QG/QI panel
FAU² - Workshop

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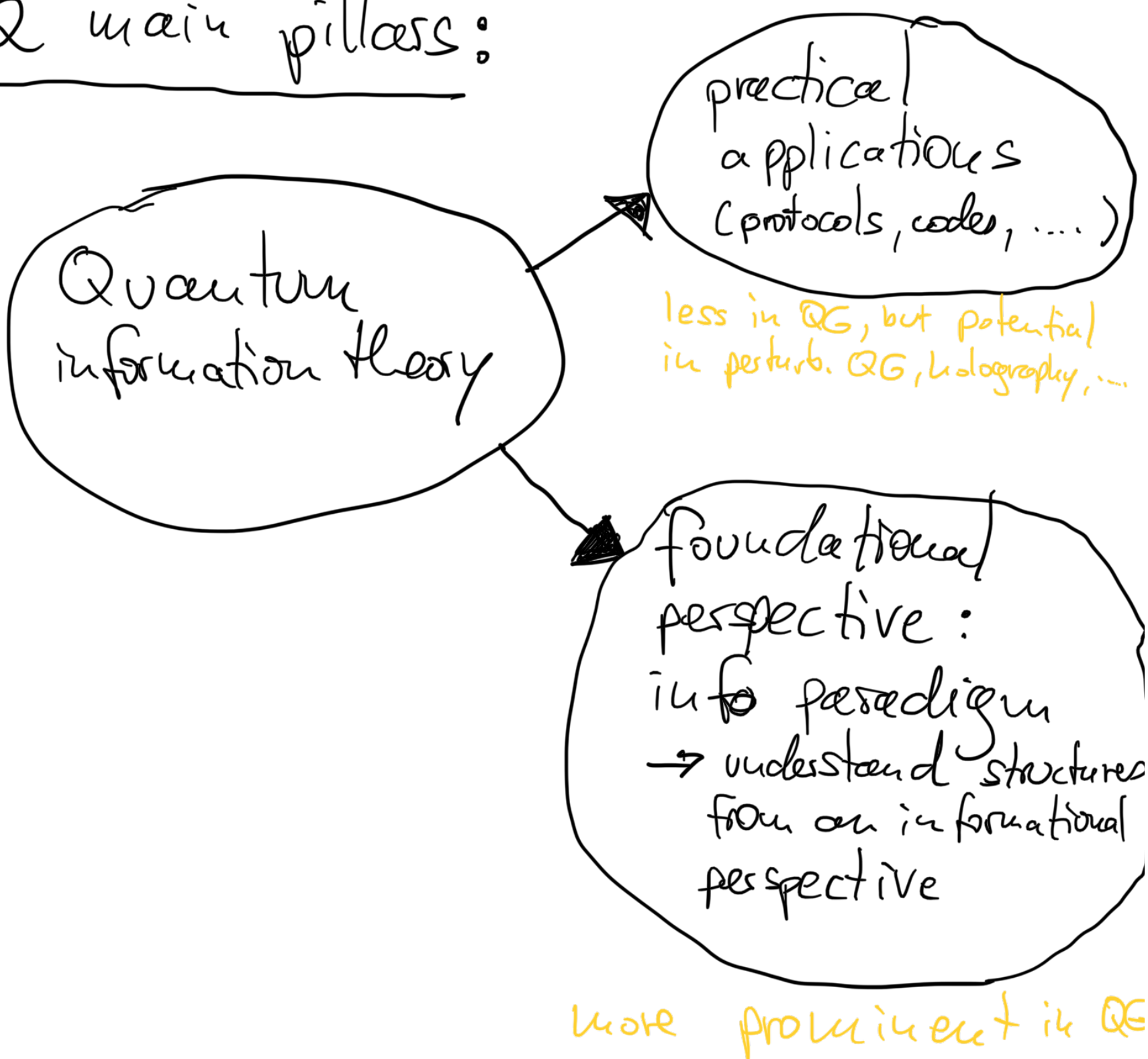
Why a QI pespective in QG

- We live in an information age

- universality of the information paradigm
- it works (at least to some degree)

2 main pillars:



instances of the info paradigm in QG

- BH entropy & info paradox
  (more generally horizon entropy)
- holographic principle
- "causal structure + Vol = geometry"
  directs info flow "info density"
  e.g. causal sets + sampling theory
- Dynamics:
  semicl. Einstein eqs. from
  entanglement equilibrium

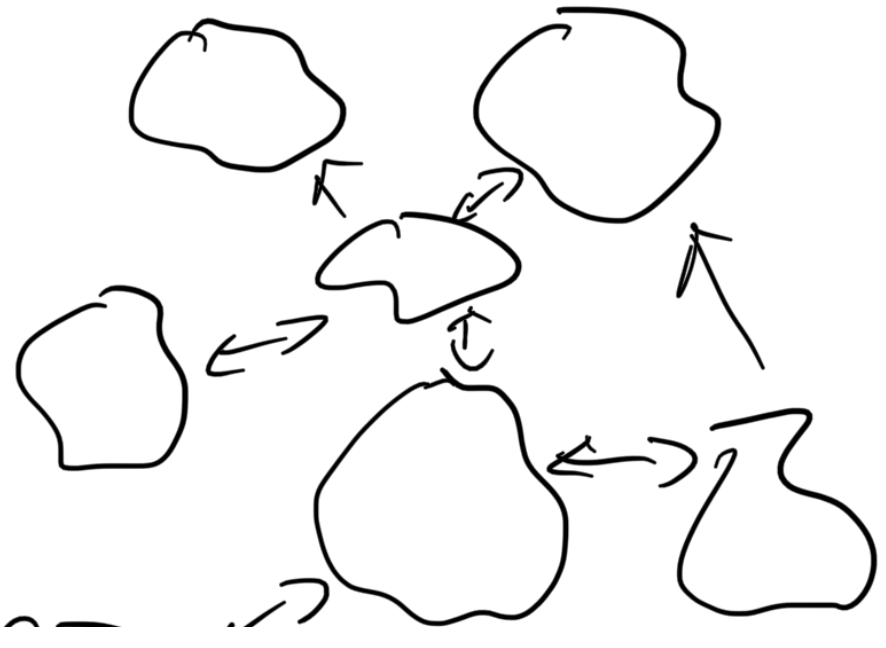
- (holographic) quantum error correcting codes → info encoding in gravity

⋮

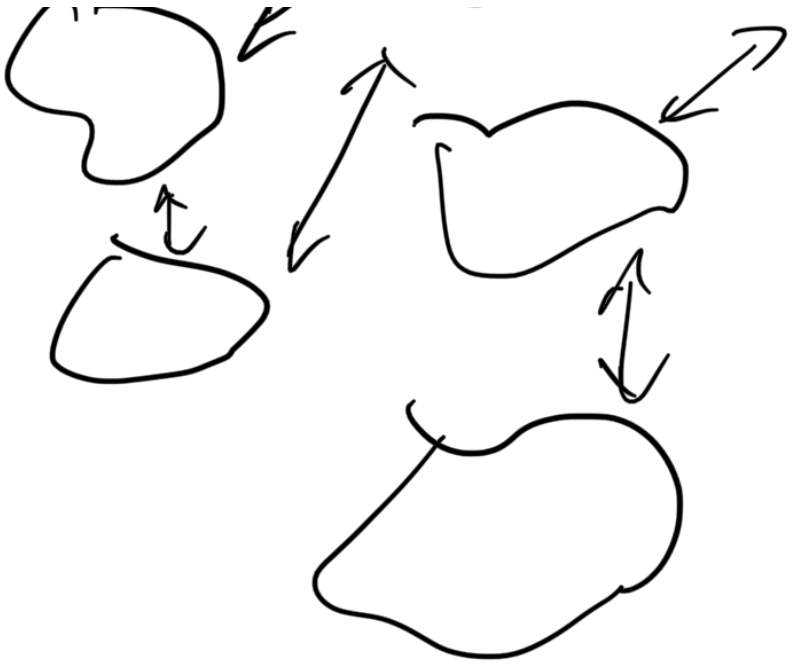
not complete, but info perspective has some validity

challenges for QI in QG

subsystem partitions



- diffeos / symmetries



- ∞ of

DoFs

(at least effectively)

$\Rightarrow$ QRFs a tool for addressing this

What can QFT/QG do for QI?

- not much for the standard QI realm

- but significant extension of its playground and features (embezzlement, BH scrambling, interplay with chaos, ...)

Where to ?

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can we push the info paradigm in QG to its extreme?

$\Rightarrow$ informational axiomatization of QG (or, more appropriately of a landscape of QG theories)

?

$\rightarrow$ akin to informational reconstructions of QT

restrictions of QI

→ operationalizing QG?