IVR Worls Congress

On formal notation of the teleological structure of law

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July 2007

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Motivation; context

- **Teleological statements are especially found in the legislative workflow**
  - governmental drafting; parliamentarian decisions; publication of the valid laws
- **Law and Artificial Intelligence (AI) – different methodological paradigms**
  - T. Bench-Capon, W. Bibel, J. Breuker, T.Gordon, C. Hafner & H.Berman, J.Hage, G.Sartor, B.Verheij etc
  - Approaches:
    - Via natural language
    - Via formal notation
- **Characterization of legal order: many implicit and rare explicit teleological structures**

Teleological structures in context

- "Goal" is not among them!? Why?
  - However, in G. Sartor, 2006 "Fundamental legal concepts"
- Teleology
  - Berman & Hafner 1993; Bench-Capon; Prakken; Sartor etc in *AI and Law* journal, Vol. 10 (2002), Nos.1-2
  - Goals
    - Interests, values
    - Purposes, policies
    - Intentions of a legislator

The proposed notation

1. The basic element *A*
2. The target-element *G*
3. The teleological relation *te→*

The proposed notation is:

$$A \ te\rightarrow \ G$$

"A legal act *A* aims at a goal *G*"

The speech act:

TE-statement("…")

TE-Statement ("A legal act *A* aims at a goal *G*" *)*

Different semantics of teleology

Different taxonomies:

- *TE-statement-legal(…)*
- *TE-statement-political(…)*
- *TE-statement-scientific(…)*

Different time horizon:

- *A te-short-term→ G*
- *A te-medium-term→ G*
- *A te-long-term→ G*

Illustration

(1) "A goal *G* is achieved by a legal act *A1*"

(2) "A goal *G* is achieved by a legal act *A2*"

(3) "A legal act *A1* implies less quantitative restrictions (QR) than *A2*"

(1) $A1 \ te\rightarrow \ G$

(2) $A2 \ te\rightarrow \ G$

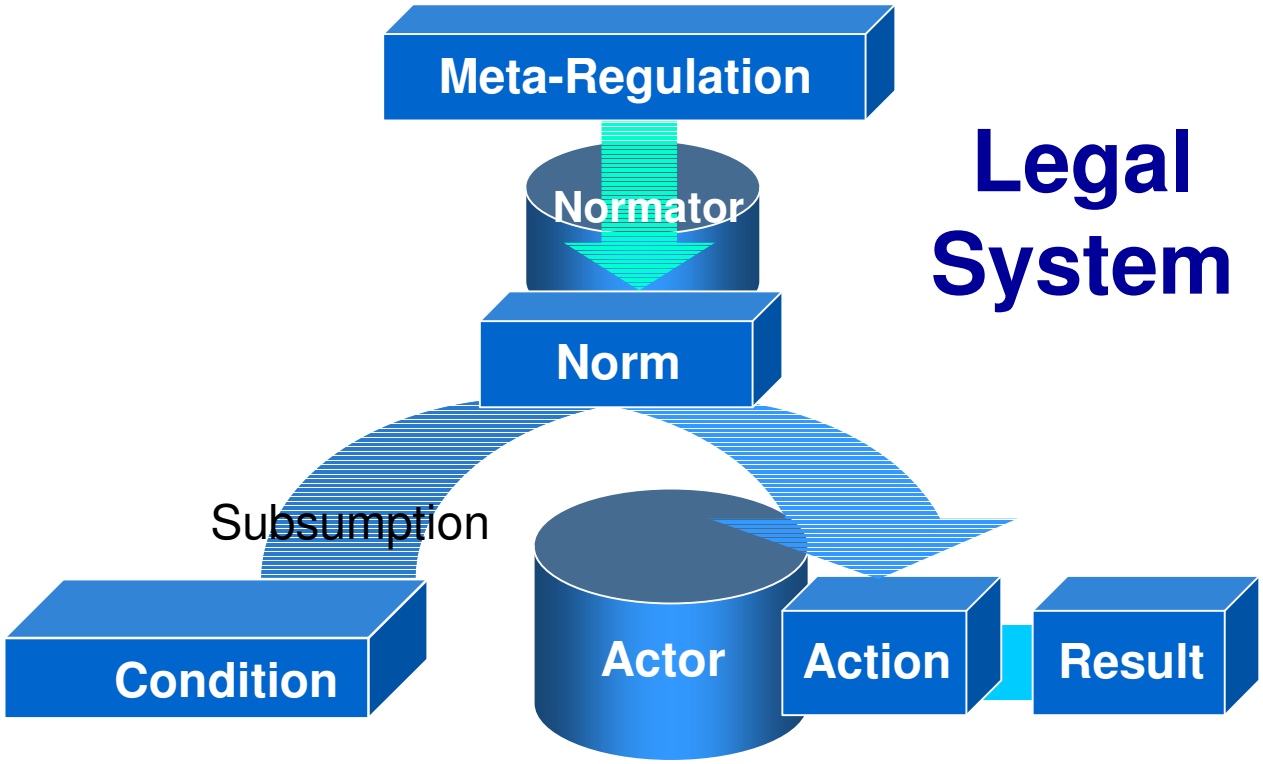
(3) $A1 \ QR< \ A2$

Theory of relations

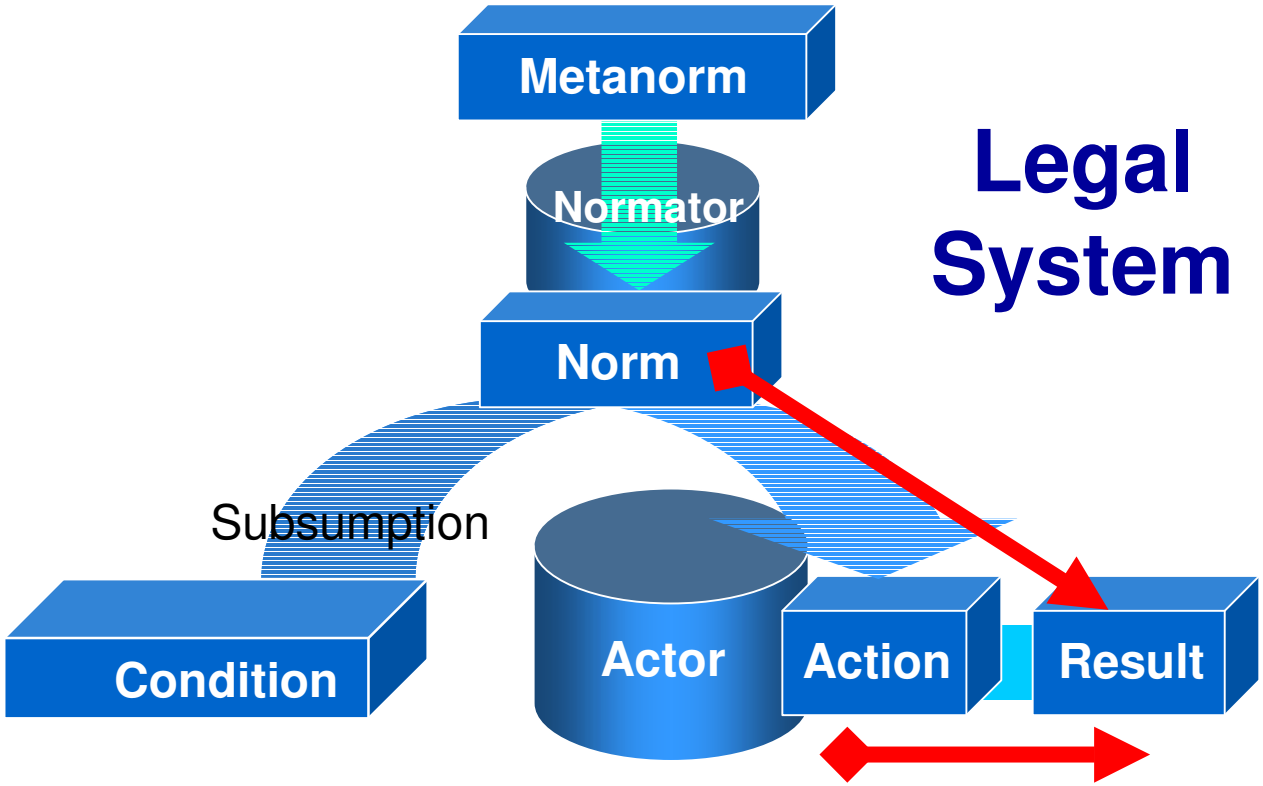
- Binary relation:
  - Infix notation $A \ te\rightarrow \ G$
  - Prefix notation $TE(A,G)$
- Theory of relations in mathematics and computer science is well developed
  - A binary relation R(x,y) is defined as Cartesian product, i.e. a set of pairs: $\{(x,y) \mid x \in X, y \in Y\}$
  - In relational algebra, a binary relation is represented as a two-column table, e.g.

Act	*Goal*
A1	*G*
A2	*G*

- Theory of relations in law?

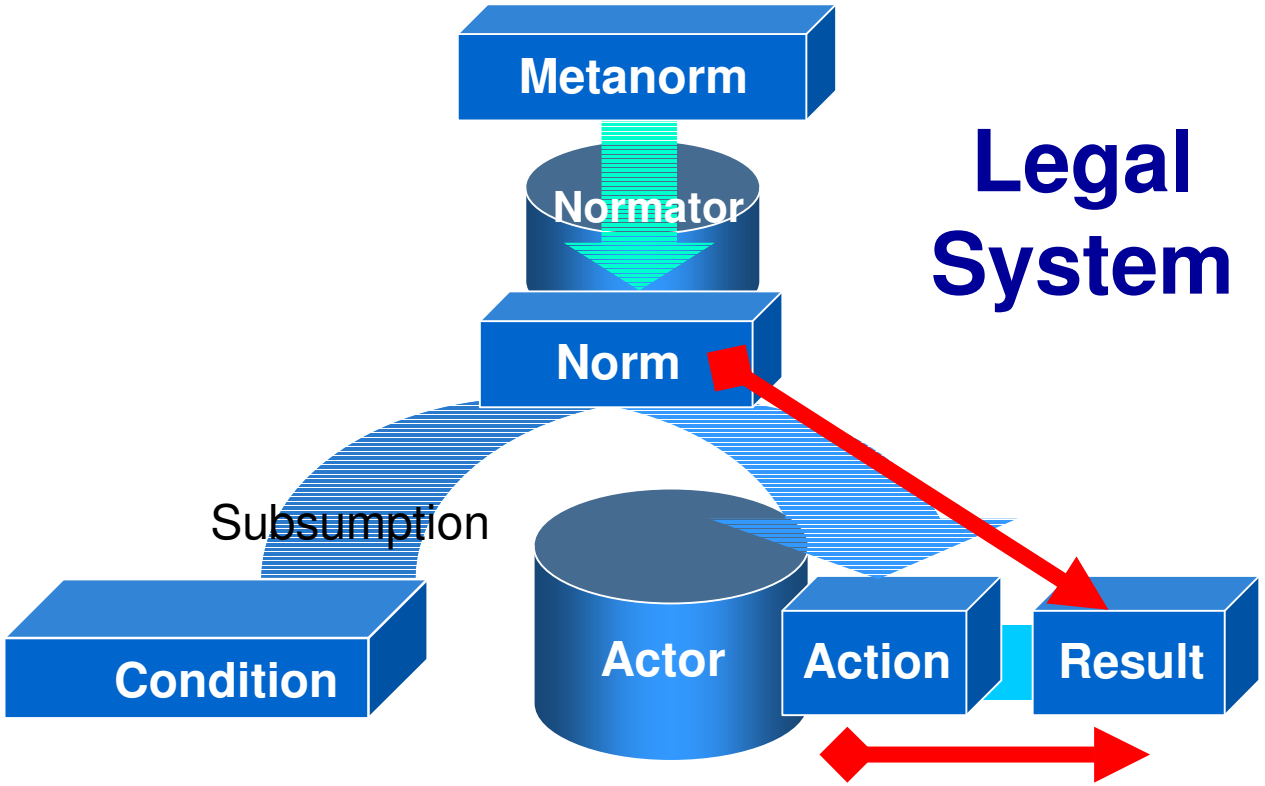


Legal System

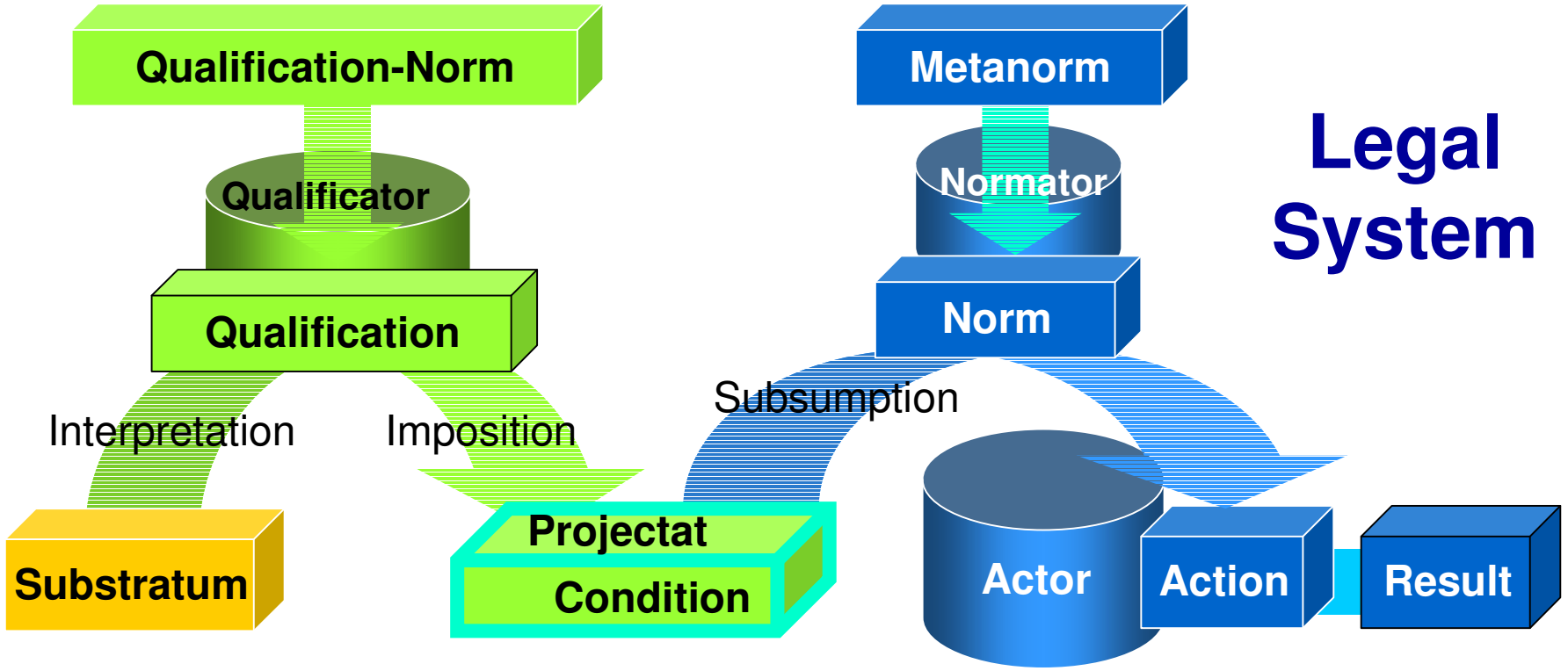


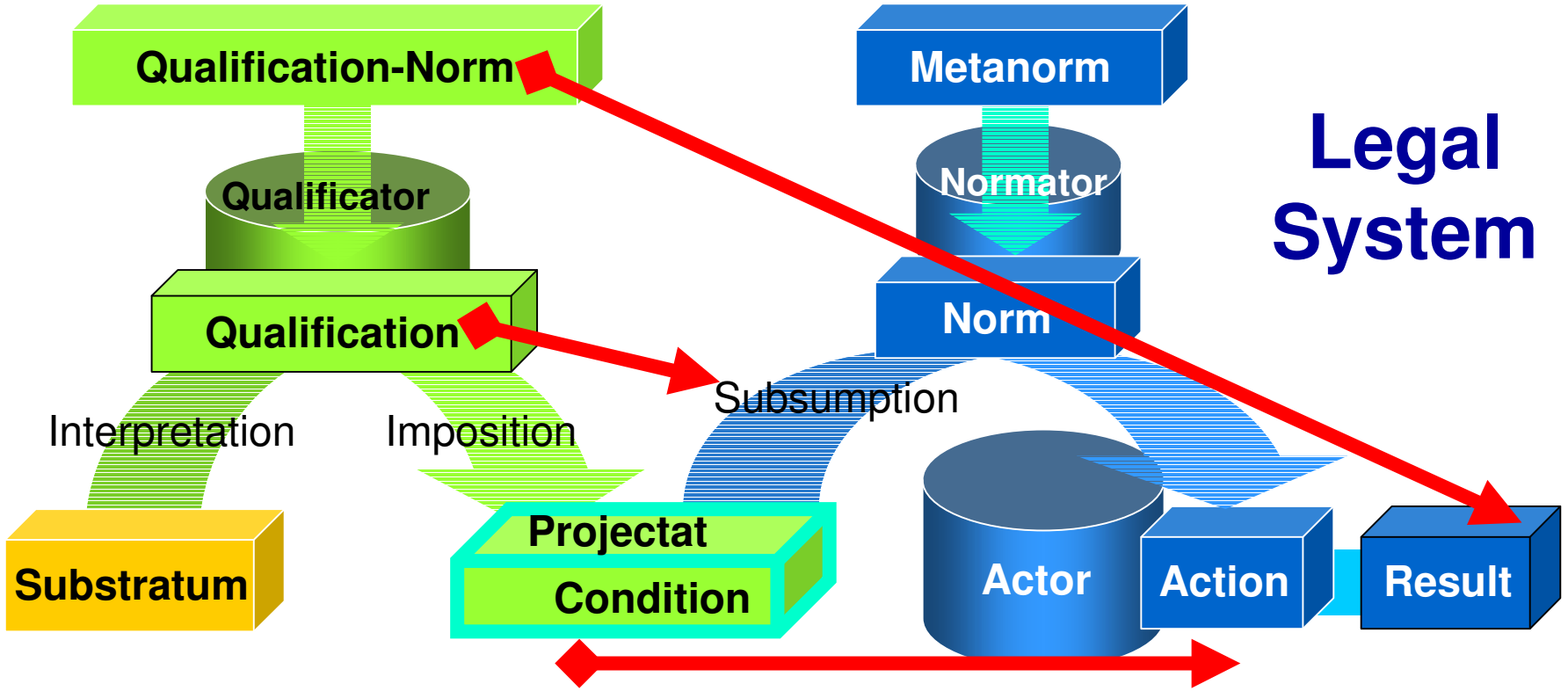
Legal System

explicit / implicit **Teleological Relations**

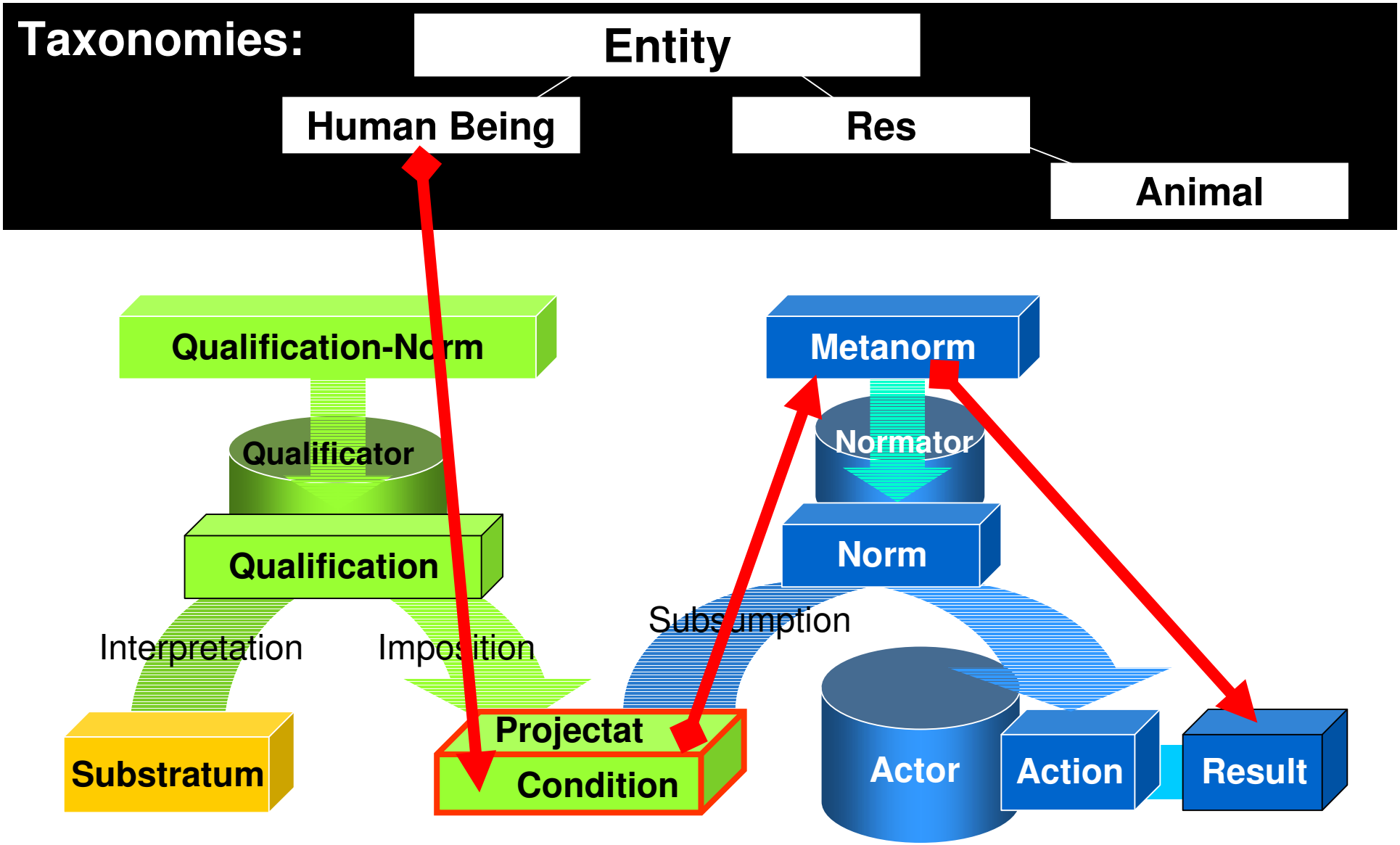


TE-STATEMENT political / legal / dogmatical **(A te** short term / medium t. / long term **→ B)**

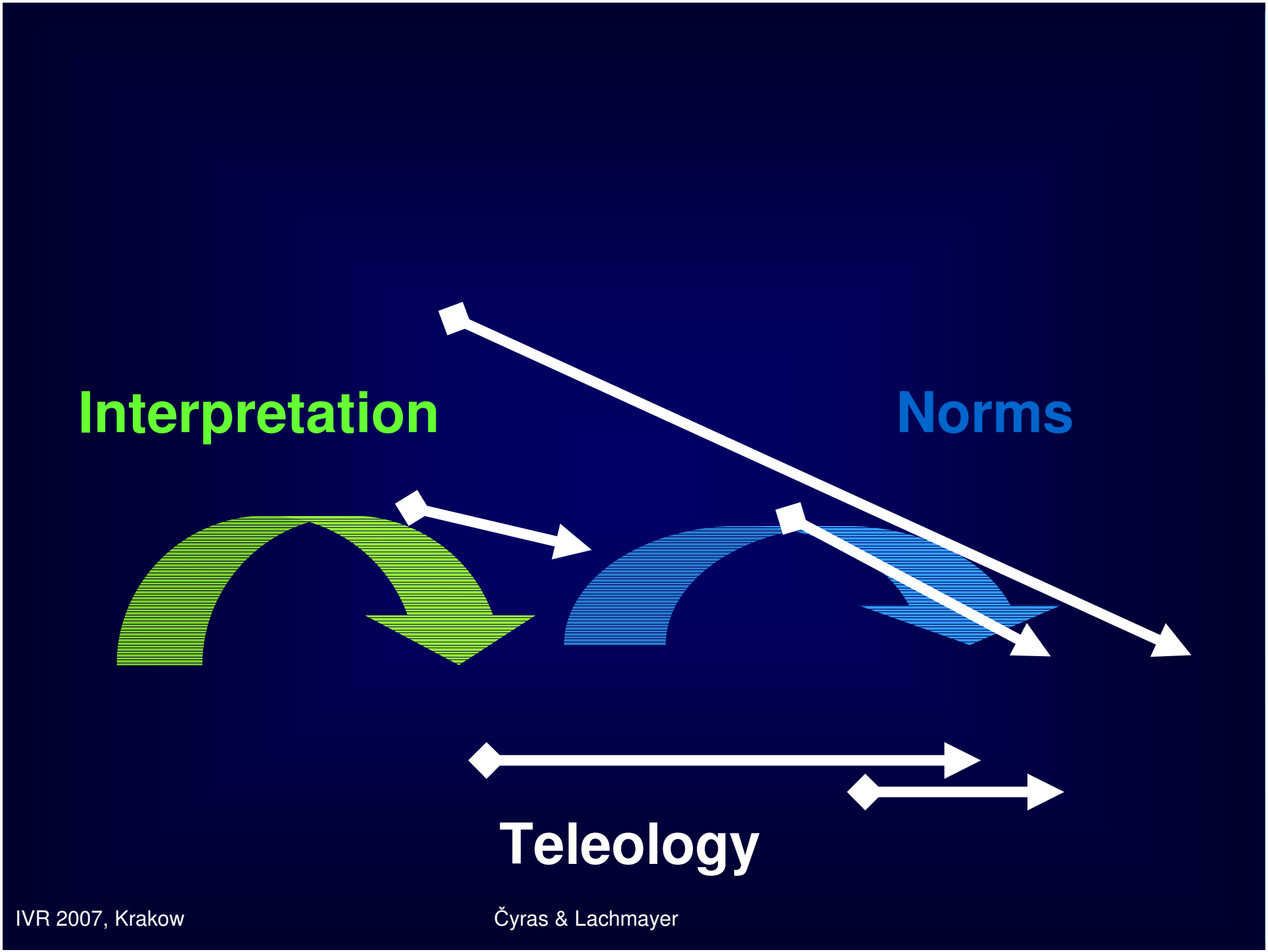

Qualification-Norm
Qualificator
Qualification
Interpretation
Imposition
Substratum
Projectat
Condition
Subsumption
Metanorm
Normator
Norm
Actor
Action
Result
Legal System



TE-STATEMENT political legal dogmatical **(A te** short term medium t. long term **→ B)**



Human Image → Human Rights


Interpretation
Norms
Teleology