

ESSLI 2026

**Experimenting with the LogiKEy
Framework & Methodology**

Day 4: Agents and rights

Christoph Benz Müller and Luca Pasetto

Based on slides by Réka Markovich

The Fundamental Law of Hungary (2011):
Hungary shall protect the institution of marriage as the union of a man and a woman established by voluntary decision, and the family as the basis of the survival of the nation.

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Advocacy organisations
and activists:

“ this is not OK, this kind of definition of marriage violates a human right, namely the right to marry.”

Minister of Justice in Hungary

**“It’s ridiculous to say that the right to
marry is a human right:
it would mean that the State has the duty
to find a wife for those who don’t have.”**

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such a duty, there is no corresponding right.**

Why is this argument mistaken?

Hohfeld

Fundamental legal conceptions 1913

Rights and the Theory of Normative Positions

Wesley Newcomb Hohfeld

1913: the word 'right' is overused

Fundamental Legal Conceptions
Applied in Judicial Reasoning

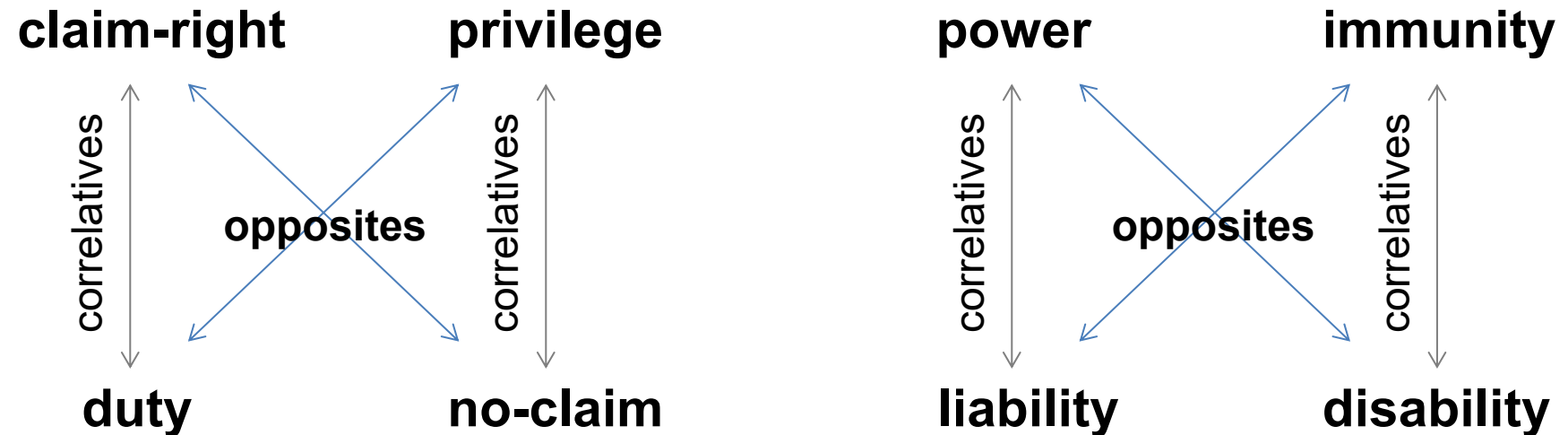


Hohfeld

Fundamental legal conceptions 1913

Hohfeld

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Hohfeld

Fundamental legal conceptions 1913

***legal
rights***

*legal
rights*

characteristic of all forms of regulated and organised agent interaction

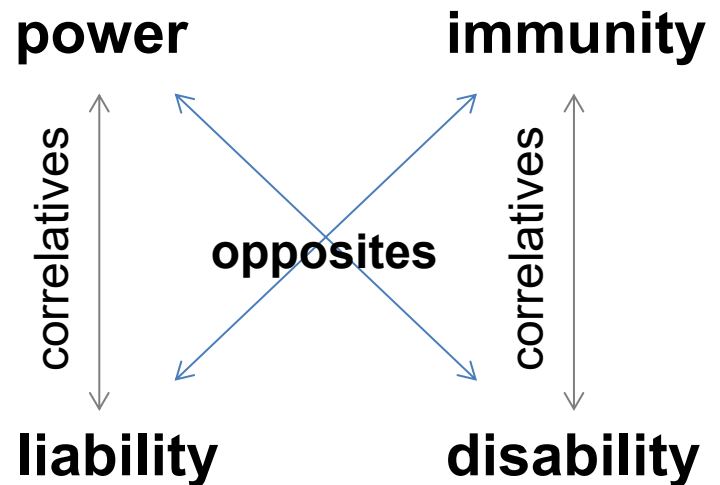
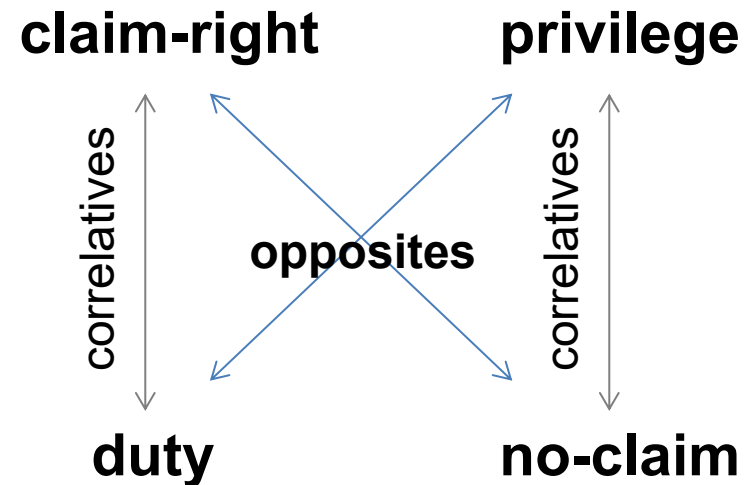
legal rights

characteristic of all forms of regulated and organised agent interaction

- applications in
 - specification of aspects of computer systems
- formal theory of organisations (authorisation, responsibility, delegation, entitlement)
 - in the field of multi-agent systems

Hohfeld

Fundamental legal conceptions 1913



Hohfeld

Fundamental legal conceptions 1913

correlatives →

agents

Hohfeld

Fundamental legal conceptions 1913

correlatives →

agents

counterparties

Hohfeld

Fundamental legal conceptions 1913

counterparties

Hohfeld

Fundamental legal conceptions 1913

claim-right

power

Hohfeld

Fundamental legal conceptions 1913

claim-right:

owner and actor are different

power:

owner and actor are the same

Hohfeld

Fundamental legal conceptions 1913

claim-right: PASSIVE right

owner and actor are different

power: ACTIVE right

owner and actor are the same

Hohfeld

Fundamental legal conceptions 1913

immunity

claim-right: PASSIVE right

owner and actor are different

power: ACTIVE right

privilege owner and actor are the same

Hohfeld

claim-right

power

something higher-order?

Hohfeld *Fitch*

claim-right

deontic modality

power

capacitative modality

Hohfeld

Makinson

deontic modality

capacitative modality

Hohfeld ***Makinson***

structural differences

deontic modality

capacitative modality

Hohfeld

Makinson

structural differences

in consequences

deontic modality

capacitative modality

Hohfeld ***Makinson***

structural differences

in consequences

deontic modality

doing sg forbidden → sanction

capacitative modality

Hohfeld ***Makinson***

structural differences
in consequences

deontic modality

doing sg forbidden → sanction

doing sg without power → invalidity

capacitative modality

Hohfeld *Makinson*

doing sg without power → invalidity
capacitative modality

agents in the language and the semantics

agents in the language and the semantics

with SDL

DEFINITION 1. Our modal language is given by

$$p \in \Phi \mid \phi \& \psi \mid \neg \phi \mid \perp \mid E_a \phi \mid \mathbf{O}_{a \rightarrow b} \phi$$

for $a, b \in A$ finite set of agents, where Φ is the set of propositional letters.

DEFINITION 2. For a set W of possible worlds and set A of agents write

$$\mathfrak{F} = \langle W, f_a, R_{a,b}^O \rangle_{a,b \in A}$$

where $f_a : \wp(W) \rightarrow \wp(W)$ is a function and $R_{a,b}^O \subseteq W^2$ is a binary relation.

agents in the language and the semantics

with DSDL

$$p \in \Phi \mid \phi \wedge \psi \mid \neg\phi \mid K_a\phi \mid O_{a \rightarrow b}(\phi/\psi) \mid E_a\phi \mid \Box\phi$$

$$\mathfrak{F} = \langle W, \{R_a, \leq_{a \rightarrow b}, f_a\}_{a,b \in A}, R_\Box \rangle$$

**“resolutely
relational”**

Makinson 1986

**“resolutely
relational”**

Makinson 1986

undirected rights and duties?

Hohfeld

Fundamental legal conceptions 1913

Hohfeld

Fundamental legal conceptions 1913

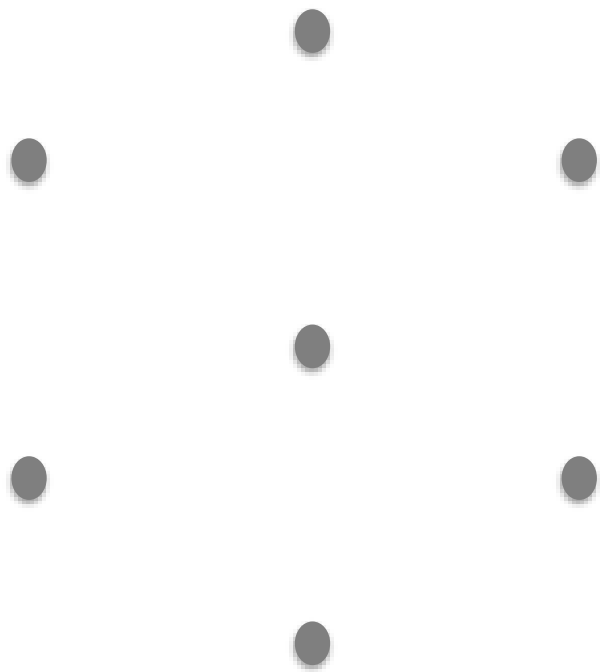
has a second part from 1917

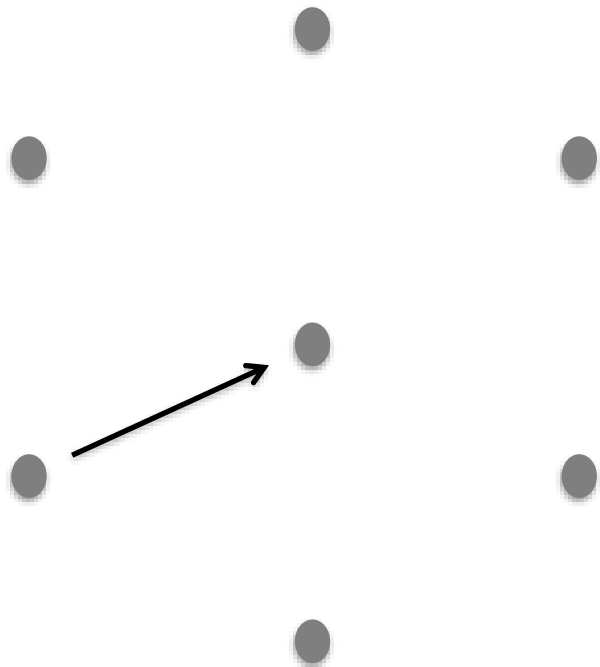
Hohfeld

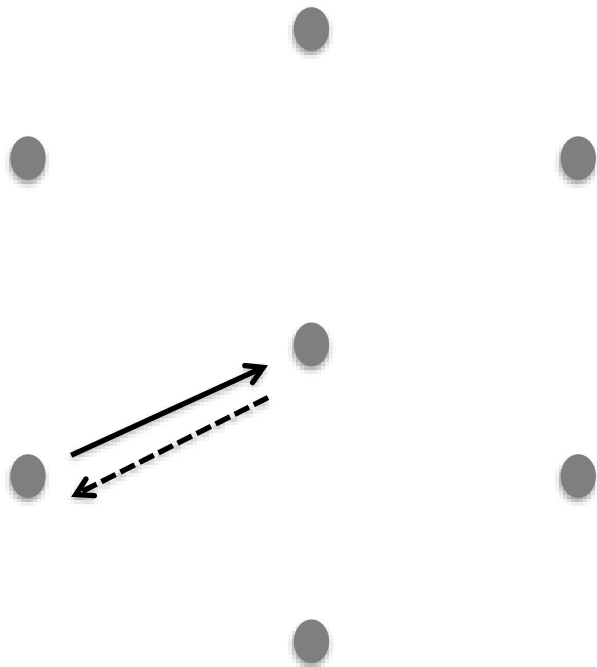
Fundamental legal conceptions 1913

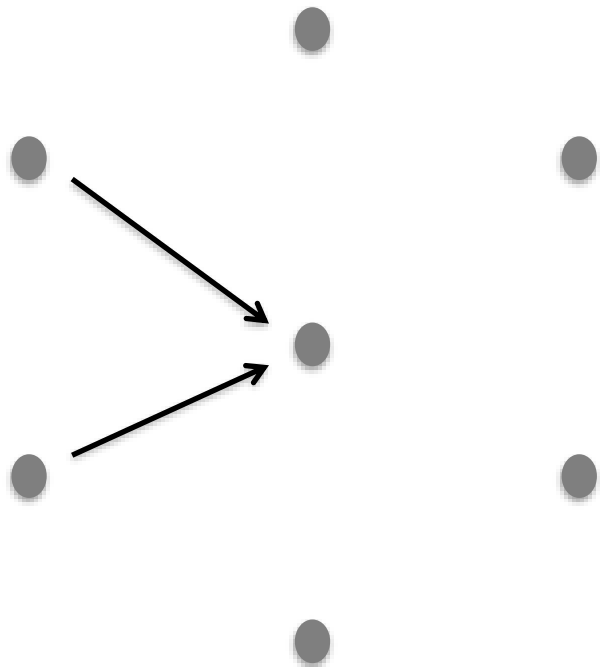
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paucital vs. multital rights

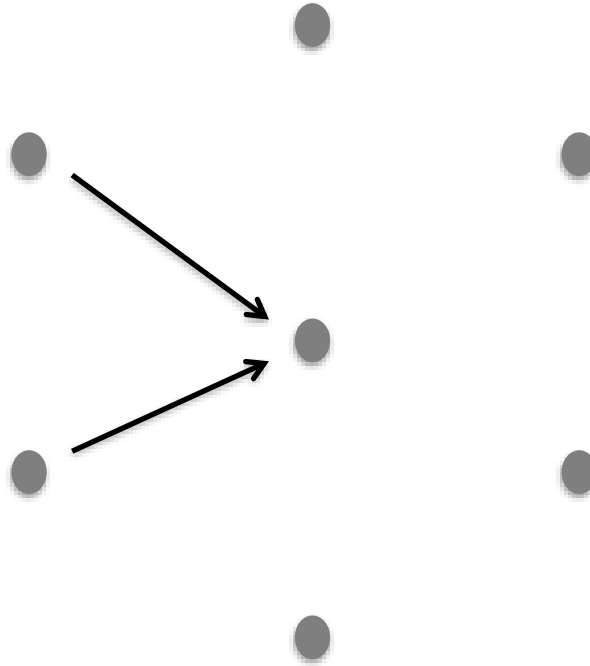




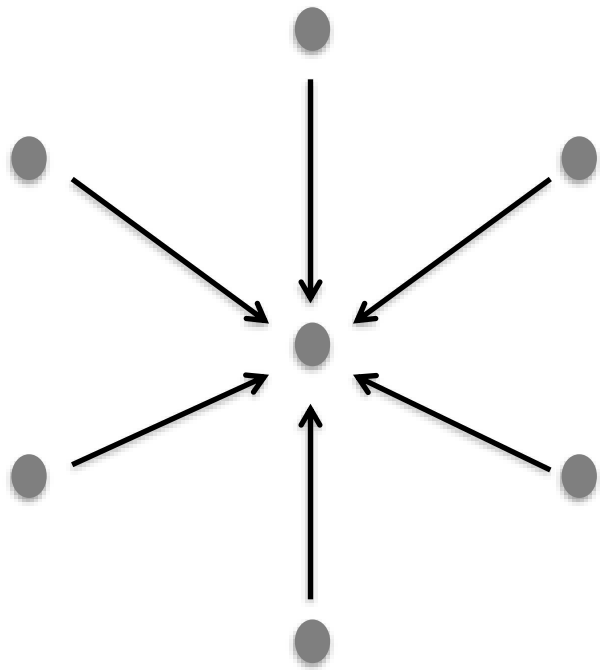




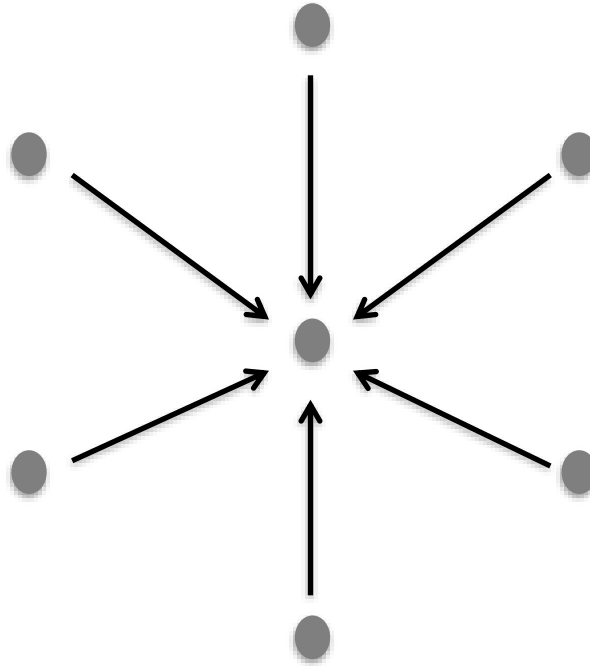
paucital rights



**one or few
one-to-one
similar yet separate
e.g. contracts**



multital rights



Series
one-to-indefinite class of people
e.g. ownership

multital rights

the land owner has

- a series of multital claim-rights that persons should not trespass on the land;**
- a series of multital privileges to enter upon and exploit the land himself;**
- a series of multital powers to transfer title to the land or create lesser interests in it, such as leases or easements; and**
- a series of multital immunities against having his title affected by act of other persons**

Freedom of Thought

consists of

– a multital privilege

$$\bigwedge_{b \in A} (P_{a \rightarrow b} B_a \phi \wedge P_{a \rightarrow b} B_a \neg \phi \wedge P_{a \rightarrow b} (\langle B_a \rangle \phi \wedge \langle B_a \rangle \neg \phi))$$

– a multital claim–right

$$\bigwedge_{b \in A} O_{b \rightarrow a} (\neg E_b \neg E_a B_a \phi \wedge \neg E_b \neg E_a B_a \neg \phi \wedge \neg E_b \neg E_a (\langle B_a \rangle \phi \wedge \langle B_a \rangle \neg \phi))$$

– a multital immunity

$$\bigwedge_{b \in A} \neg \Diamond (E_b (\neg (\text{FoT-F-a-}\phi)) \vee E_b (\neg (\text{FoT-C-a-}\phi)))$$

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Handbook of Deontic Logic and Normative Systems

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5

Normative Positions

MAREK SERGOT

ABSTRACT. The Kanger-Lindahl theory of normative positions is an attempt to apply the tools of modal logic to the formalisation of Hohfeld's 'fundamental legal conceptions', to the construction of a formal theory of duties and rights, and to the formal characterisation generally of complex normative relations that can hold between (pairs of) agents with regard to an action by one or other of them. The theory employs a standard deontic logic, a logic of action/agency of the 'brings it about' or 'sees to it' kind, and a method of mapping out in a systematic and exhaustive fashion the complete space of all logically possible normative relations—or 'positions'—of some given type. The article presents a generalised version of the methods and a brief discussion of its limitations as a comprehensive theory of duty and right.

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1 Introduction

The theory of normative positions is an attempt to apply the tools of modal logic to the formalisation of the 'fundamental legal conceptions' (duty, right,

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