

An ontological study of healthcare corporations and their social entities

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Motivation

- Fragment of the *Ontology for Biomedical Investigations* (OBI) about corporations

*“ [...] It leaves open if an organization is a **material entity** or a dependent continuant, as no consensus was reached on that. [...] It is debatable what the organization itself is (some kind of **dependent continuant** or an **aggregate of people**). [...] favorite is still to define organization as a kind of '**legal entity**' [...].” ⁽¹⁾*

(1) http://www.ontobee.org/ontology/OBI?iri=http://purl.obolibrary.org/obo/OBI_0000245

Approach

Main steps of our approach:

What is a corporation

Characterization of entities in corporations

Differentiation of medical corporations through the records and documents produced

Our Premise...

Outline

- I. Theories of Corporation
- II. Ontological Analysis of Corporations
- III. Final Remarks

PART I- Theories of Corporation

Topic 1- Historical background

Topic 2- Theories of Corporation Personality

Topic 3- Economic Theories of Corporation

Topic 4- Issues in Theories of Corporation

Topic 5- In the end, what is a corporation?

I-1 Historical Background

- What is a corporation? Some common open issues:
 - What is the corporate entity?
 - Is it real or imaginary?
 - Is it natural or artificial?
 - Is it created by the state or ...
 - ... does it come to existence spontaneously?
 - Is it a person or not?
- No clear-cut line between different theories
- Corporation legal unit
- Historical conflicts

Historical Background

- Roman Empire: Canon Law
- Europe:
 - Pope Innocent IV (1243 – 1254)
 - Sir Edward Coke (1552 – 1634), English judge “The Law of Corporations” (1702)
- Early days of the American Republic:
 - A separated juridical unit created by state action
 - An artificial creature owner of limited powers granted by the state
 - Bearer of essential core attributes

Historical Background

- Core attributes of corporations in early America:
 - It could contract, sue and be sued
 - It could acquire and dispose of property
 - It has its own seal by which it could act as a body distinct from its members
 - Its shares are transferable
 - Its membership may change without affecting its perpetual existence
 - It cannot commit assault, treason, felony
 - It cannot serve as a trustee
- The classical formulation = “artificial person” theory of corporation

I-2 Theories of the Corporate Personality

- Fiction Theory (also doctrine of “artificial person”)
- Concession Theory
- Purpose Theory (also the Theory of *Zweckvermögen*)
- Group Theory (also Realist Sociological, Organic ou Real Person Theory)
- Associational (also Contract Theory, Bracket Theory or Symbolist Theory)
- Hohfeld’s Theory

Corporation as a Fictional or Artificial Person

- **Fiction Theory** (also called: Artificial Person, Concession Theory, Purpose Theory)
- Main characterization:
 - Corporations can own property
 - Corporations do not have will; the solution is to create a fictitious person
 - Corporations are created by state action

Friedrich Carl von Savigny (1779 – 1861), German jurist and historian

Corporation as an Organism

- **Real Entity Theory** (also called Group Theory, Organic Theory)
- Main Characterization:
 - The corporation is not fictitious, but a natural person
 - It is a social group with real existence and will
 - It is recognized, but not created by law

Johannes Althusius (1563 – 1638) German jurist and political philosopher

Frederic William Maitland (1850 – 1906) English historian and lawyer

Otto Friedrich von Gierke (1841 – 1921) German legal scholar and historian

Corporation as an Association

- **Associational Theory** (also called Symbolist Theory, Bracket Theory)
- Characterization:
 - Adopts the fiction metaphor: the corporation is just an abbreviated form to represent people
 - There is no corporation: it is just an association of individuals
 - The corporation is a result of private action

Rudolph Ritter von Jhering (1818 – 1892), German jurist

I-3 Economic Theories of corporation

- The Contract Theory of the Firm:

“[...] corporations are simply legal fictions which serve as a nexus for a set of contracting relations among individuals”

Descendant of the Associational Theory

(Jensen & Meckling, 1976)

- The Evolutionary Theory of the Firm:

“[...] organizations know how to do things, [...] while individual members come and go.”

Descendant of the Real Entity Theory

(Nelson & Winter, 1982)

I-4 Issues within Theories of Corporation

- Issues within Fiction Theory
- ... within Entity Theory
- ... within Association Theory
- ... within Economic Theories

Issues within Fiction Theory

A corporation = a fictional entity = ?



1. Corporate ownership is non-summative
2. Ownership involves the possession of a will by the owner
3. A corporation does not possess a will

A dilemma (?): these three statements cannot be true together

Issues within Real Entity Theory

1. Corporations are organisms (?)
2. Corporations possess a real will and senses as natural persons (?)

Issues within Associational Theory

1. The corporation is just a group of individuals, not an entity (?)

“The Ford Motor Company today is very different from the same company of 1970, yet many essential characteristics remain so that Ford is still Ford, for better or worse. The persistence of organizational features suggests that organizations have the means to retain and transmit information from past to future members of the social system.”

Stein (1995, p.17)

Issues within Economic Theories

1. Explain economic behavior
2. There is no ontological debate

I-5 In the end, what are corporations?

- Corporations maintain their identity over time
- Corporations have real existence separated from their members
- Corporations are artificial (or fiat) entities
- Corporations are non-summative aggregates
- Corporations are long-lasting entities

Hypotheses

Ontological analysis of the corporation

How a corporation is organized in units and subunits

How units are assigned with duties and obligations

PART II- Ontological Analysis of Corporations

Topic 1- Formal ontology and corporations

Topic 2- The corporation and its structure I: **units and subunits**

Topic 3- The corporation and its structure II: **duties and obligations**

II-1 Formal ontology and corporations

■ First attempt:

Are corporations substances?

1. Corporations do not depend of other entities unless constitutive entities
2. Corporations remain numerically one and the same
3. Corporations can only indirectly stand in causal relations via their members
4. Corporations do not exist by a natural process
5. Corporations are composed by substances, which are their members

What are substances? (Smith, 1997)

1. Substances exist on their own; accidents require a support from substances in order to exist
2. Substances remain numerically one and the same; they can admit accidents at different times
3. Substances are able to stand in causal relations
4. Substances are 'one by a process of nature'
5. Substance has no proper parts which are themselves substances

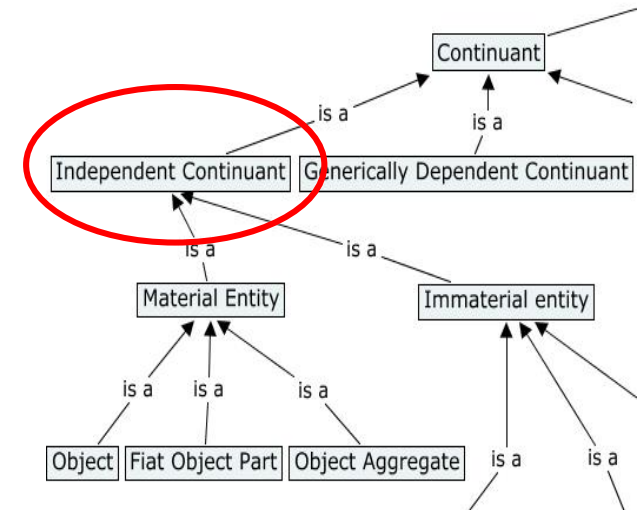
Corporations are not exactly ARISTOTELIAN SUBSTANCES

What ontological entity is a corporation?

■ Second attempt:

Corporations have marks of independent continuants

- At any given time all of its parts are present
- Its existence does not depend on any other discrete entity



Corporations are possibly INDEPENDENT CONTINUANTS

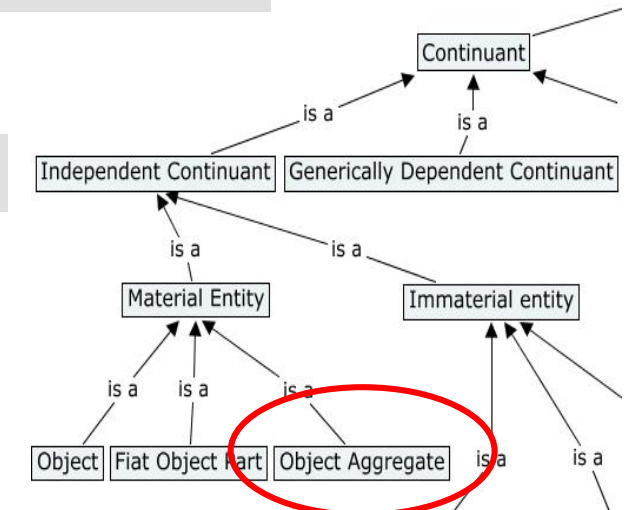
What kind of whole?

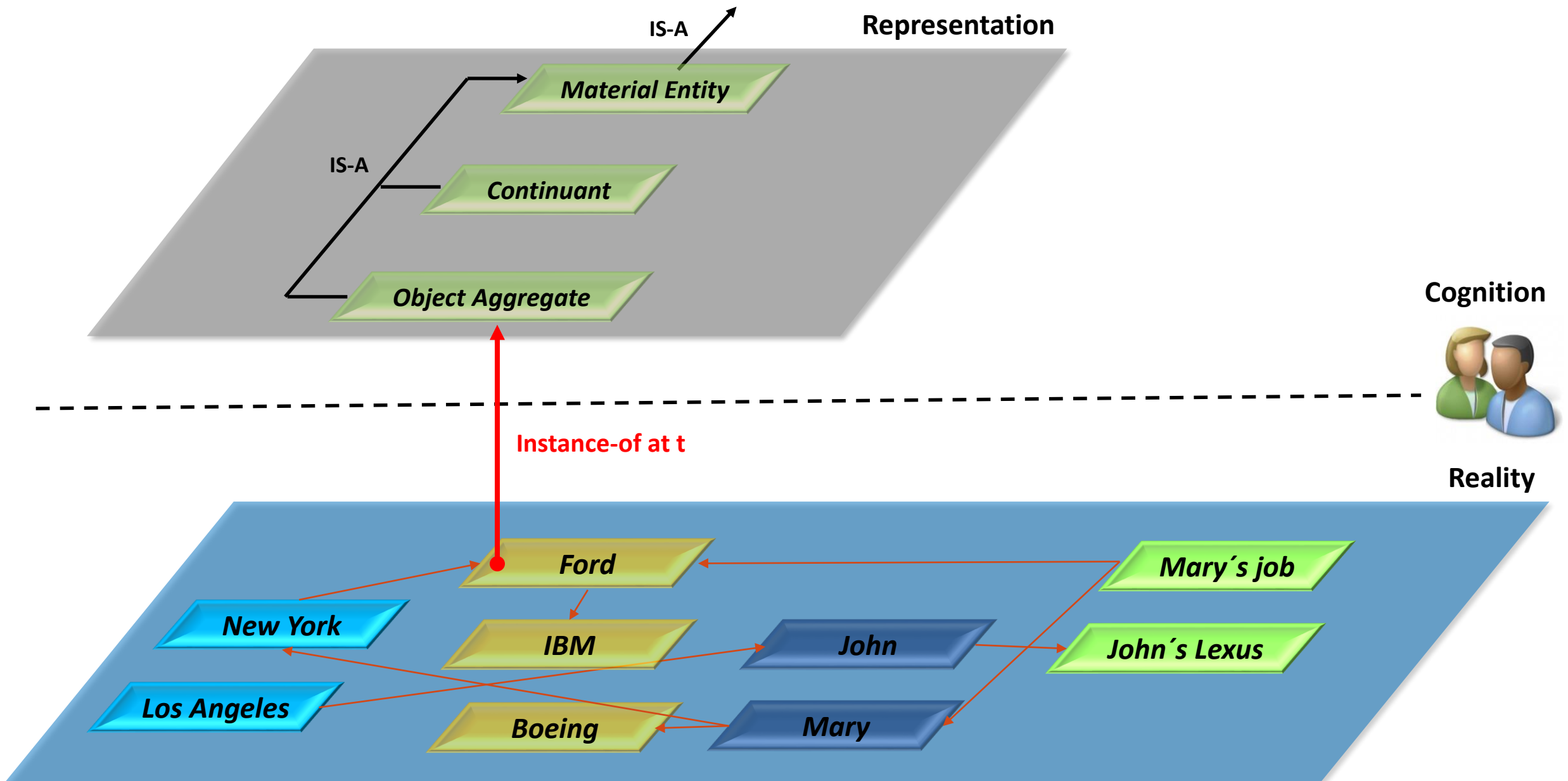
■ Third attempt:

What kind of corporate whole is possible?

1. Are corporations summative wholes? objects with the same parts are equal x corporate identity
2. Are corporations integral wholes? corporations are not maximally connected
3. Are corporations aggregate wholes? Corporations have members linked together

Corporations are possibly OBJECT AGGREGATES





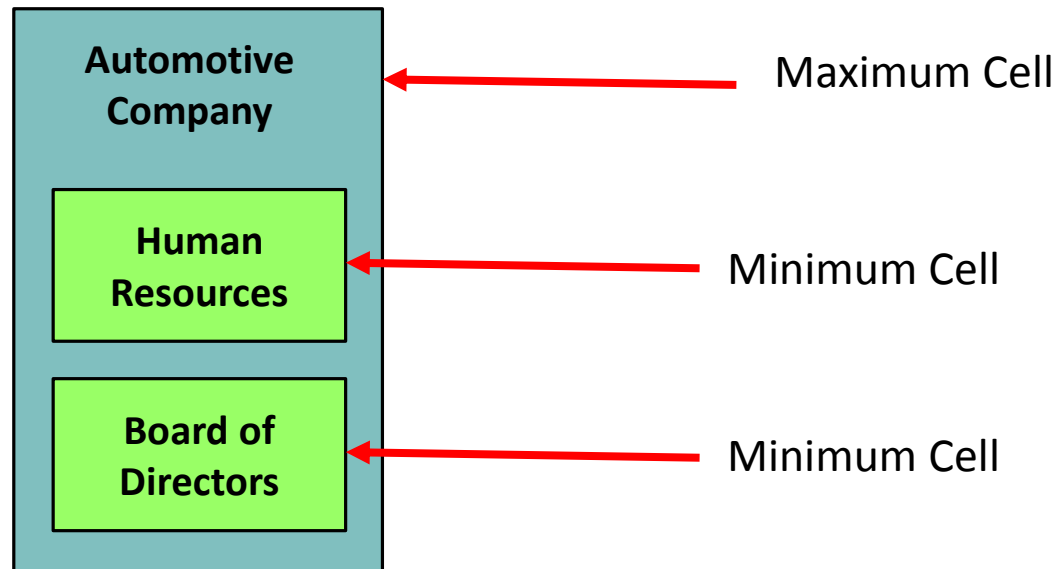
II-2 The corporation and its structure I

- How to divide the corporation in its **units and sub-units**?
- Bona fide objects
- Fiat objects
 - Partition cells recognize fiat objects
 - Fiat objects are created through the projection of partitions
- Granular partitions (Smith & Bittner, 2006)
 - Theory A
 - Theory B

Granular Partitions Essentials

■ Theory A

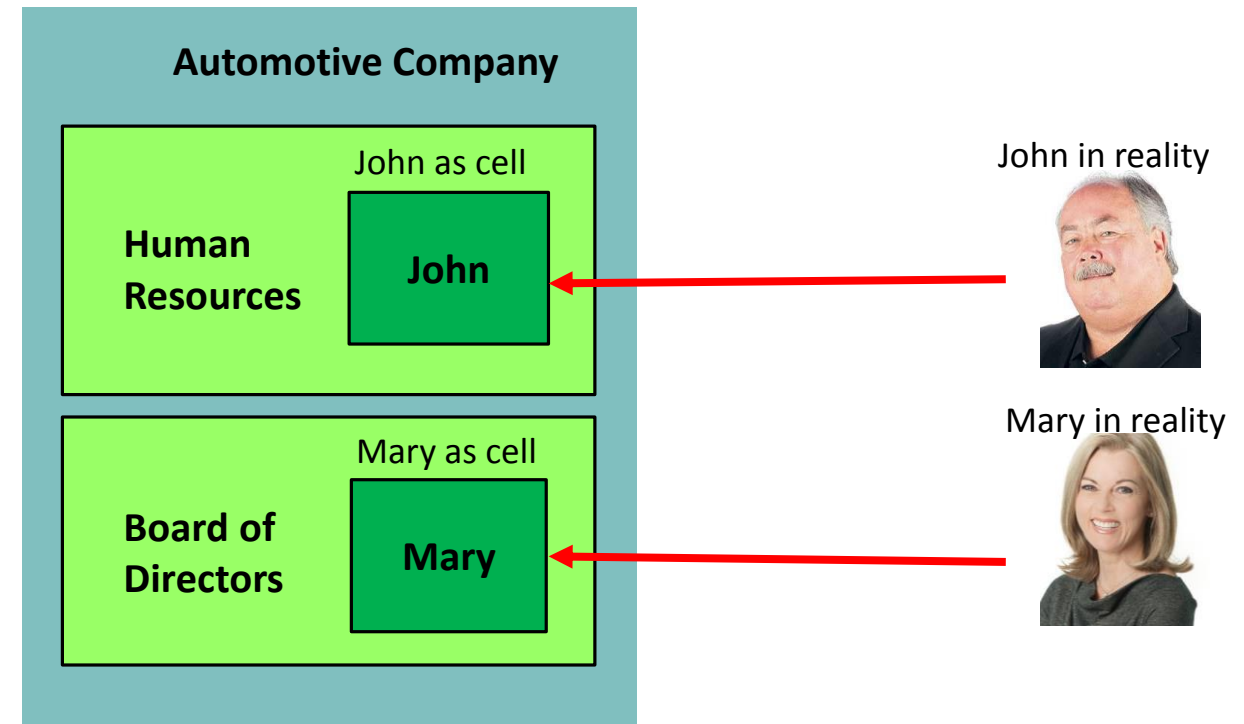
- A theory of relations between cells, sub-cells and partitions
- Maximal cell and minimal cell



Granular Partitions Essentials

■ Theory B

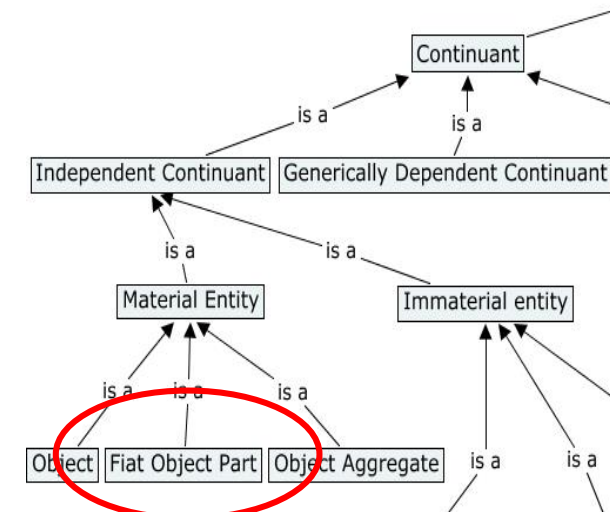
- A theory of relations between partitions and objects in reality: projection and location
- Projection: from a cell to the reality
- Location: from an object to a cell



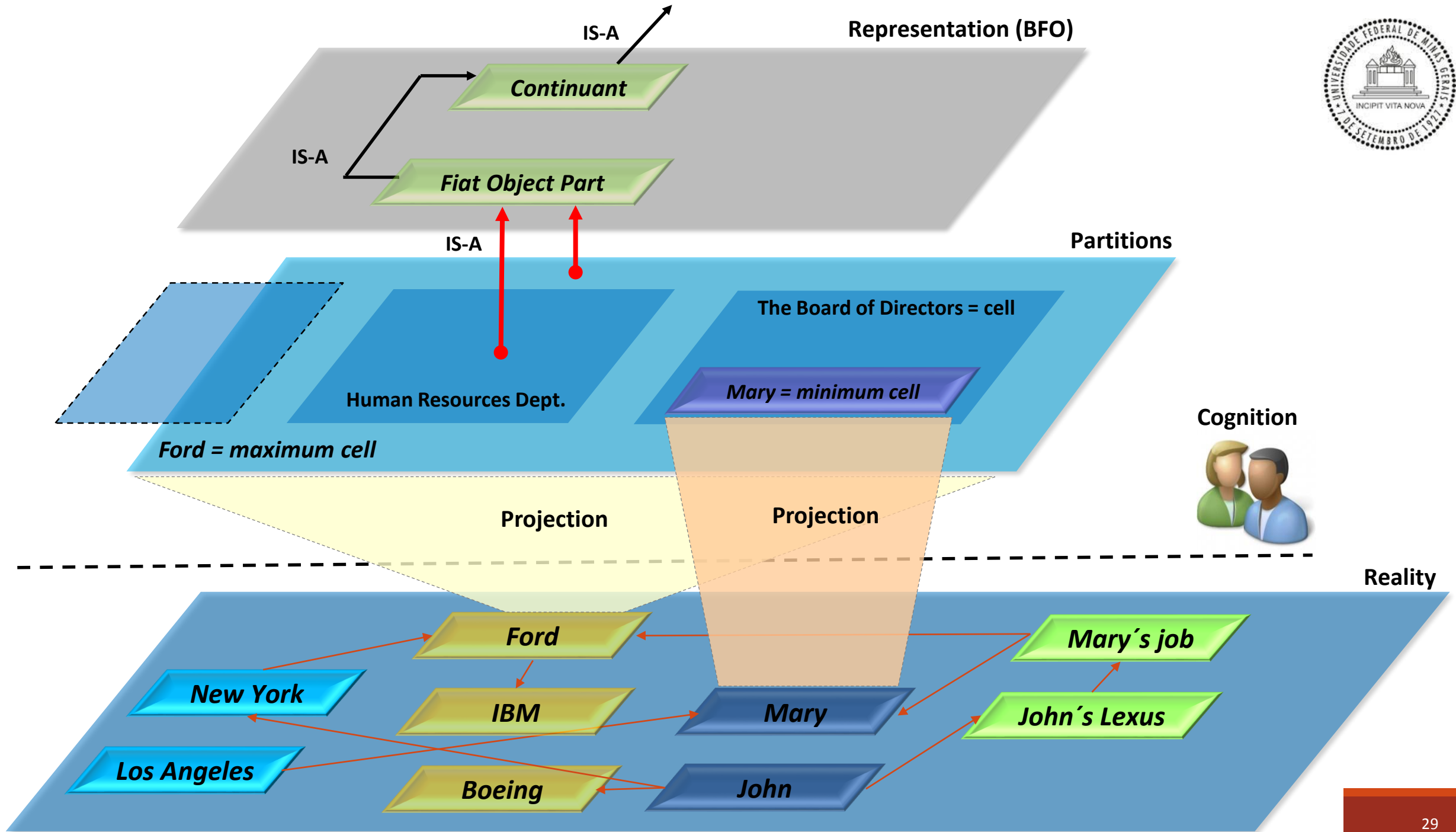
What entity is a corporation unit?

■ Attempt:

- The corporation is the maximal cell
- The corporate units are cells and subcells



Corporate units are possibly FIAT OBJECT PARTS



II-3 The corporation and its structure II

- Corporations are possibly aggregative wholes...
- But... what is the difference between a corporation and a colony of ants?



Normative x Descriptive

- How units are assigned with **duties and obligations**?
- Descriptive partitions:
 - The way corporations are divided into sub-divisions
 - A successful projection lies on the side of the partition
 - E.g. a postal clerk dividing envelopes into bundles
- Normative partitions:
 - The way sub-divisions are assigned with duties and obligations
 - A successful projection lies on the side of the reality
 - E.g. a medical guideline in a hospital

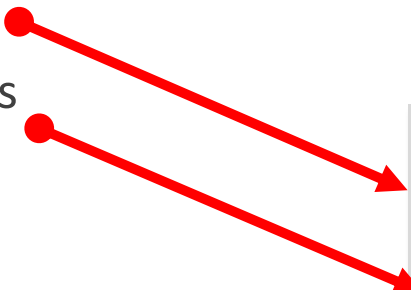
Descriptive (or Scientific) statement
= It is true or false
= It is not a command

Prescriptive (or Normative) statement
= It is an imperative
= How to comply

Sparkes, A. W. (1991)

Normative essentials

- Corporate units are possibly fiat objects...
- How a fiat object comes to existence?
 - Cognition
 - “Mental partition”
- How a fiat object is sustained in existence?
 - Verbal form – speech acts
 - Written form – document acts
 - “Social partition”



Adolf Reinach (1883-1917):	social acts
J. L. Austin (1911-1960):	speech acts
John Searle:	speech acts
Barry Smith:	document acts

Document-Acts

- In BFO parlance:
 - Claims and obligations are possibly Generically Dependent Continuants (GDCs)
 - E.g. a pattern of ink on paper that concretizes the content of *Oliver Twist*
- In D-acts Ontology (Brochhausen, Almeida, & Slaughter, 2013)
 - It includes Social Generically Dependent Continuants (SGDCs)
 - In SGDCs, the first role goes out of existence and the claim is concretized in a new role
 - E.g. John's claimant role goes out of existence when selling the land to Mary, and it is replaced by Mary's claimant role.

Example of d-acts entities

Searle's formula: X counts as Y in context C

Mary counts as a **Director** in the context of the Ford Motor Company

A director signing and stamping an official memorandum to recruit a janitor is the **document act**

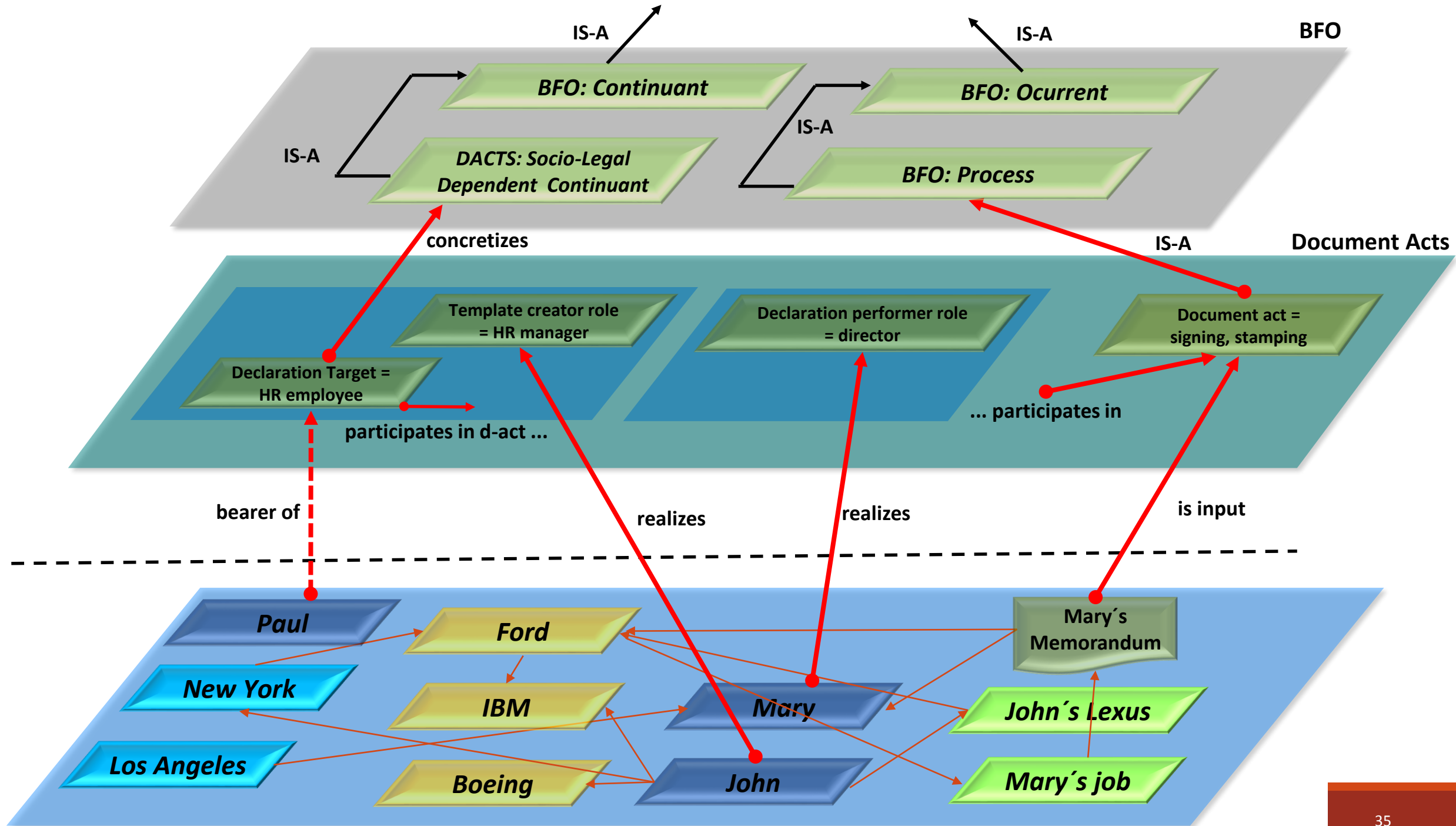
The official memorandum from the Board of Directors legally enables the recruitment process

A memorandum is the specified **input** of the document act of the director's order to recruit the janitor

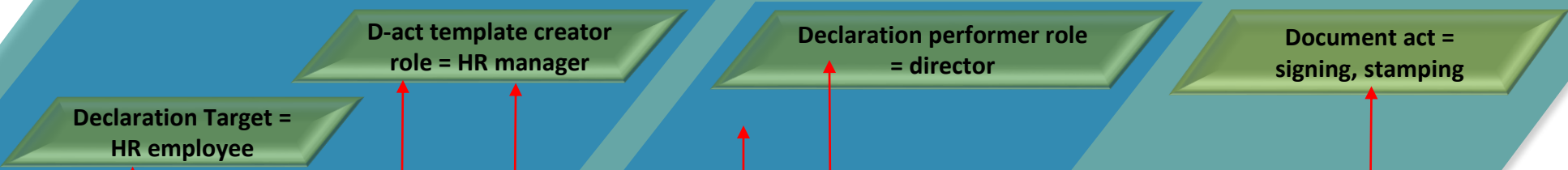
The human resources manager responsible for the recruitment process is the bearer of the **document act template creator role**.

The director is the bearer of **the declaration performer role**.

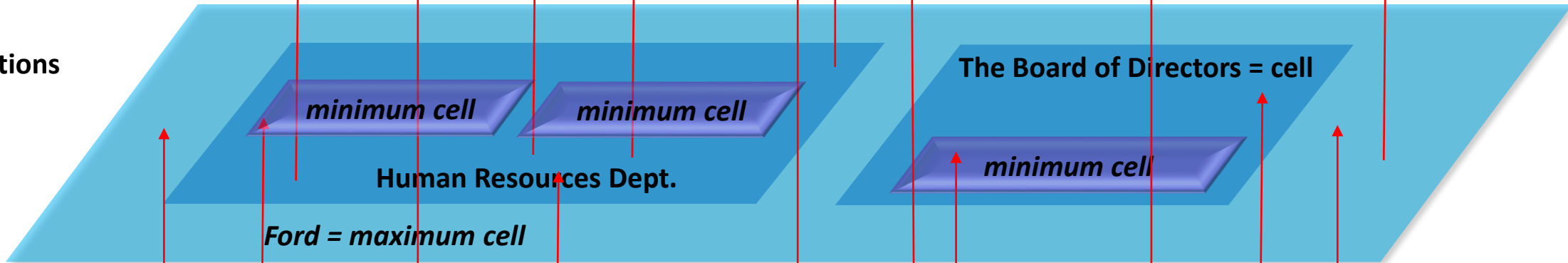
A human resources employee responsible for the recruitment procedures is the **declaration target**;
She becomes endowed with the right to perform procedures enabling the recruitment



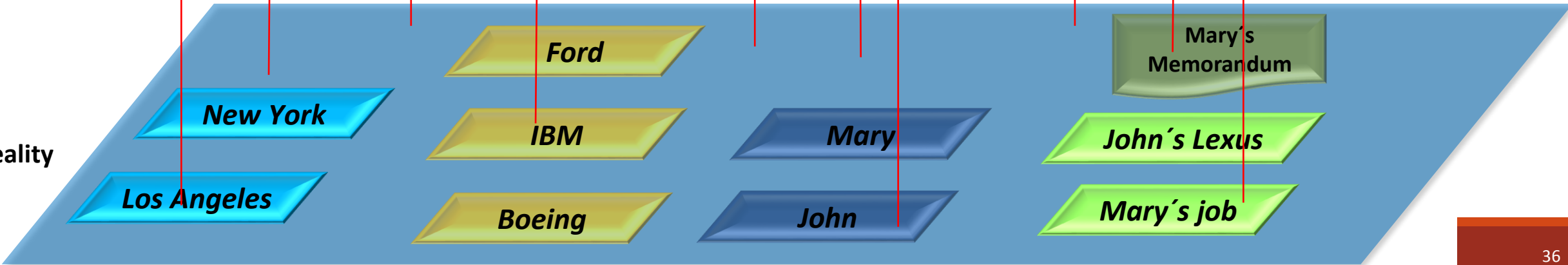
Document Acts



Partitions



Reality



III- Final Remarks

The role of records and documents:

“The way we structure our records [...] are indexes of how we do organization”

“Records are the information base of the modern state and of the modern organization” (Ledema 2003)

“There is nothing social outside the text”

“Society is not based on communication but on registration” (Ferraris 2013)

“[...] the mnemonic powers of individuals have been extended through documents in ways which have given rise to a variety of novel artifacts of social reality” (Smith 2014)

Final Remarks

- Examples of documents in a medical facility:
 - Healthcare records
 - Medical guidelines
 - Consent letters
 - ...
- Identifying the kinds of d-acts that a healthcare record or document contains or generates can provide clues to distinguish the medical corporation

Thank you!

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