Take-away message

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- machines: peers
- enforce good behaviour via behavioural typing

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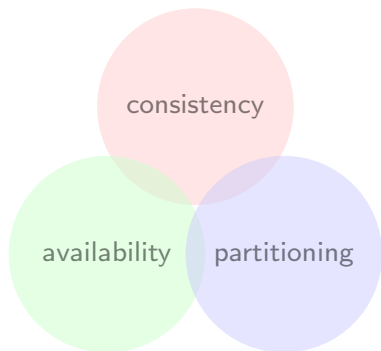
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See our recent ECOOP 2023 paper
(to appear; extended version available at
https://arxiv.org/abs/2305.04848)

Distributed coordination

An "old" problem
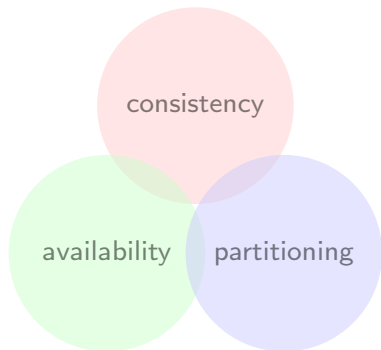Distributed agreement
Distributed sharing
Security
Computer-assisted collaborative work
...

Distributed coordination

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With some "solutions"
Centralisation points
Distributed consensus
Commutative replicated data types
...

Local-first...first

Autonomy

Thou shall collaborate and be autonomous
Thou shall recognise and embrace conflicts
Thou shall be consistent

Some implications

- peers are collaborative
- peers can locally make progress at all times...even under partial knowledge
- peers embrace inconsistency
- peers resolve conflicts, eventually

Local-First at work

Alice and Bob decided to have spaghetti carbonara and tiramisù. They use a mobile app to share a grocery list.

Alice's mobile	Bob's mobile
mascarpone cheese	

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Who should buy the eggs?

Plan of the talk

A motivating case study

Plan of the talk

A motivating case study

Our formalisation

Plan of the talk

A motivating case study

Our formalisation

Our typing discipline

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Tool support