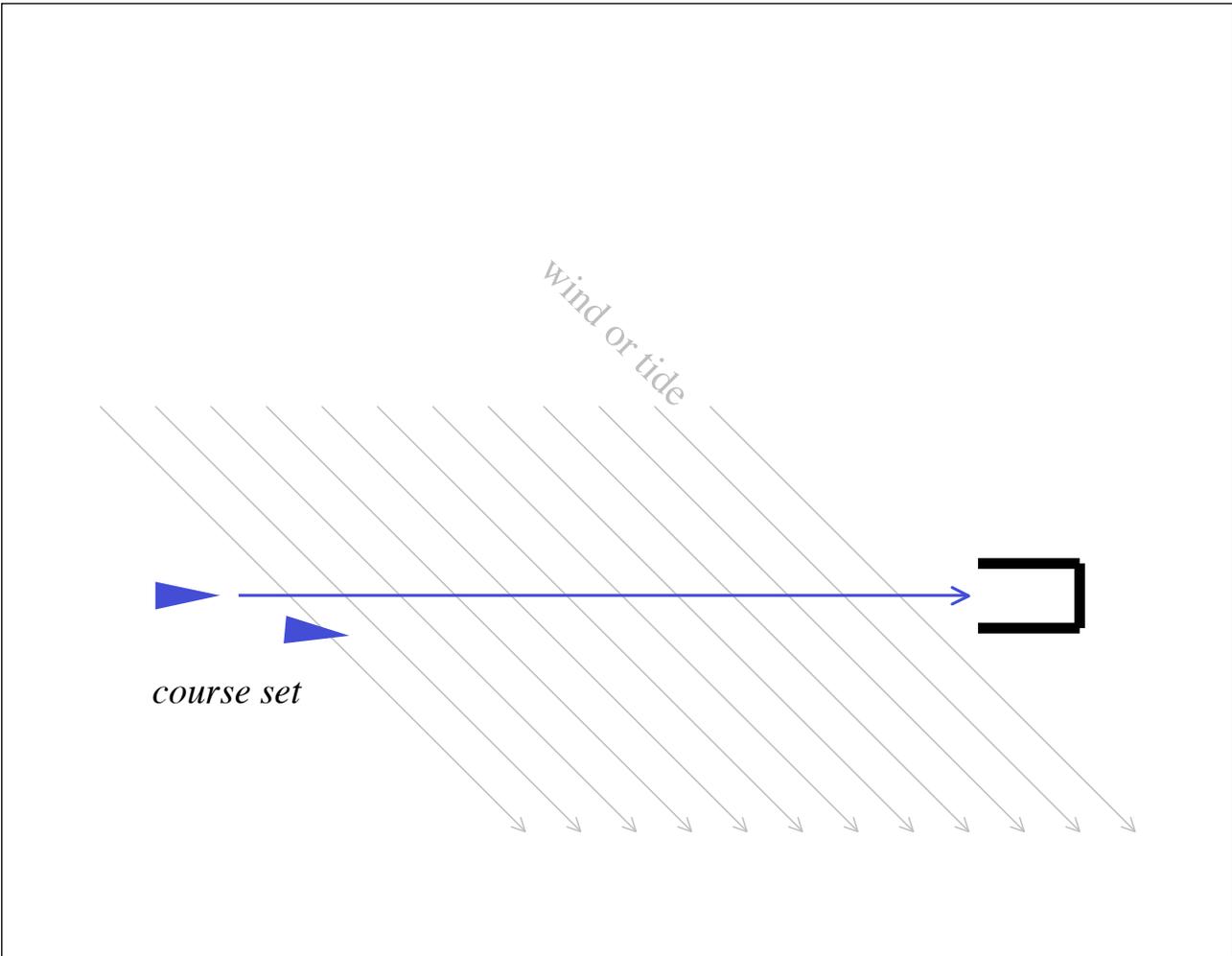
compares to goal

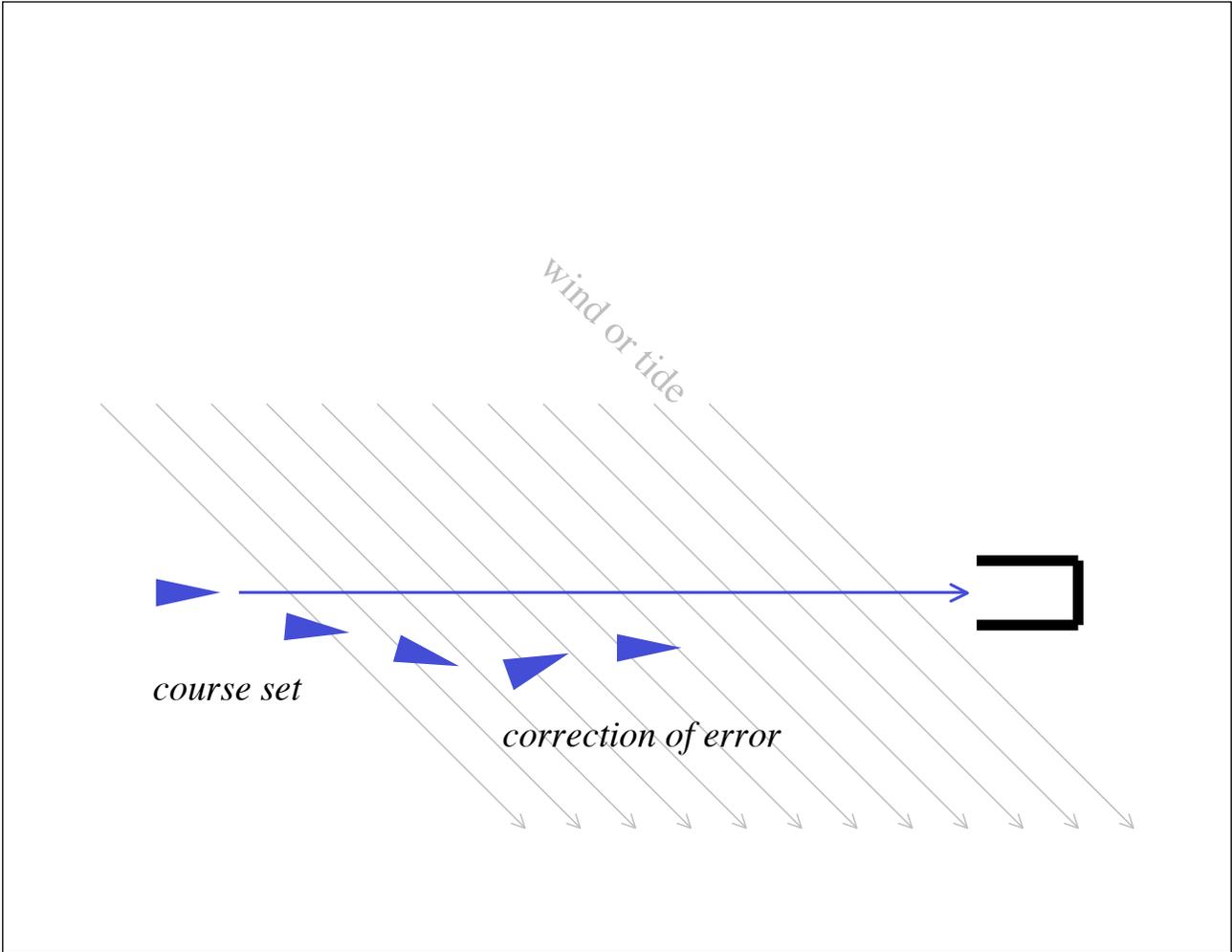
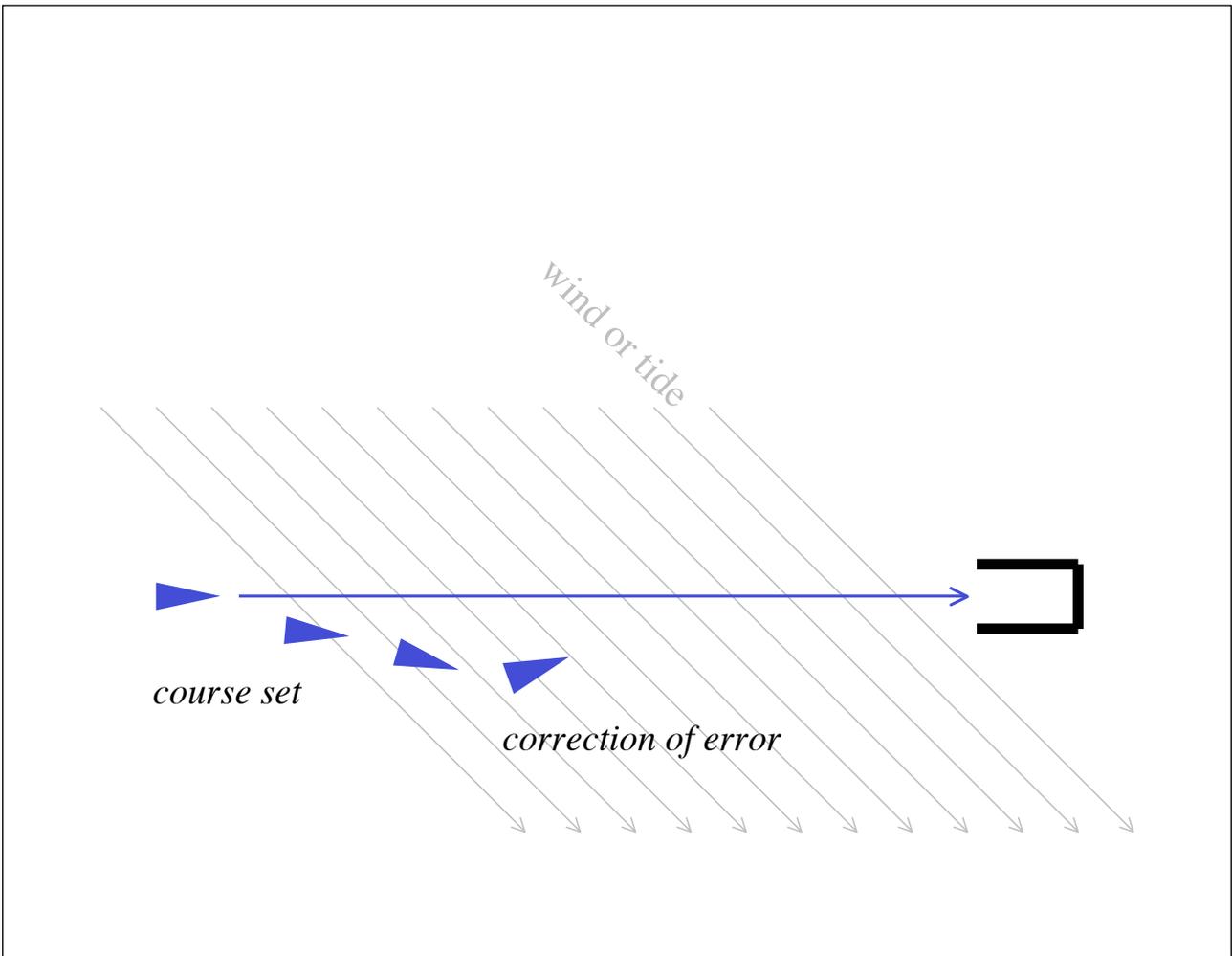


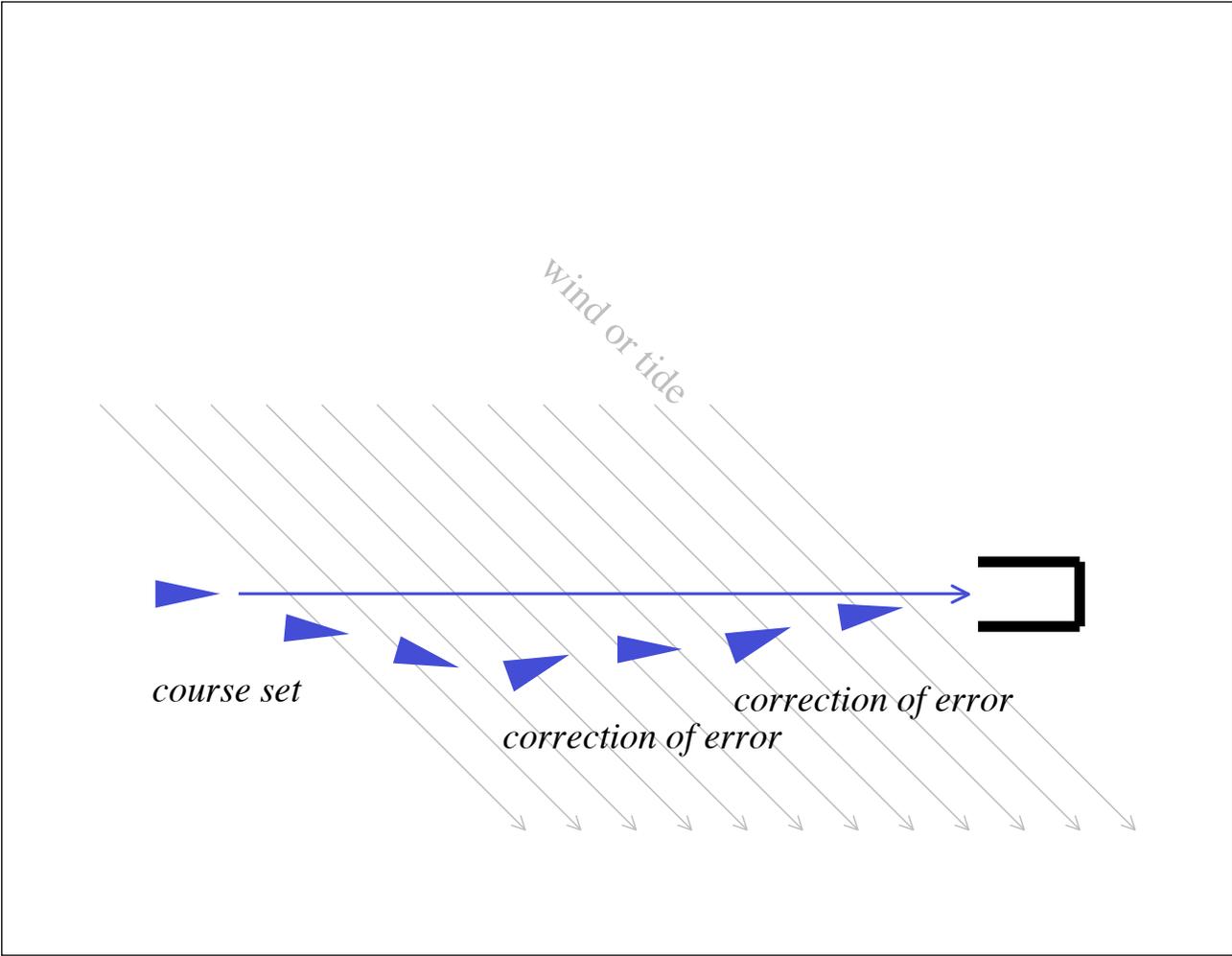
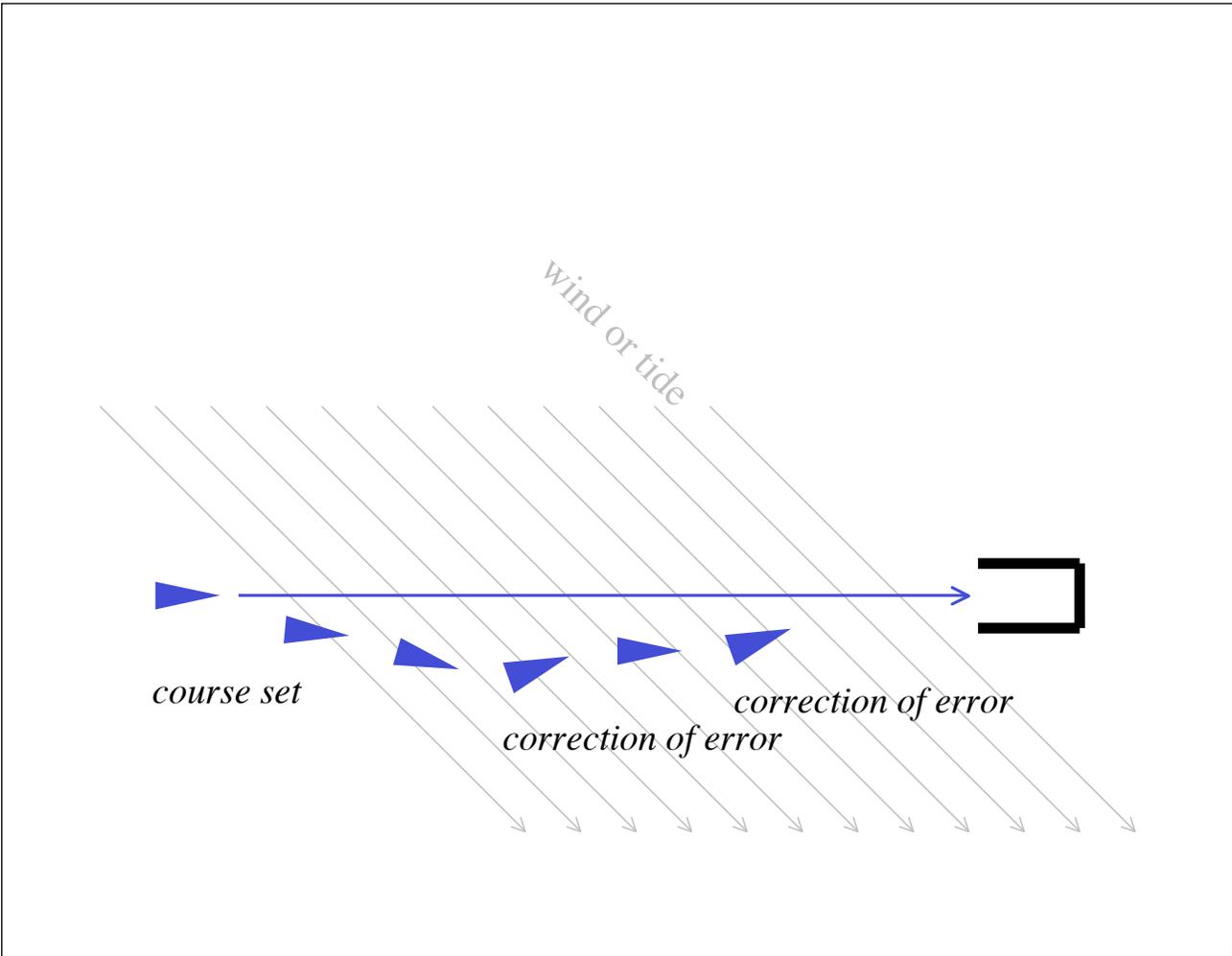
system acts

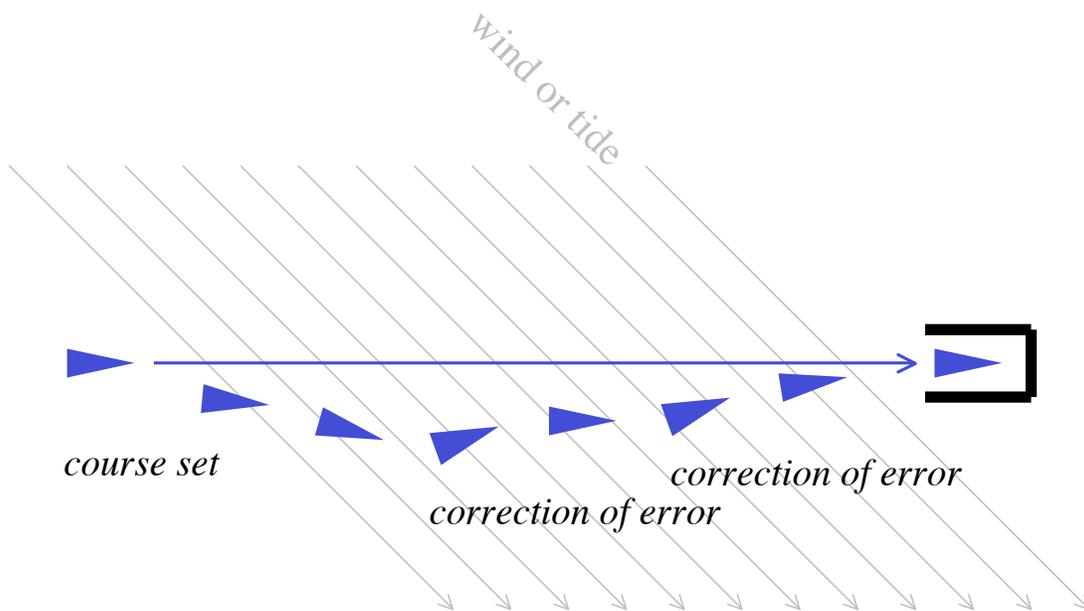
reads a reaction











CYBERNETICS

compares to goal

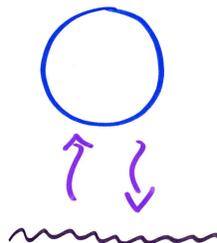


system acts

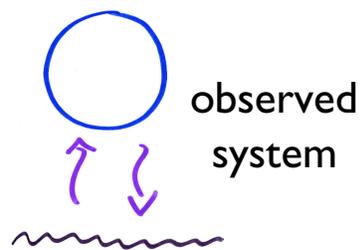
reads a reaction

CYBERNETICS

- system has **goal**
- system aims toward the **goal**
- **environment** affects aim
- information returns to system—'**feedback**'
- system measures **difference** between state and goal
—detects '**error**'
- system **acts** to correct

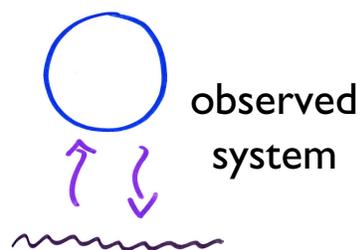


after Maturana



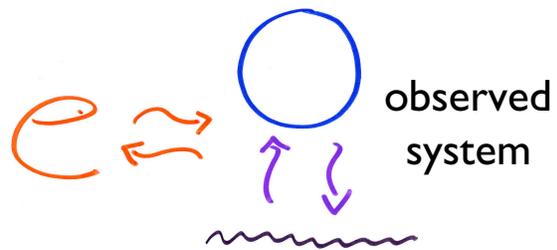
after Maturana

first-order cybernetics

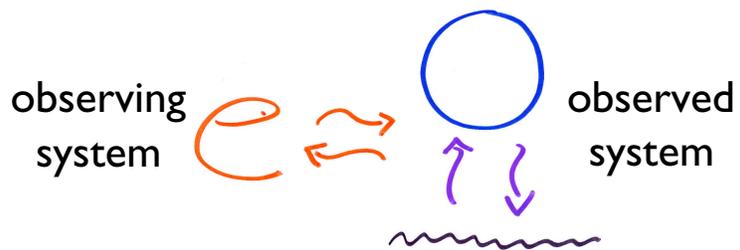


after Maturana

first-order cybernetics

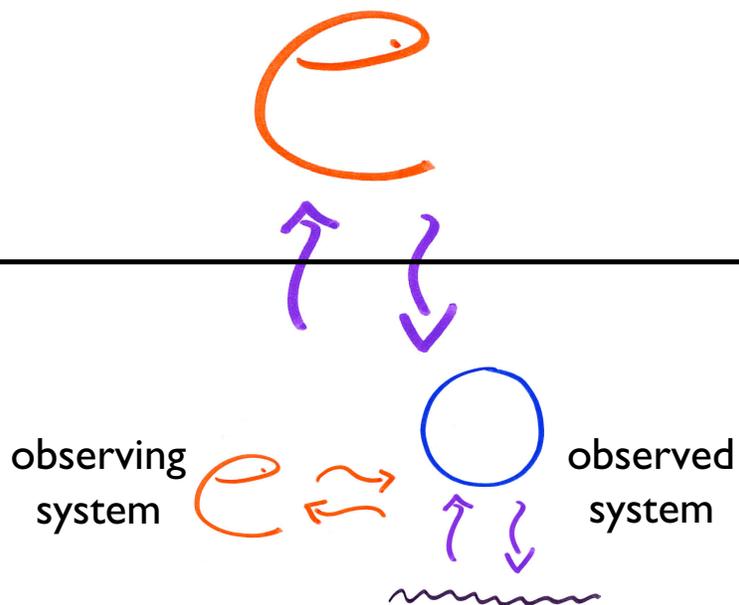
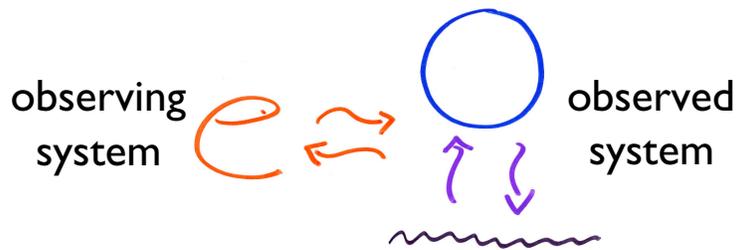


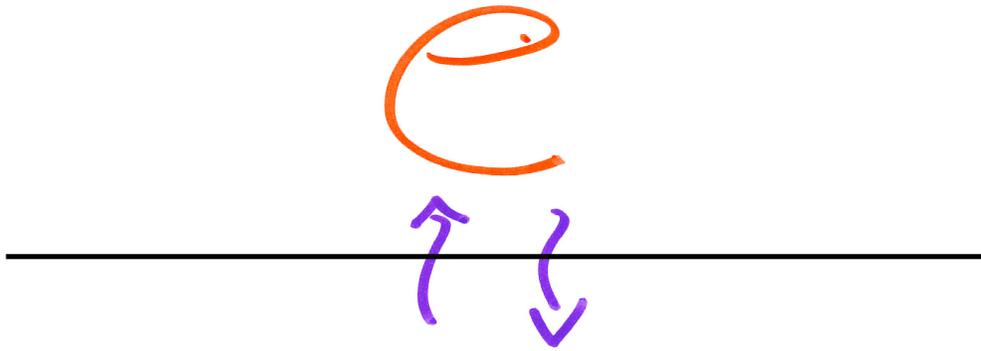
first-order cybernetics



second-order cybernetics

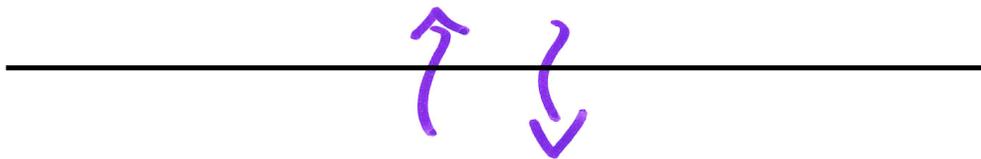
first-order cybernetics





observing system    observing system

observing system    observing system



observing system    observing system

communication and regulation
in
goal-directed systems,
whether organic or constructed

first-order cybernetics

~~communication and regulation~~ →

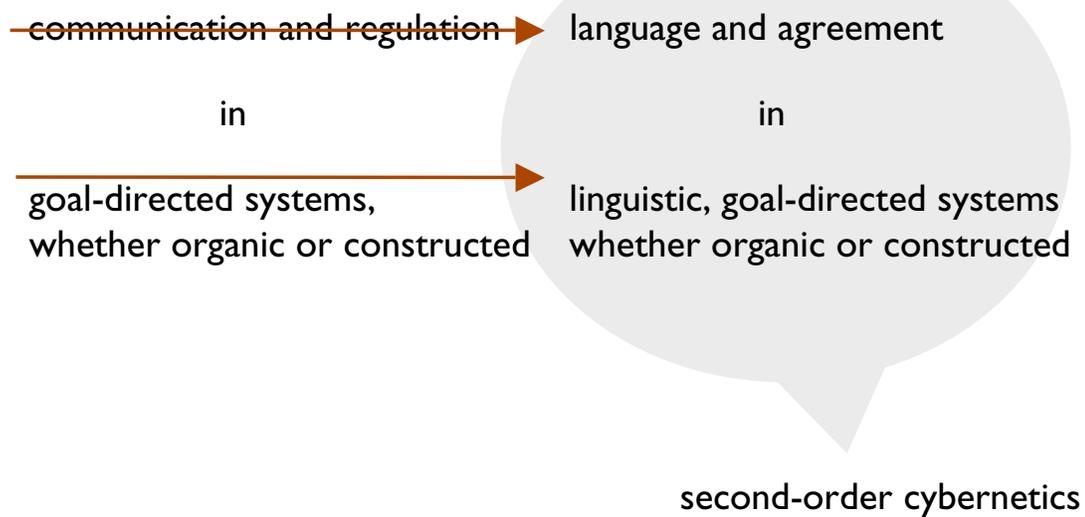
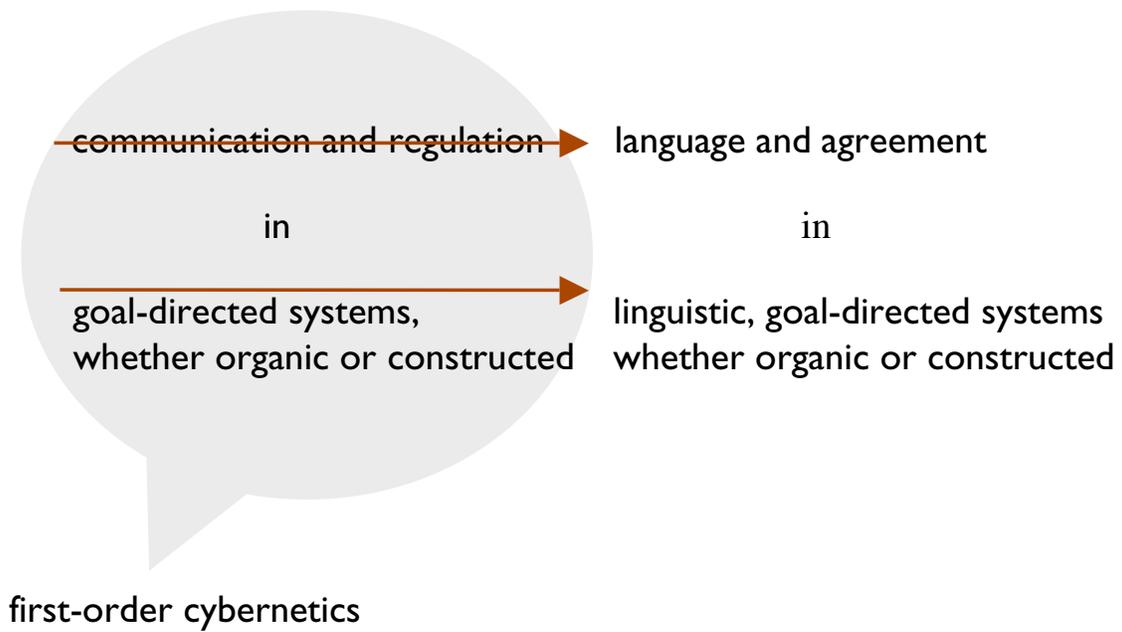
evolved

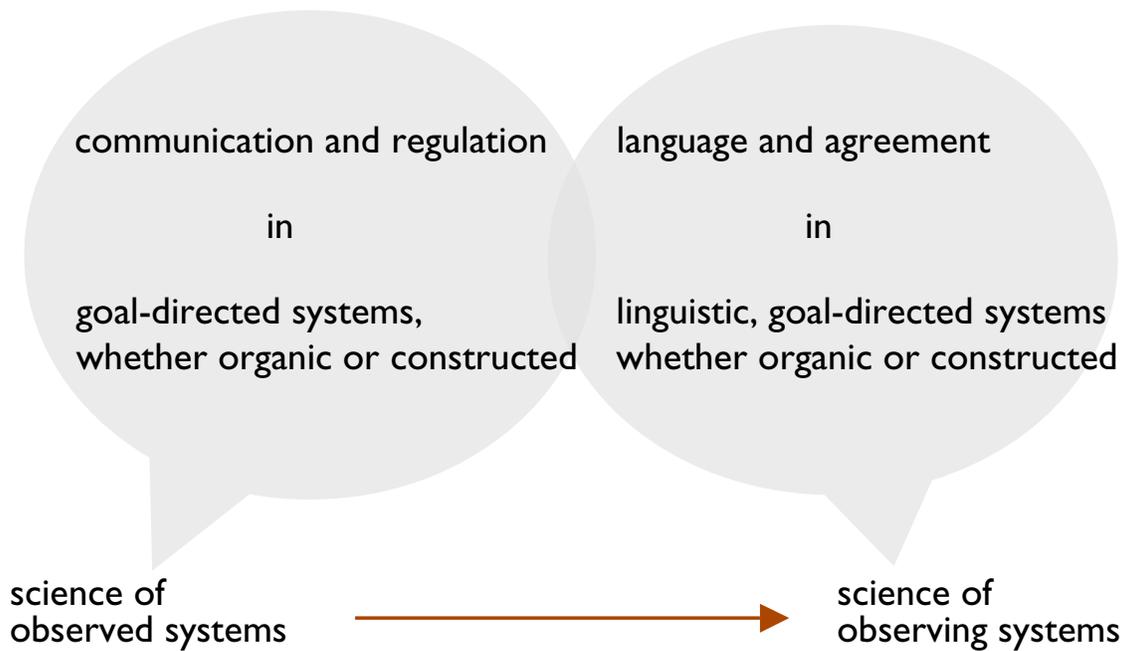
in

→ ~~goal-directed systems,
whether organic or constructed~~

evolved

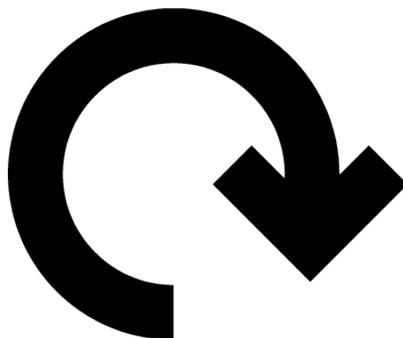
first-order cybernetics

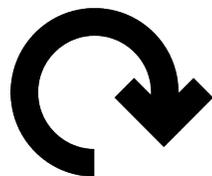
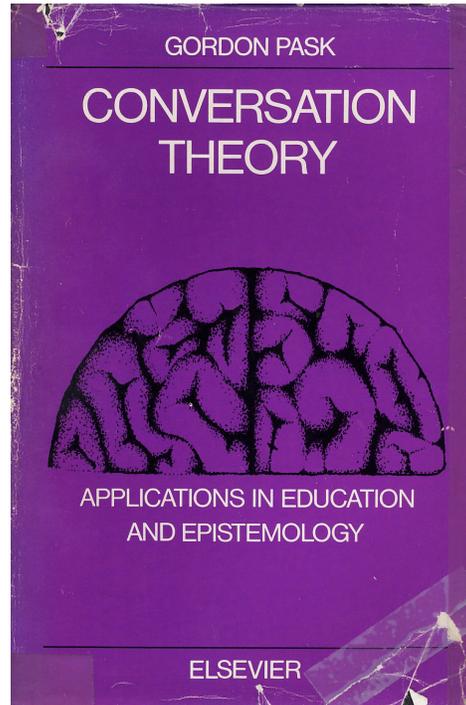
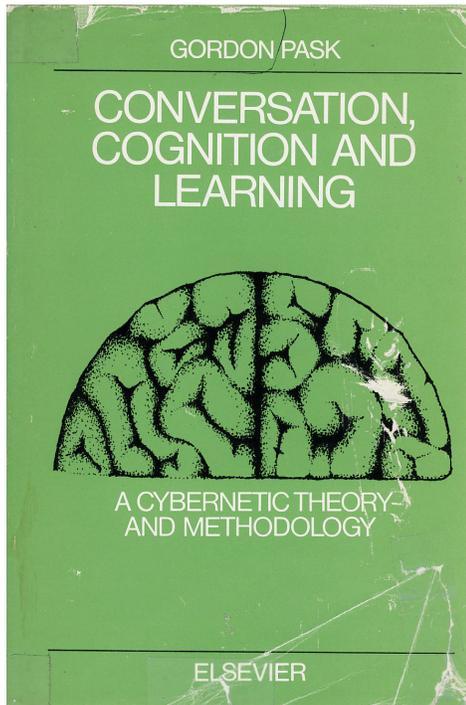




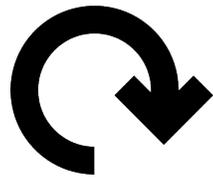
‘Cybernetics introduces for the first time —
and not only by saying it, but methodologically —
the notion of circularity, circular causal systems.’

— *Heinz von Foerster*

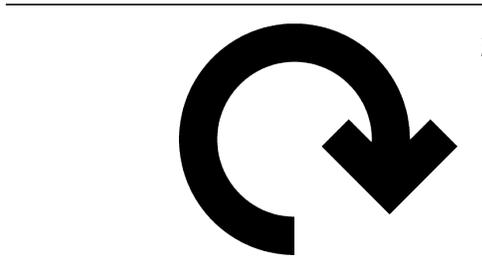




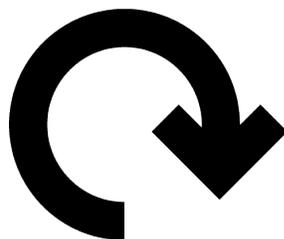
one level sets goals...



one level sets goals...

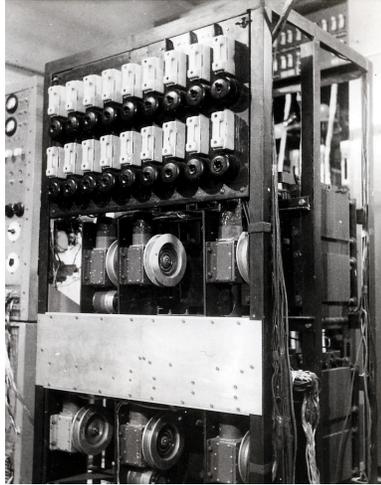


for another level

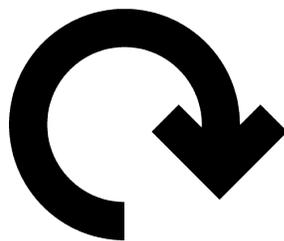


*respond to sound
with light show*

gordon pask—circular interactions—musicolour
c. 1955

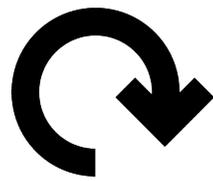


gordon pask—circular interactions—musicolour

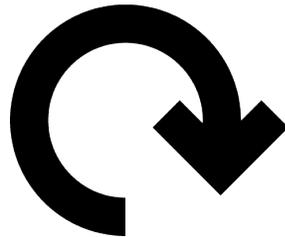


*respond to sound
with light show*

gordon pask—circular interactions—musicolour

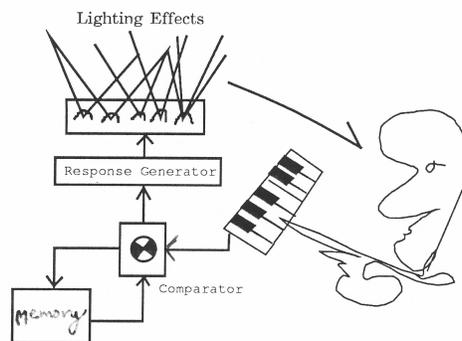


if bored, change nature of response

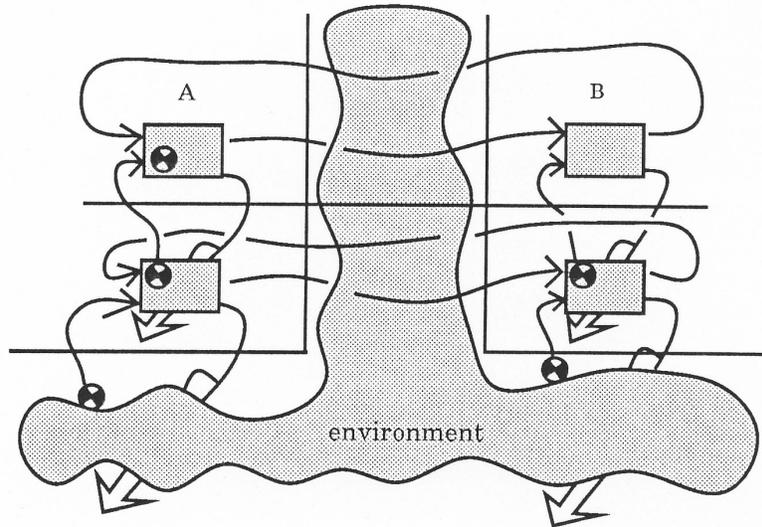


*respond to sound
with light show*

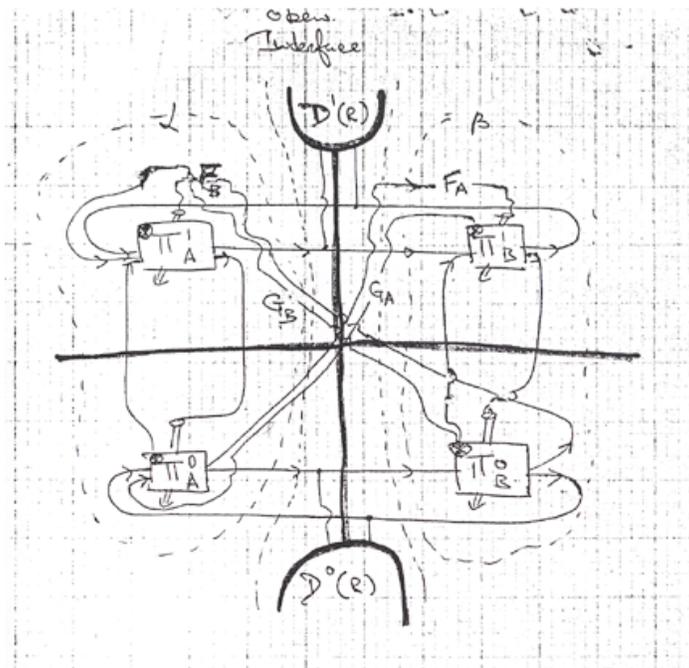
gordon pask—circular interactions—musicolour



gordon pask—circular interactions—modeling



dance—contention—shared outcomes



subjectivity—synchronization—coherence

