eFLINT: Act, Duty, and Fact Frames

- eFLINT is an action-based language for formalizing norms as found in regulations, policies, code-of-conducts, business protocols, sharing agreements, etc.

- Ontological concepts and relations are described through fact-type declarations.

- Powers and duties are derived from applicable actions and expected actions. (act-type and duty-type declarations)

### How to Interpret Norms?

#### Act frame: Actor & Recipient

#### Fact frame

- X is in a power-liability relation with Y at a particular moment in time if at that moment X has an act with recipient Y with a satisfied precondition. The effects of enacting on that power are described in the postconditions of the act.

- X is in a duty-claim relation with Y at a particular moment in time if at that moment X is the duty-holder of a duty with claimant Y. The duty is violated (Y has a valid claim) if the duty is present and the violation condition of the duty holds.

### Example: GDPR Duty to Remove

#### Initial state

- ask_removal. remove_data.

#### Scenario

```
ask_removal(Bob, ControllerX, PhoneNumber).

ask_removal(Bob, ControllerX, PhoneNumber).

remove_data(ControllerX, Bob, Address).

?duty_to_remove_data(ControllerX, Bob, PhoneNumber).---Query succeeded

?duty_to_remove_data(ControllerX, Bob, PhoneNumber).---Query failed
```

#### According to GDPR, if I ask you to remove my data, you have the duty to do so!

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