

# Defining Equity and Debt using REA Claim Semantics

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# Overview

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## Financial Industry Business Ontology

- Modelling Approach
- Incorporating REA

## Looking for Equity and Debt

- Ideal End Point
- What is debt
- What is Equity

# FIBO Modelling Philosophy

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## Linguistic Semantics versus Semantic Web semantics

- Not the same
- Not necessarily incompatible
  
- The FIBO we are talking about in this slides follows the linguistic semantics

# FIBO: What is an Ontology?

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“An ontology is a representation of real things using formal logic”

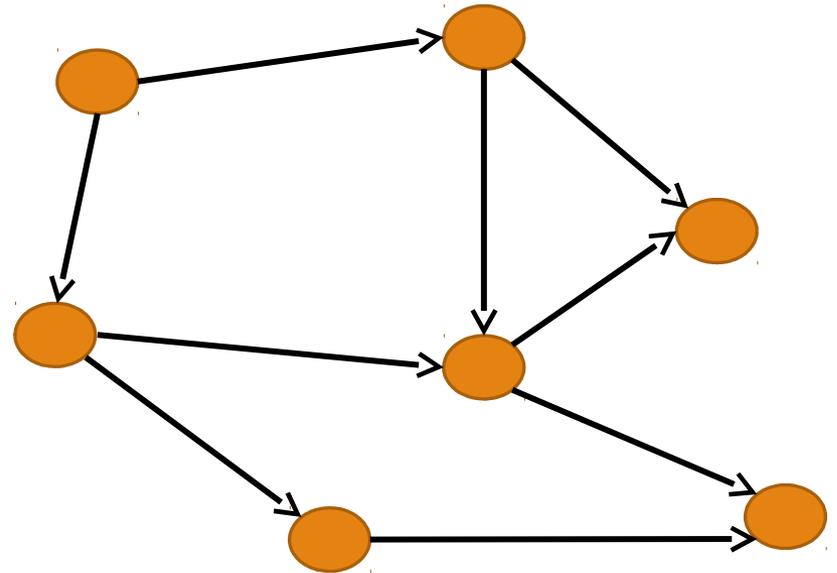
- adapted from the usually quoted definition “An ontology is a specification of a conceptualization”

# Semantics Approach #1

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# Semantic Web

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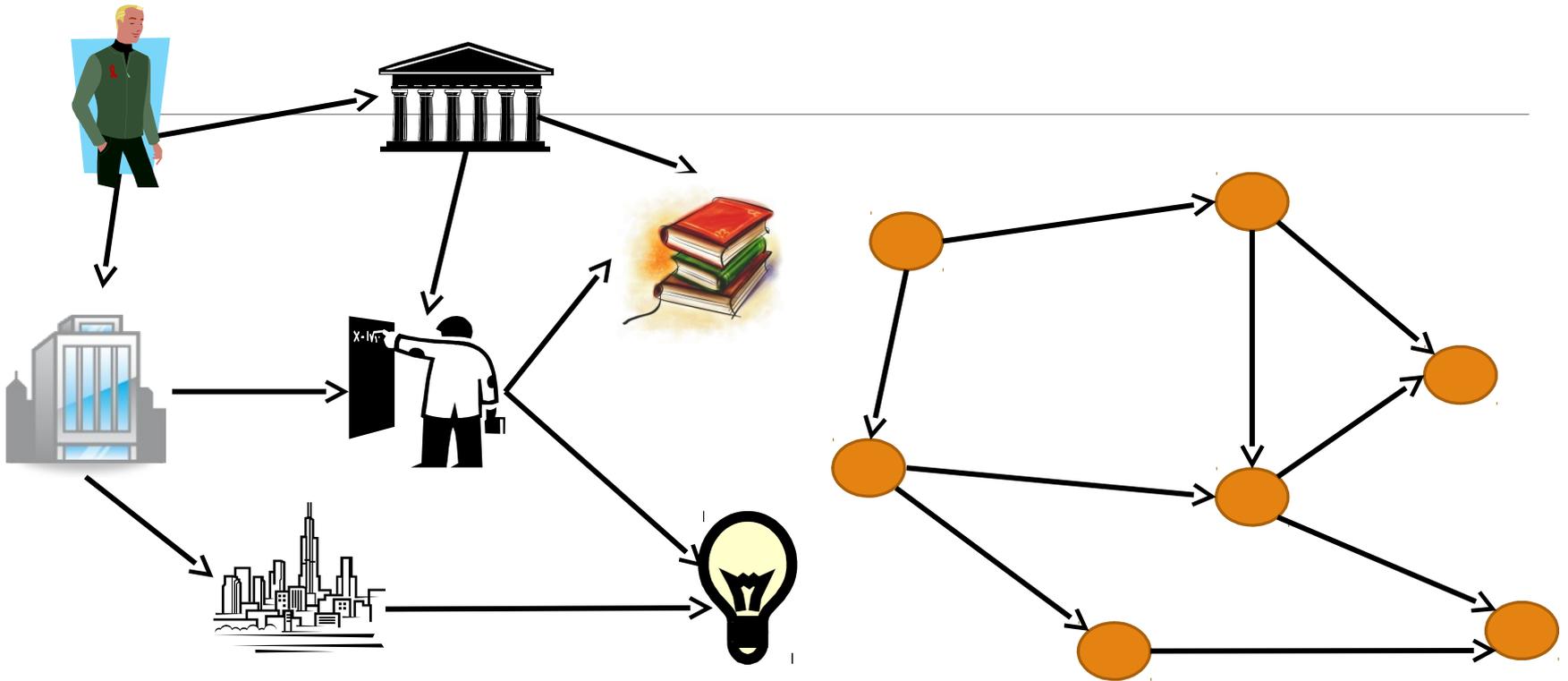


Graph has logical relations between elements

These correspond to the relations between things in reality

Automated reasoning checks the “deductive closure” of the graph for consistency and completeness

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# Semantic Web Semantics

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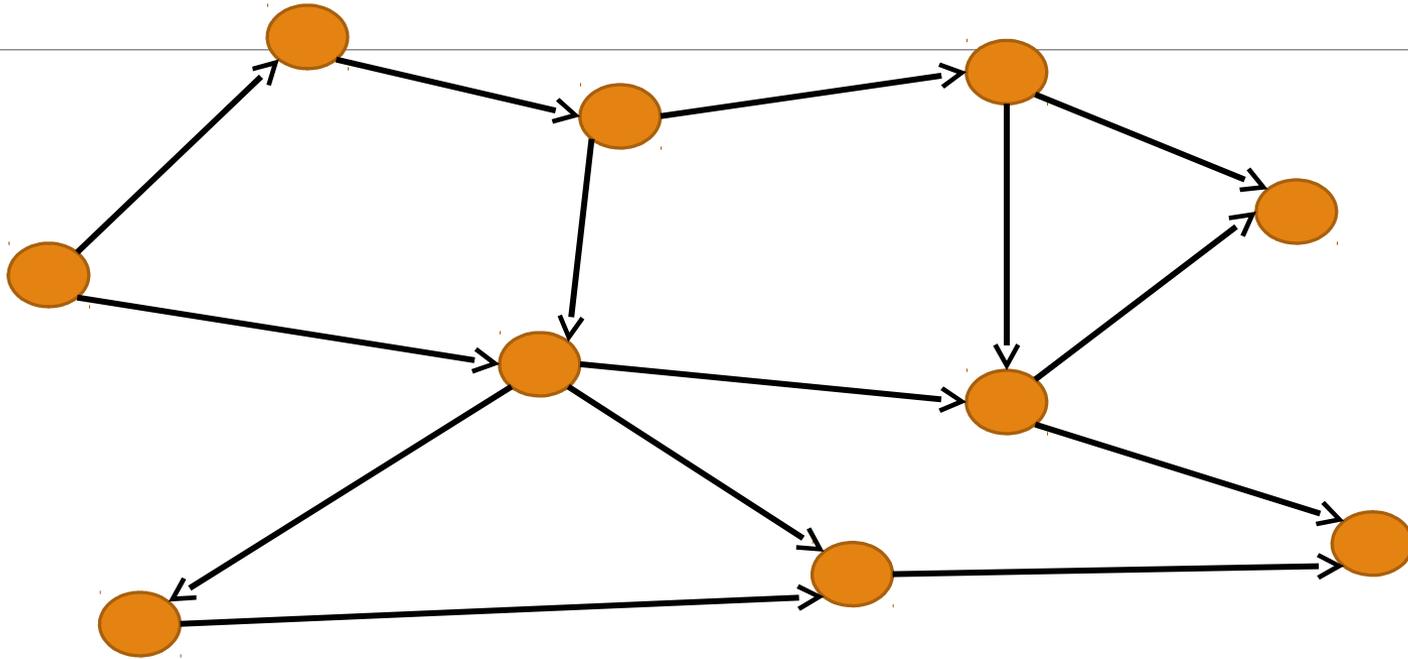
Deductive Closure: Internal consistency of model reflects the consistent relationships between things in the domain of discourse

Requires reasoning to establish

# Semantics Approach #2

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# Semantic Networks

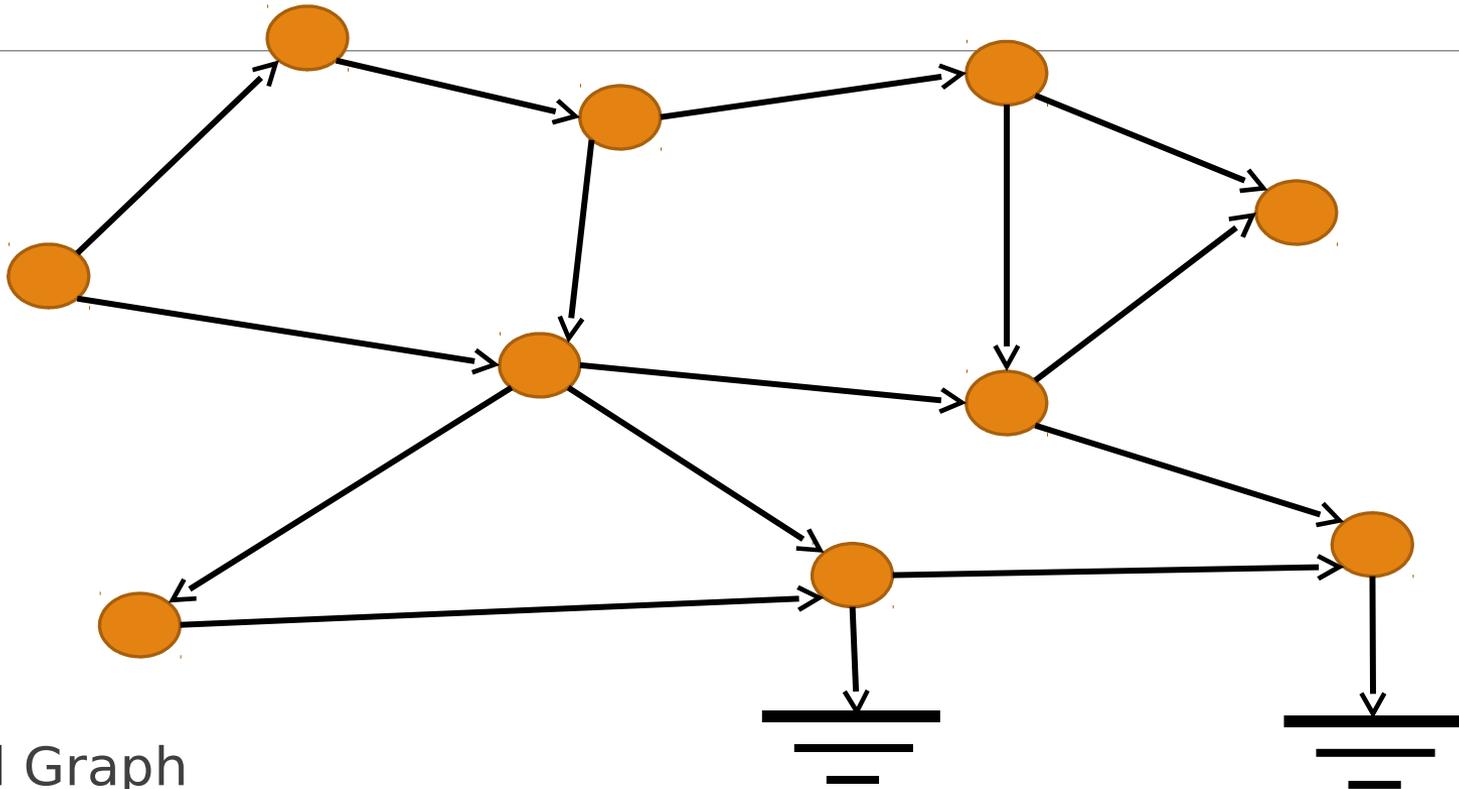


Directed Graph

The meaning at each node is a product of its connections to other nodes

semantically grounded at certain points in the graph

# Semantic Networks



Directed Graph

The meaning at each node is a product of its connections to other nodes

Semantically grounded at certain points in the graph

# FIBO Semantics

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For each class of Thing in the ontology we ask just two questions :

- What kind of thing is this?
- What distinguishes it from other kinds of thing?

FIBO semantics drops out from this

# FIBO Approach

## Important Features

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Classification

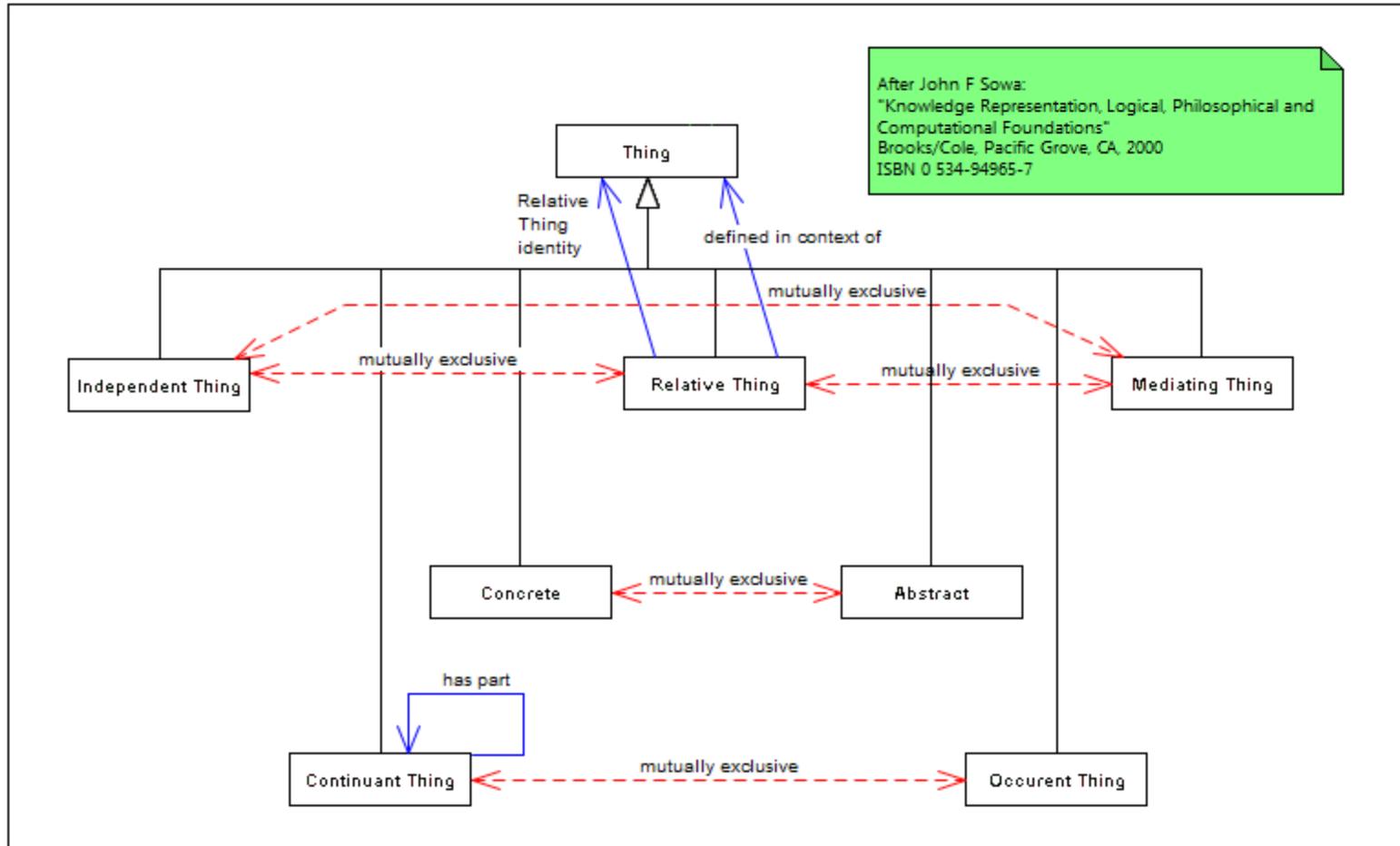
Abstraction

Partitions

Semantic Grounding

It is for this reason that we look to reference semantics from well-attested standards such as REA

# Upper Ontology Partitions

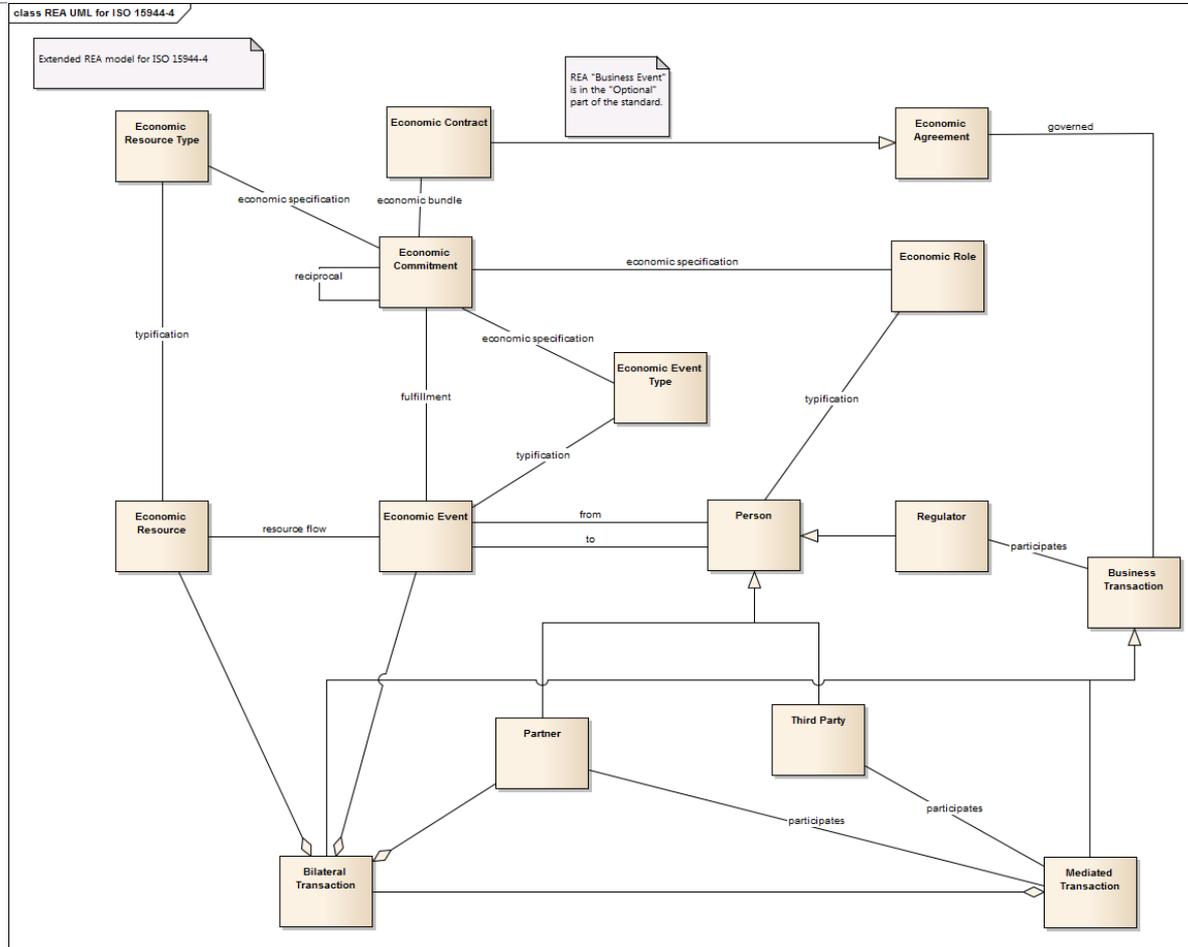


# REA Alignment Activities

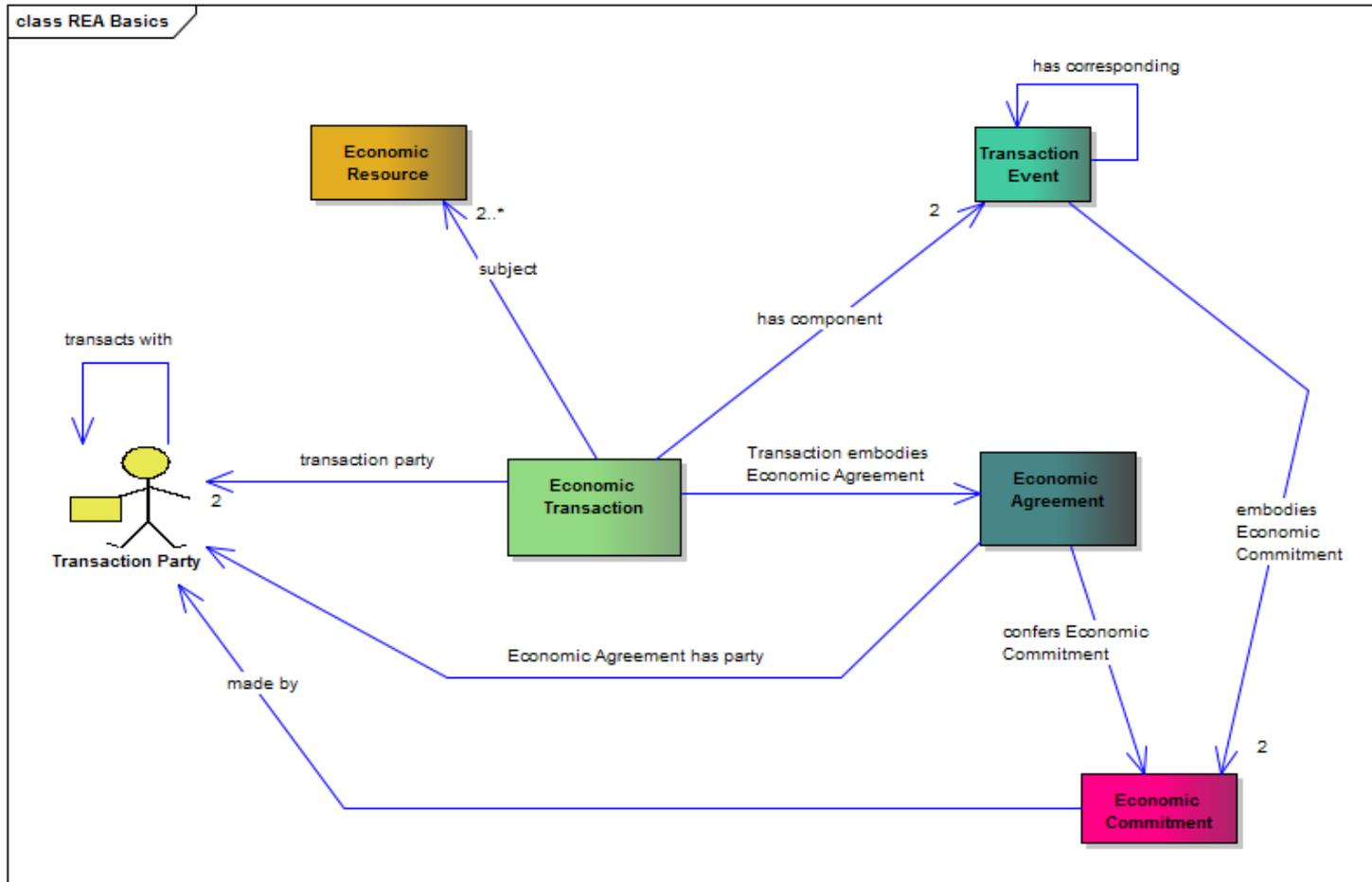
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1. Transaction Sides and Commitments
2. Aspects of Commitments
3. Contractual and Non-contractual Commitments
4. Transaction Events

# ISO 15944-4

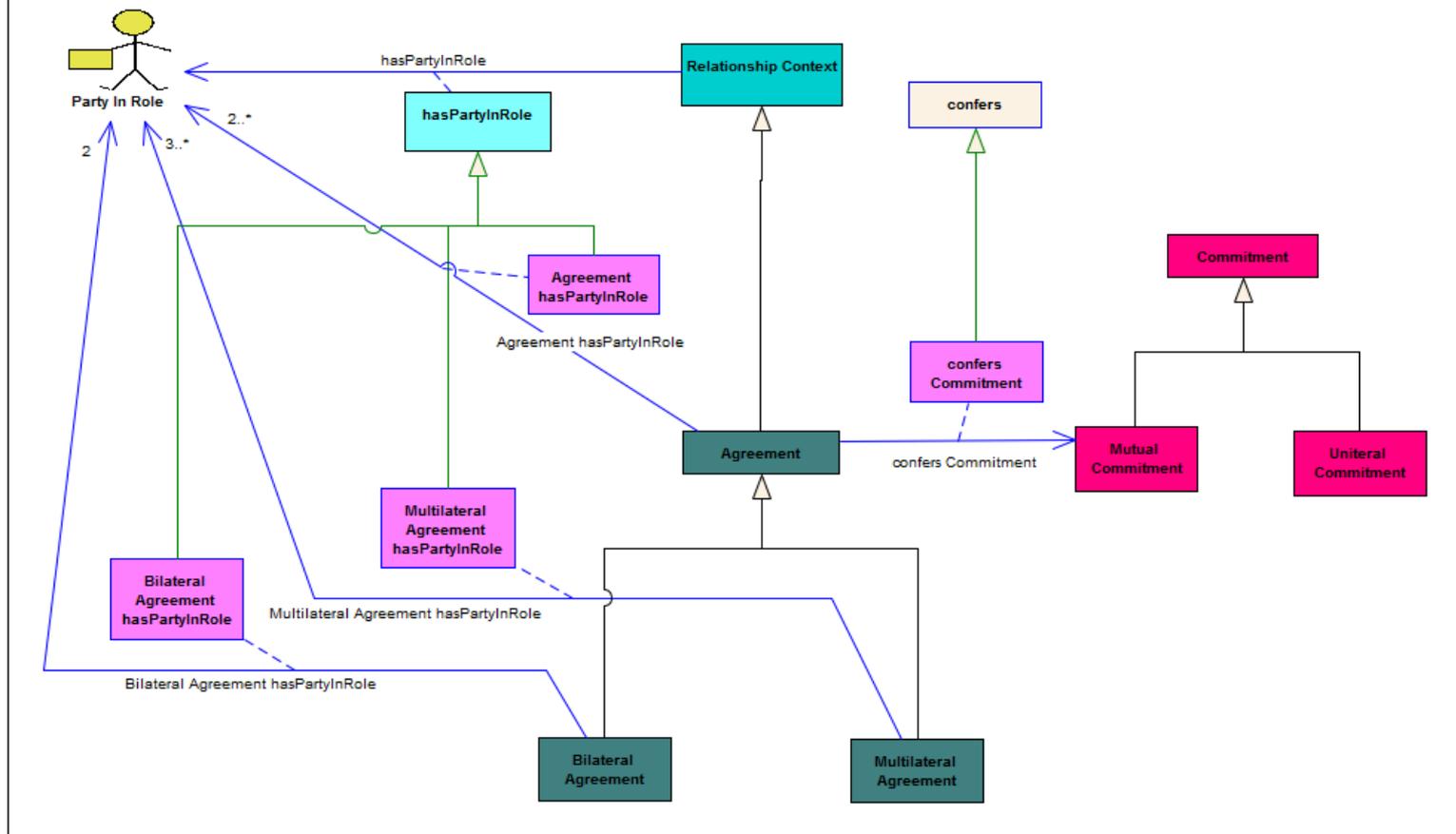


# REA Basic Terms



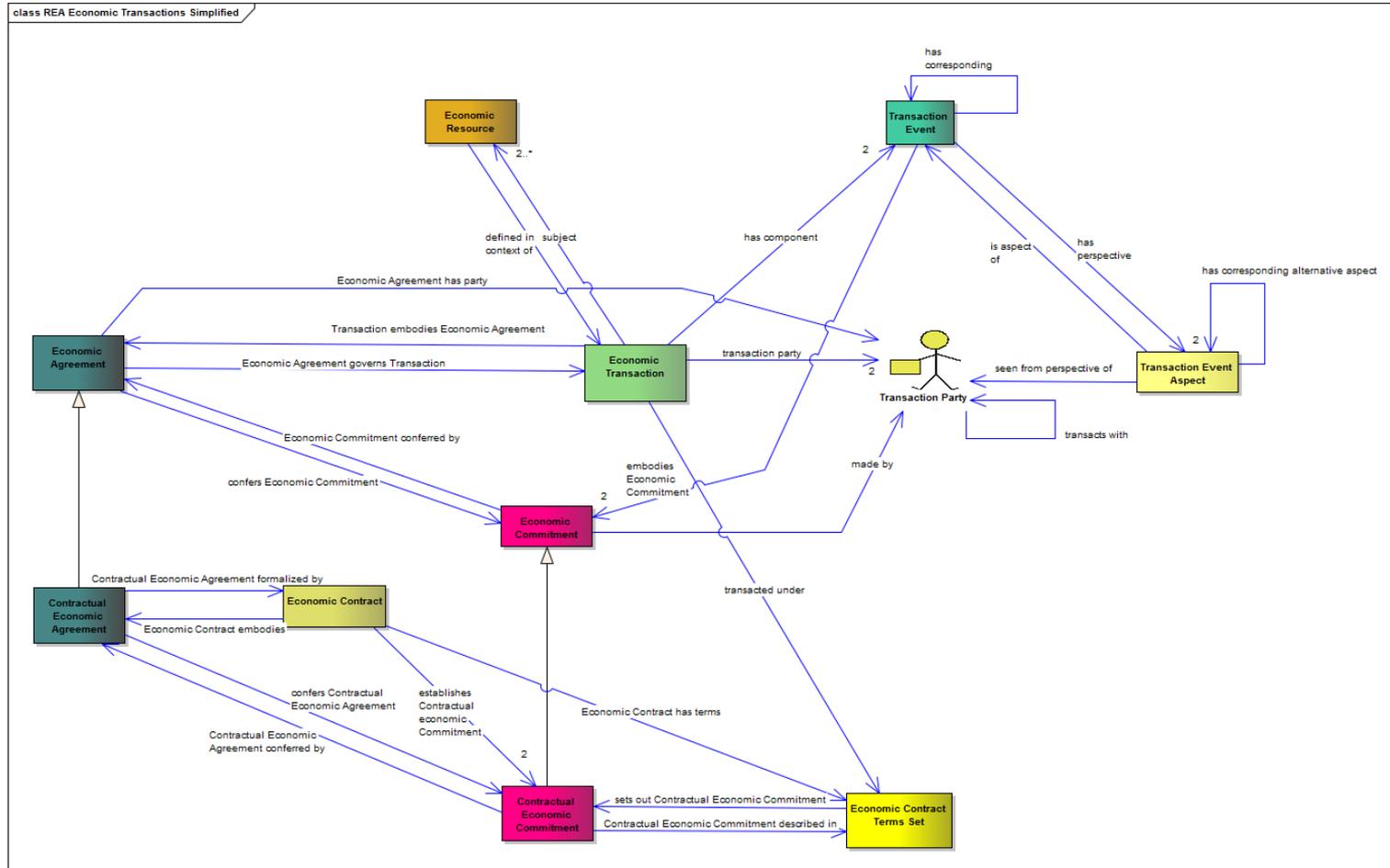
# FIBO Agreements

class Agreements Figure





# Economic Transactions



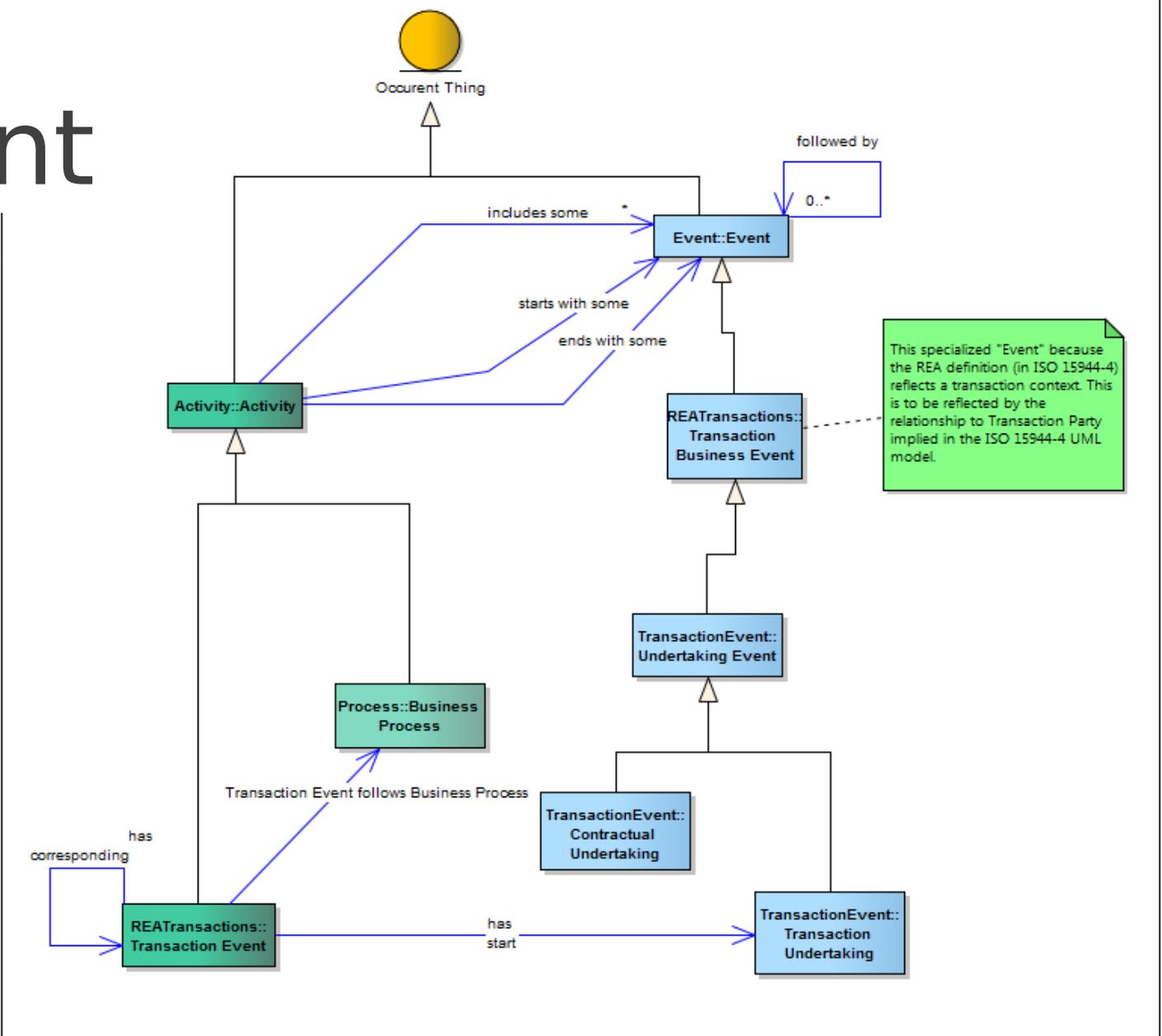
# Economic Transactions

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This is done by segregating Economic Agreement and Economic Contract

- Contract <> Agreement
- Contract may embody / formalize / provide evidence for some Agreement
- Not all agreements have a contract
- Not all contracts are for transactions

# Txn Event



This specialized "Event" because the REA definition (in ISO 15944-4) reflects a transaction context. This is to be reflected by the relationship to Transaction Party implied in the ISO 15944-4 UML model.



# Transaction Event

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Enables us to talk about “Undertakings”

- An event in which some party incurs some Commitment
  - The Commitment is an aspect of what is, in the round, some Obligation
- The Undertaking is an Event
- Similar events discharge an obligation
  - Settlement, forgiveness

Then

At each side of any transaction, some Obligation comes into effect

- At some time
- As a result of some Undertaking (event) by some party

This continues to exist until discharged (another event)

- These are in REA, “Business Events”
- The workflow which starts and ends with these undertaking / discharge events, is the REA Event

# What's Missing?

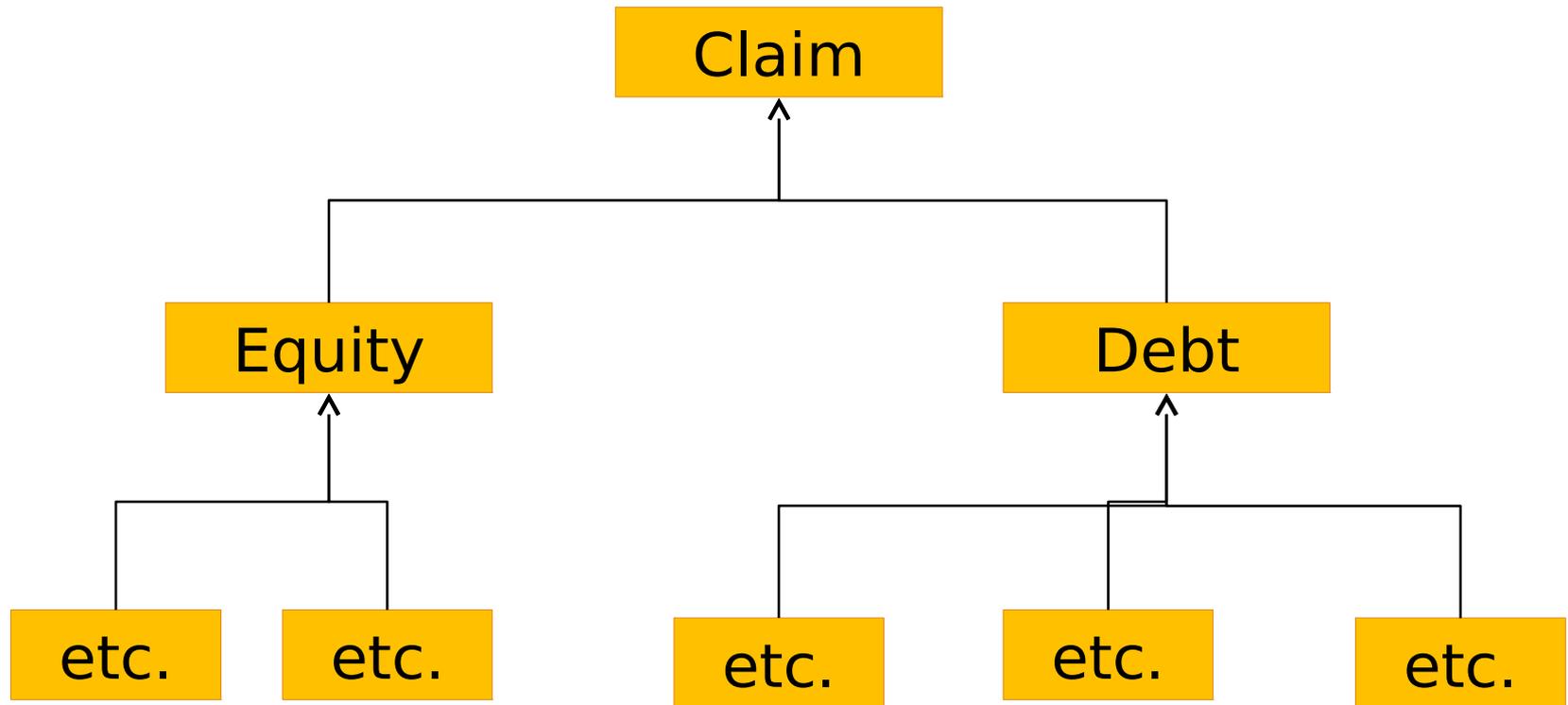
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Any account of REA Claim

Treatment of Debt and Equity

# Claim Possible End Point?

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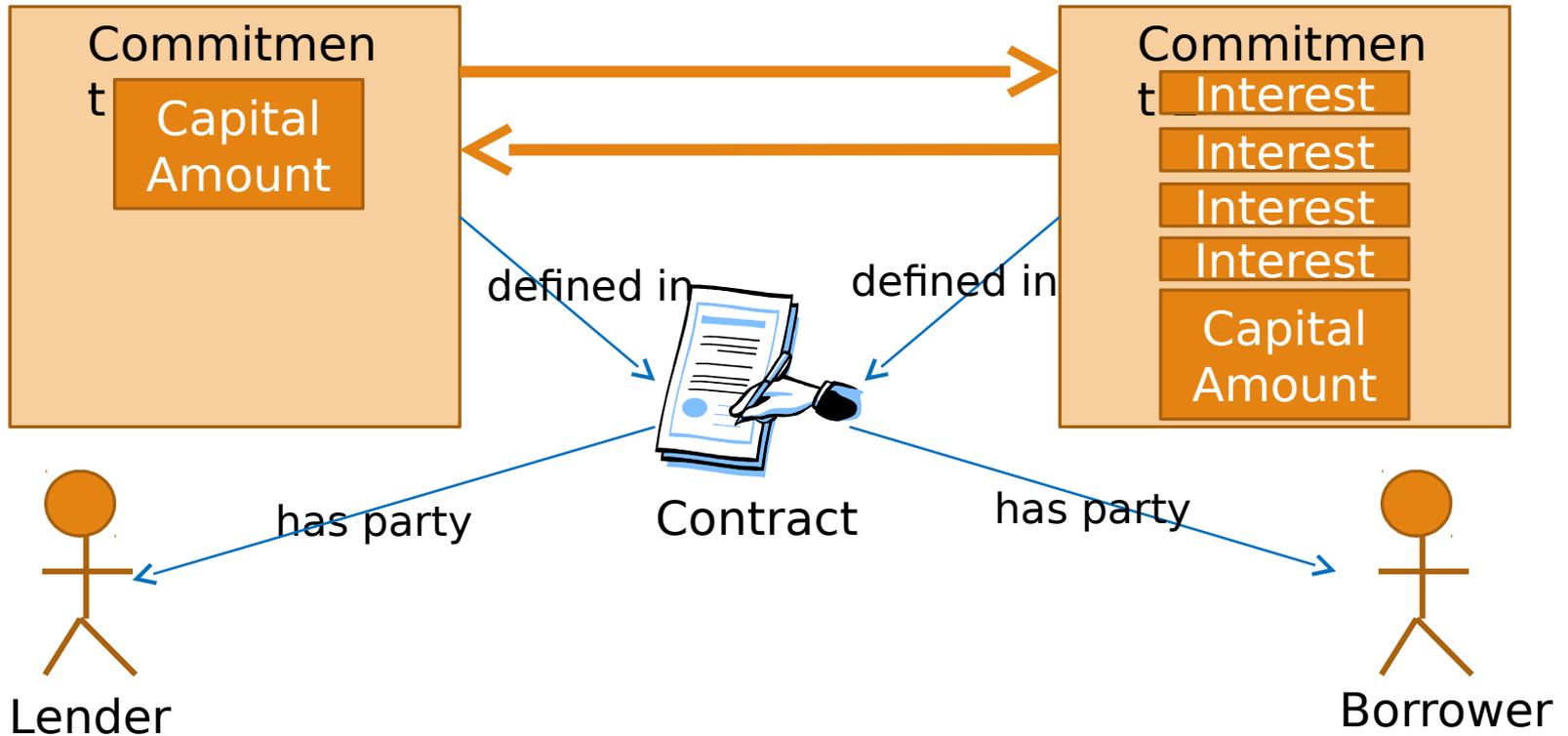


# Debt as Transaction

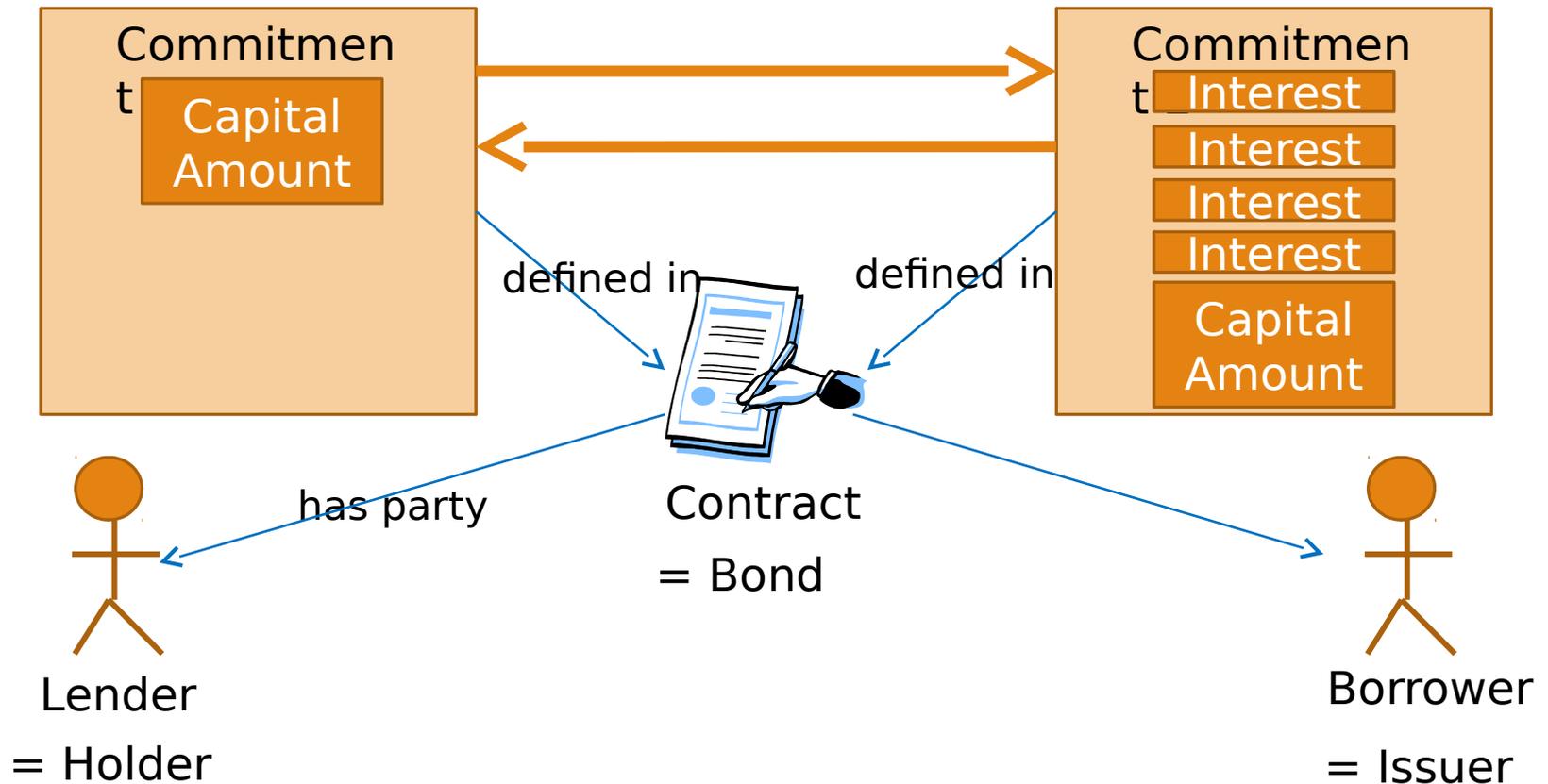
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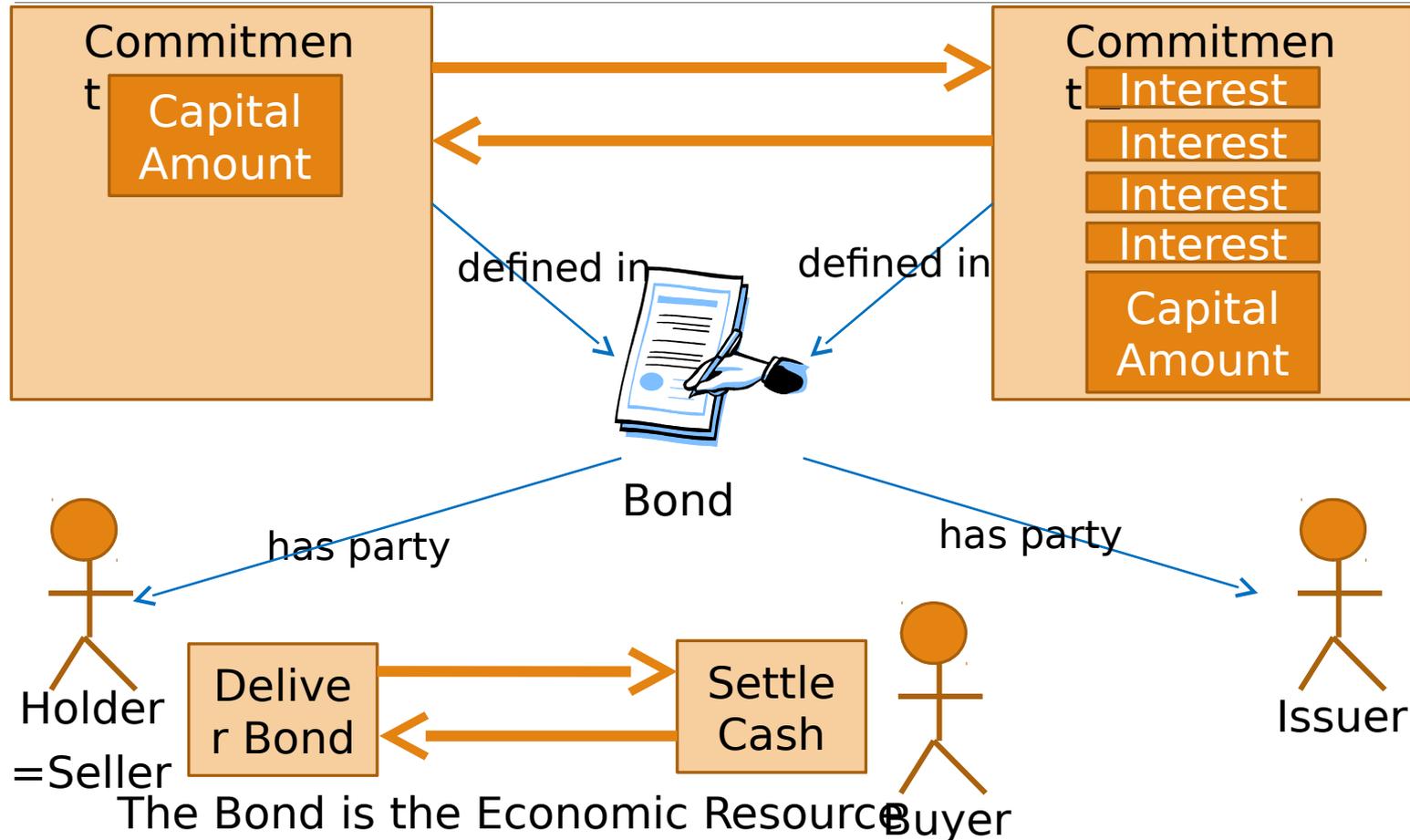
# Debt as Transaction



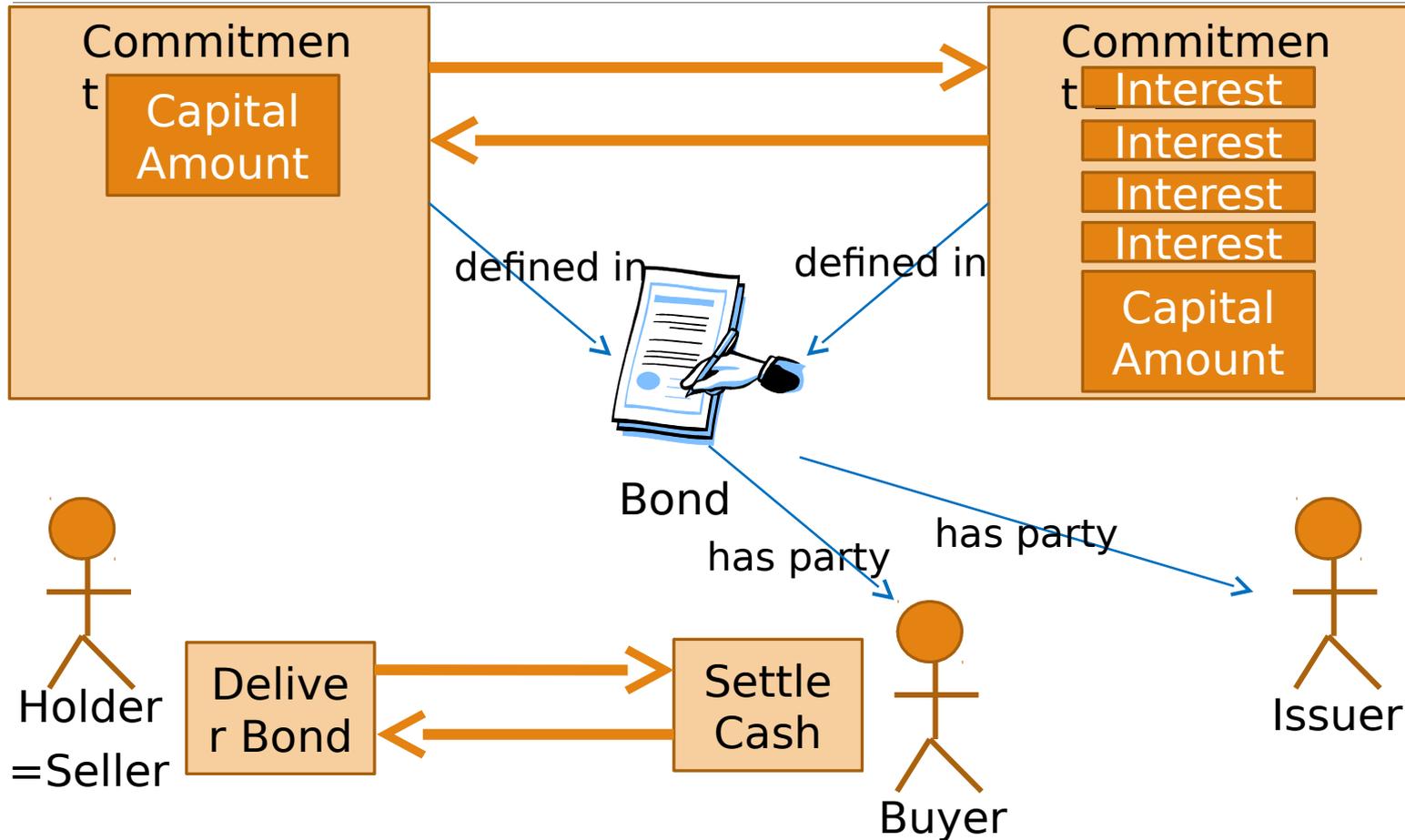
# Debt Instrument



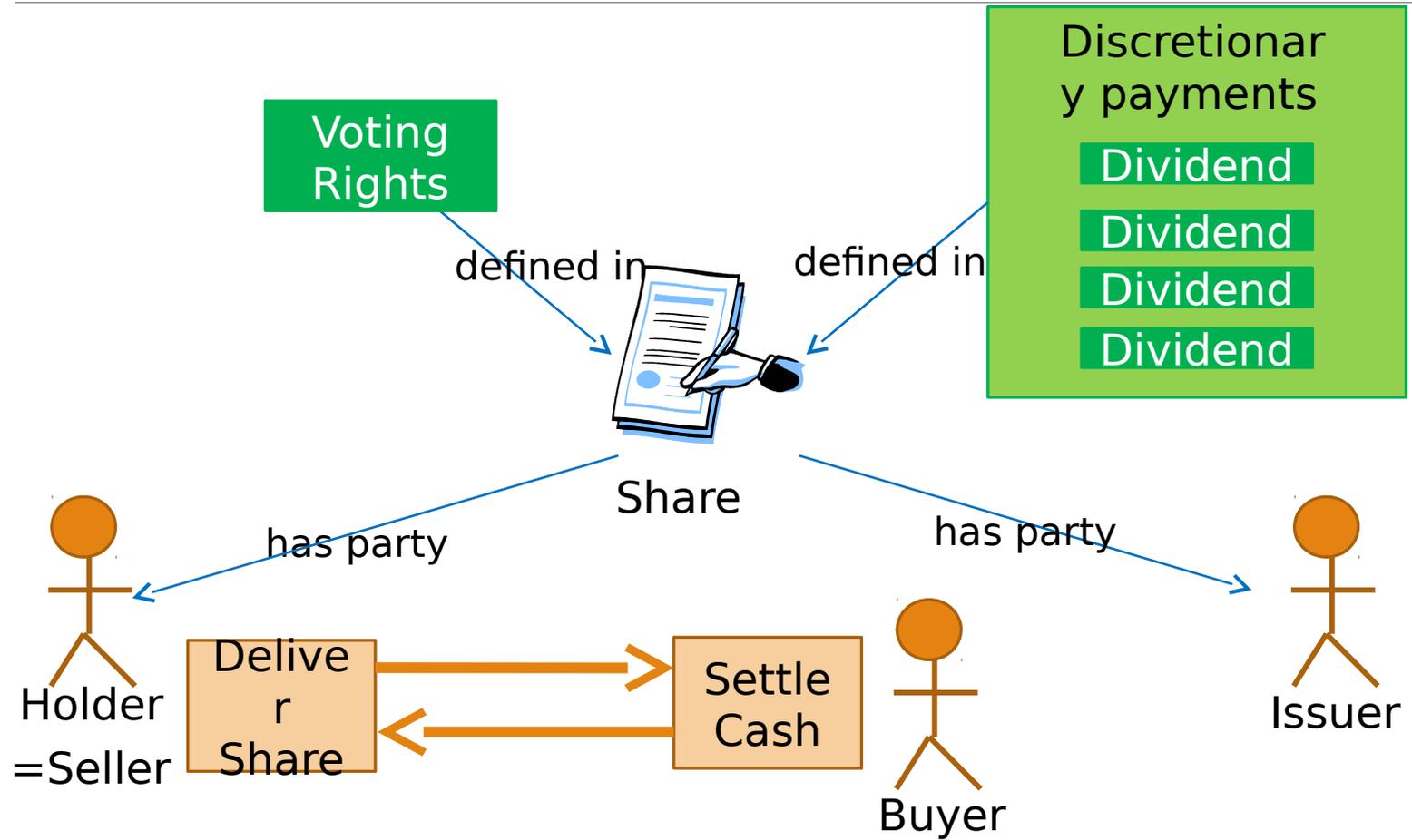
# Secondary Market



# Secondary Market



# Secondary Market: Equity



# Secondary Market: Equity

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The underlying contract still defines rights e.g. voting rights

A minority of shares include dividend commitments (Preference shares)

- HOWEVER

There is no underlying transaction which the equity represents

- Ownership is not Debt
- Is Ownership a claim of some sort?

# Chose in Action v Chose in Possession

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**Chose in Possession:** “A thing in possession, as distinguished from a thing in action. ... Taxes and customs, if paid, are a chose in possession; if unpaid, a chose in action. ...” [10]

**Chose in Action:** “A right to personal things of which the owner has not the possession, but merely a right of action for their possession. ... A right to receive or recover a debt, demand, or damages on a cause of action ex contractu, or for a tort connected with contract, but which cannot be made available without recourse to an action. ... Personalty to which the owner has a right of possession in future, or a right of immediate possession, wrongfully withheld, is termed by the law a ‘chose in action.’ ...”

# Chose in Action

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Chose in Actions seems to be two things??

- A right to personal things of which the owner has not the possession, but merely a right of action for their possession.  
...
- A right to receive or recover a debt, demand, or damages on a cause of action ex contractu, or for a tort connected with contract, but which cannot be made available without recourse to an action. ...
- Personalty to which the owner has a right of possession in future, or a right of immediate possession, wrongfully withheld

# Claims in Debt v Equity

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Is ownership a claim?

Does ownership include something of the nature of a claim as part of it?

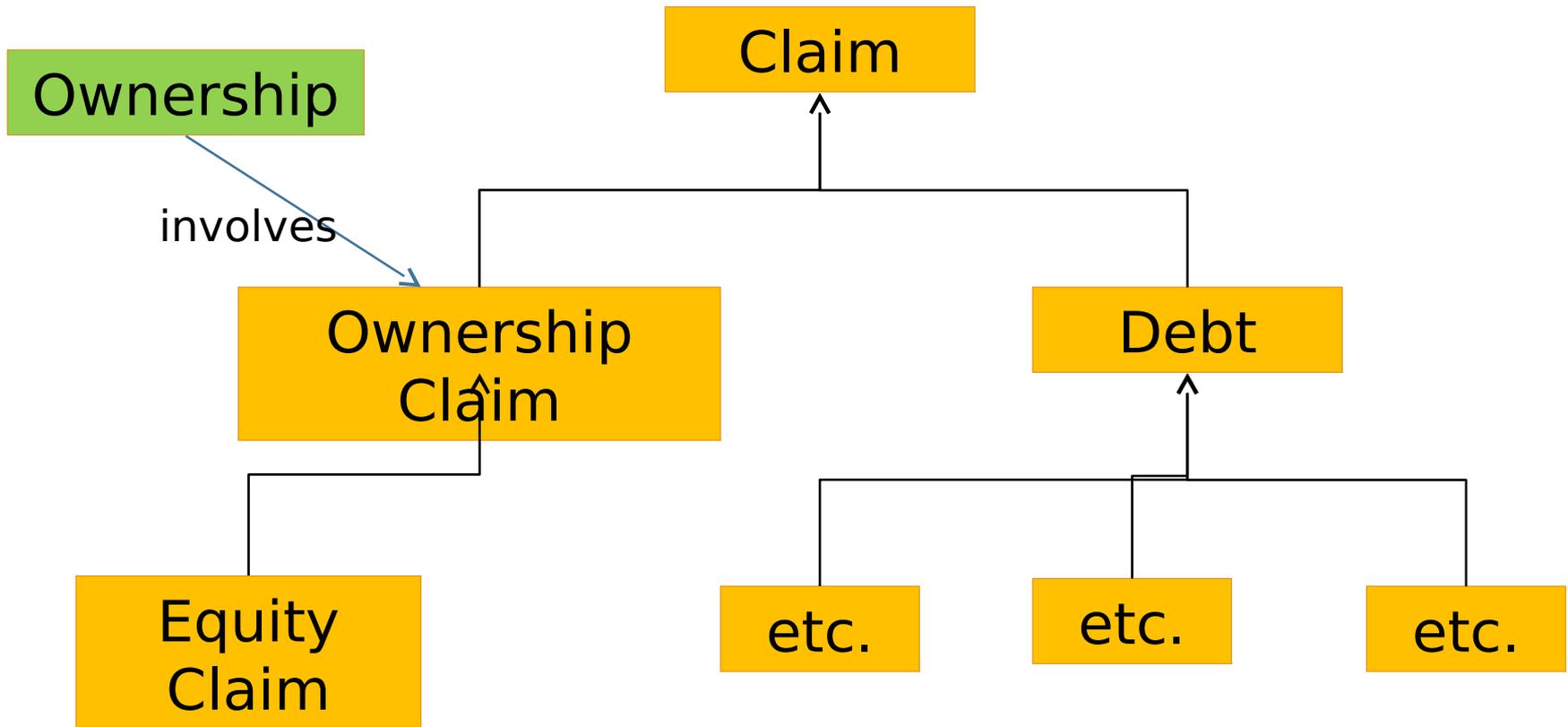
Ownership of incorporated entity:

- If the entity is wound up then the shareholders have a claim on the assets
  - This is junior to the claims of debtholders
- If the entity is not wound up no claim arises
  - While the entity continues to trade, there is no circumstance in which the shareholder has a claim over it.
  - Any claim against the entity is a claim against something of which the shareholder is a part
- Is a claim under a given circumstance in the future, still a claim? Is it a chose in action?

Does the entity exist when it is wound up?

# Claim Possible End Point?

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# Applying “FIBO Gold” Methodology

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Is there some coherent thing, the properties of which make it a Claim?

- What properties does it have?

Given such a thing,

- is Debt a kind of it?
- Is Equity a kind of it?

If there is a more general “Ownership Claim” does this inherit all the properties, and is of the same nature as (is a kind of) the more general Claim?

If not: What exactly is equity

- What does it mean to own some thing?
- Rights, access, enjoyment etc.

Claim on assets of another, versus claim on enjoyment of a thing?