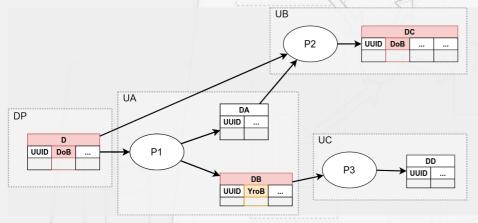# Dr.Aid (Data Rule Aid): an automated framework for supporting data-governance rule compliance in decentralized MIMO contexts

Automatically { check *compliance* / *derive* rules for *outputs* / ... } of **Terms and Conditions** for *data use*

in complex **multi**-institutional contexts
with **M**ulti-**I**nput-**M**ulti-**O**utput processes
and *decentralised* collaboration

I agree to restrict my use of CORDEX model output for non-commercial research and educational purposes only. [1]

In publications that rely on the CORDEX model output, I will appropriately credit the data providers by an acknowledgement similar to the following: "We acknowledge..." [1]

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Data is non-transferrable (other than as permitted in the licence) and confidential in nature. [3]

Data is not to be used to identify, contact or target patients or general medical practitioners. [3]

Two types of *inter-operating* rules, for
- **data**
  - the data-use policy from upstream
- **process**
  - how the *process* <u>changes</u> the *data rules*

Supports **obligations**
  and **MIMO** <u>process</u> <u>graphs</u> (=**DAG**s)
  exceeds traditional solutions
    for access controls
    and linear pipeline

Based on **formal** language:
- formal semantics
- *situation calculus* reasoning

- **Ontology** in *rules*
  for inter-operation across institutions
- **Provenance** as *lingua franca*
  for different underlying systems
    CWLProv, S-Prov
- **Derive** rules for *outputs*
  for continuous / future data uses

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