

Legal Patterns for Different Constitutive Rules

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Overview

- Introduction
- Constitutive Rules
- Types of Constitutive Rules
- Capturing Constitutive Rules in SBVR
- Constitutive Rules in FIRO
- Legal Concept Patterns
- Conclusions

Introduction

Goal of the research: Capture requirements and other relevant legal rules from regulatory texts in the financial industry domain

Approach:

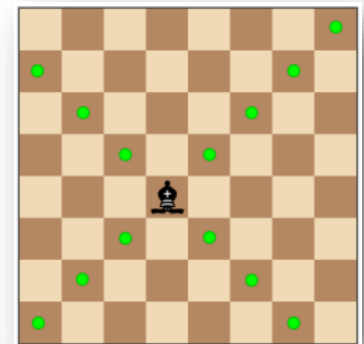
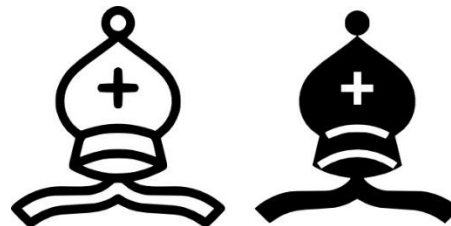
- Regulatory Interpretation Methodology
- Intermediate language based on SBVR (Mercury)
- XML/RDF output
- Ontology layer (FIRO)
- Tool Support

What are Constitutive Rules?

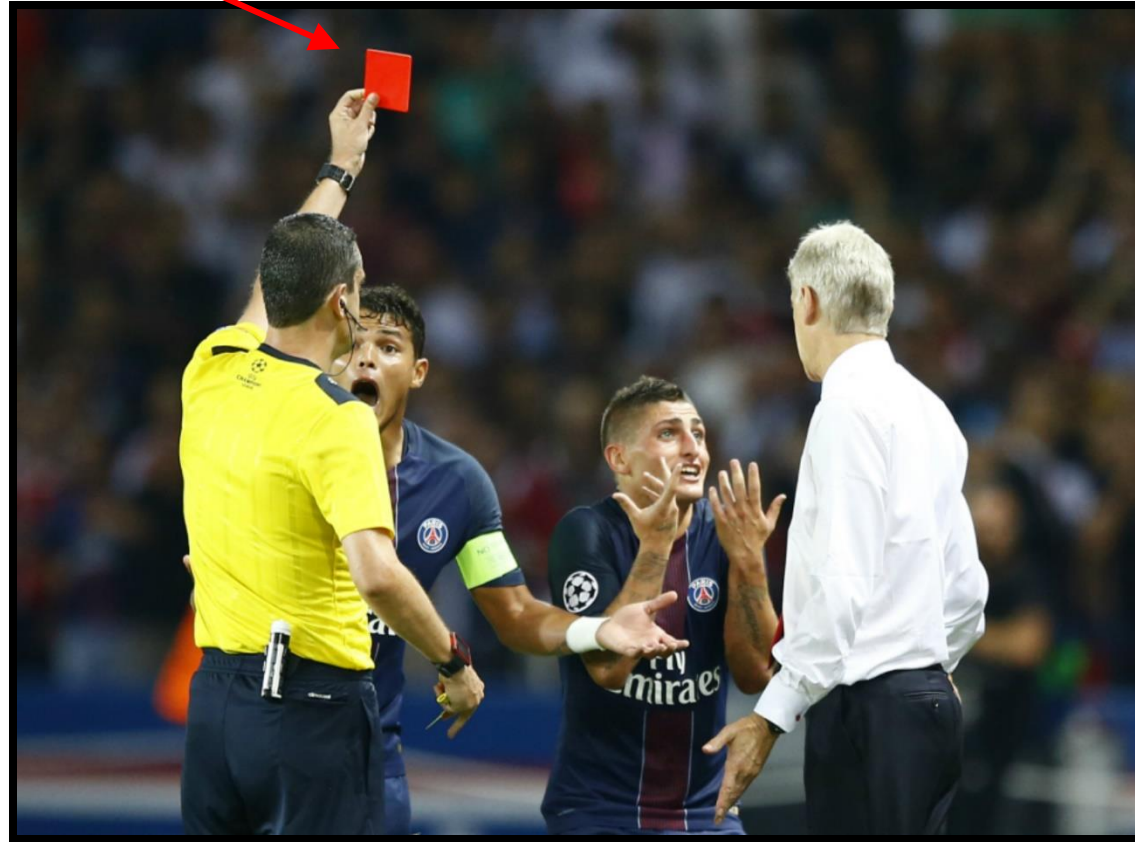
“[R]egulative rules regulate antecedently or independently existing forms of behaviour [...]. But constitutive norms do not merely regulate, they create or define new forms of behaviour. The rules of football or chess, for example [...] create the very possibility of playing such games.” (p. 33).

“Utterances [...] that [...] do not ‘describe’ or ‘report’ or constate anything at all, are not ‘true or false,’ and the uttering of [which] is, or is a part of, the doing of an action, which again would not normally be described as, or as ‘just,’ saying something.” (pp. 5-6)

Cannot be breached!



This is only about Regulative Rules!

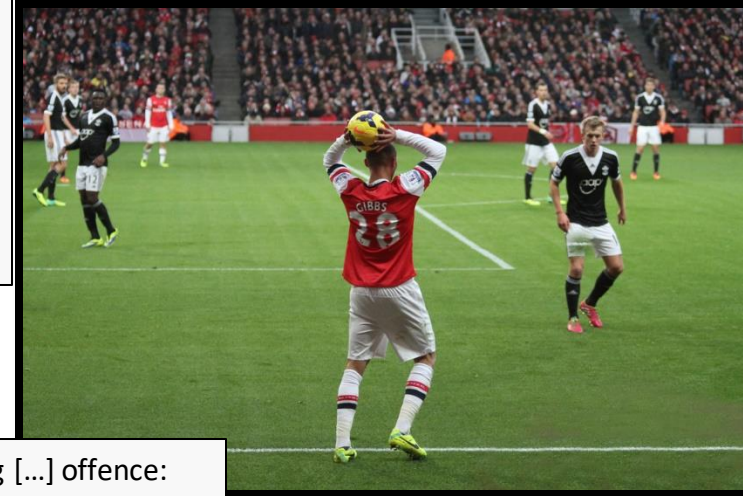


Regulative Rules in Soccer

At the moment of delivering the ball, the thrower:

- faces the field of play
- has part of each foot either on the touch line or on the ground outside the touch line
- holds the ball with both hands
- delivers the ball from behind and over his head
- delivers the ball from the point where it left the field of play

All opponents must stand no less than 2 m (2 yds) from the point at which the throw-in is taken.



A direct free kick is awarded to the opposing team if a player commits [...] the following [...] offence:

- handles the ball deliberately (except for the goalkeeper within his own penalty area)

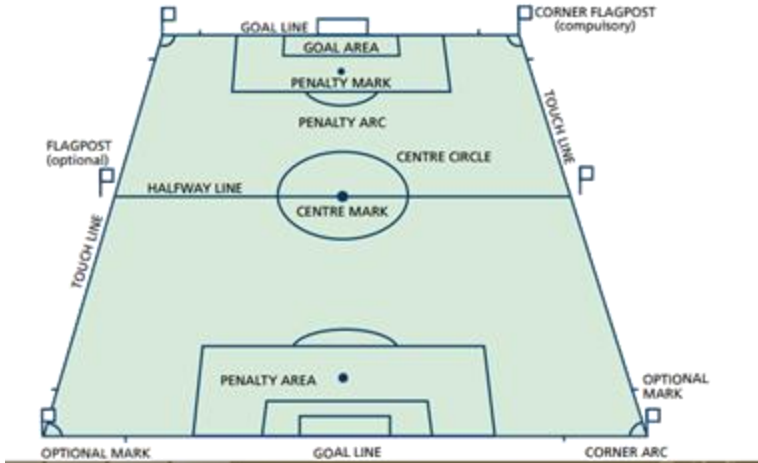
Outside his own penalty area, the goalkeeper has the same restrictions on handling the ball as any other player. Inside his own penalty area, the goalkeeper cannot be guilty of a handling offence incurring a direct free kick or any misconduct related to handling the ball. He can, however, be guilty of several handling offences that incur an indirect free kick.



Constitutive Rules In Soccer

LAW 1 – THE FIELD OF PLAY

The field of play



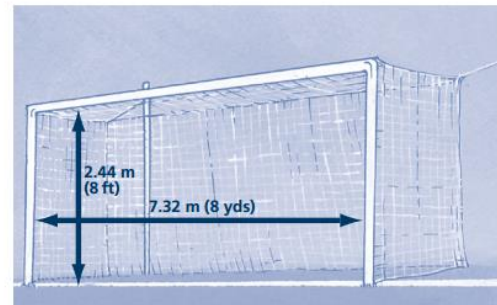
Goals

A goal must be placed on the centre of each goal line.

A goal consists of two upright posts equidistant from the corner flagposts and joined at the top by a horizontal crossbar. The goalposts and crossbar must be made of wood, metal or other approved material. They must be square, rectangular, round or elliptical in shape and must not be dangerous to players.

The distance between the posts is 7.32 m (8 yds) and the distance from the lower edge of the crossbar to the ground is 2.44 m (8 ft).

May appear in the text as obligations,
but they are constitutive rules



The position of the goalposts in relation to the goal line must be according to the graphics below.



If the shape of the goalposts is square (viewed from above), the sides must be parallel or perpendicular to the goal line. The sides of the crossbar must be parallel or perpendicular to the field plane.



If the shape of the goalposts is elliptical (viewed from above), the longest axis must be perpendicular to the goal line. The longest axis of the crossbar must be parallel to the field plane.

Goal scored

A goal is scored when the whole of the ball passes over the goal line, between the goalposts and under the crossbar, provided that no infringement of the Laws of the Game has been committed previously by the team scoring the goal.



Constitutive Rules

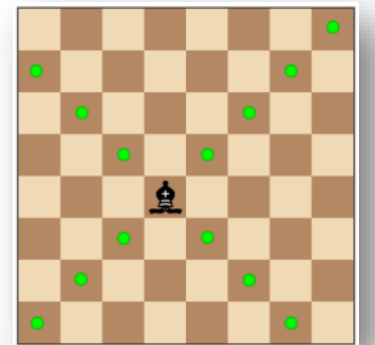
(a) counts as (b) in context (c)

- (a) a material (or previously identified) phenomenon (*token*);
- (b) an abstract concept that is created by the constitutive rule itself (*type*);
- (c) a limited area of application (*context*).

*“the **piece** starting in square c1 or f1 or c8 or f8 count as **Bishop** in **Chess**”*

*“the **Bishop** counts as **moving only diagonally by any number of squares** in **Chess**”*

(token) counts as **(type)** in **(context)**



Types of Constitutive Rules

- Rules (or acts) that directly constitute new entities and are **sufficient** conditions for the new entity to exist (*thetic-constitutive* rules)
e.g. marriage celebrated by a public officer
- Rules that merely create the possibility of new entities and *are* **necessary** conditions for the new entity to exist (*eidetic-constitutive* rules);
e.g. laws instituting marriage
- Rules that, without constituting new entities, *introduce* **necessary** conditions for them to exist (*anankastic-constitutive* rules)
e.g. relative necessities (see further)

Types of Constitutive Rules

	Declarative speech act	Constitutive of speech act
Necessary	Eidetic	Anankastic
Sufficient	Thetic	Metathetic
Nec + Suf	Noetic	Nomic

Types of Constitutive Rules

Classes	Rules	Arguments
Constitutive Rules		
Definition	Term	definiendum, definiens
	Procedure	addressee, counterpart, action, object
Creation	Institution	addressee
	Organization	addressee
Attribution	Power	addressee, counterpart, activity, object
	Liability	addressee, counterpart, activity, object
	Status	addressee, object
Metarules		
Application	Inclusion	partition
	Exclusion	partition
Modification	Repeal	partition, position, out, in
	Insertion	partition, position, out, in
	Substitution	partition, position, out, in

SBVR

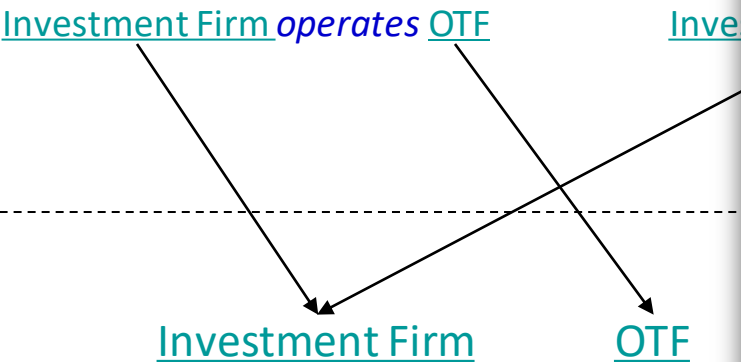
Business Rules and Business Vocabulary

It is prohibited that an Investment Firm that *operates* an OTF engages in Matched Principal Trading.

Rulebook
Vocabulary

Verb Concepts

Noun Concepts



<u>meaning</u>	Definition: what is meant by a word, sign, statement, or description; what someone intends to express or what someone understands
<u>concept</u>	Source: <u>ISO 1087-1 (English)</u> (3.2.1) ['concept'] Definition: unit of knowledge created by a unique combination of characteristics General Concept: <u>meaning</u> Reference Scheme: a <u>designation of the concept</u>
<u>noun concept</u>	Definition: <u>concept</u> that is the meaning of a noun or noun phrase Concept Type: <u>concept type</u> Reference Scheme: a <u>closed projection</u> that defines the <u>noun concept</u>
<u>fact type</u>	Definition: <u>concept</u> that is the meaning of a verb phrase that involves one or more noun concepts and whose instances are all actualities Synonym: <u>verb concept</u> Note: For each instance of a <u>fact type</u> , each <u>role</u> of the <u>fact type</u> is one point of involvement of something in that instance. Concept Type: <u>concept type</u> Necessity: Each <u>fact type</u> has at least one <u>role</u> .

Capturing Regulative Rules in SBVR

It is possible that the goalkeeper *handle* the ball *inside* the penalty area *of* the same goalkeeper

Outside his own penalty area, the goalkeeper has the same restrictions on handling the ball as any other player. Inside his own penalty area, the goalkeeper cannot be guilty of a handling offence incurring a direct free kick or any misconduct related to handling the ball. He can, however, be guilty of several handling offences that incur an indirect free kick.



It is obligatory that investment firms *operating* a trading venue *make available* the bid price *to* the public

Capturing Constitutive Rules in SBVR



Definition of kick-off

A kick-off is a way of starting or restarting play:

- at the start of the match
- after a goal has been scored
- at the start of the second half of the match
- at the start of each period of extra time, where applicable

A goal may be scored directly from the kick-off.



SBVR:

It is possible that a player *scores* a goal *directly from the* kick-off

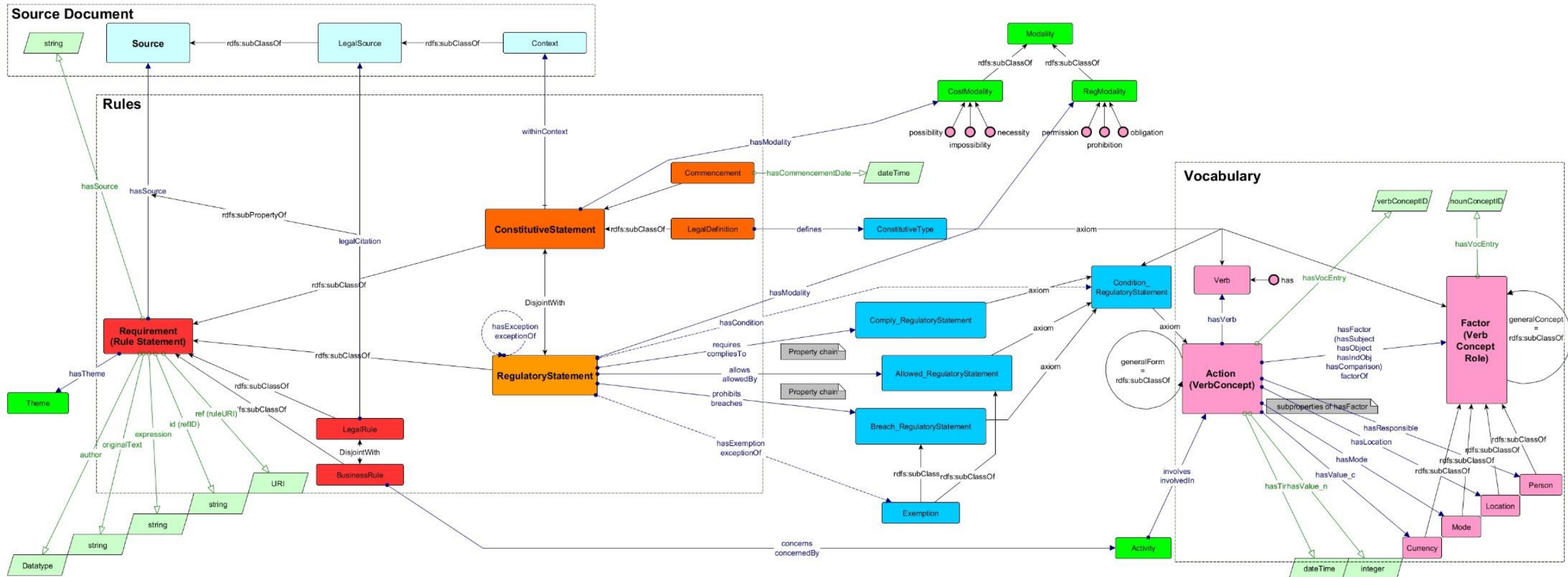
kick-off

General Concept: kick

Concept type: General Noun Concept

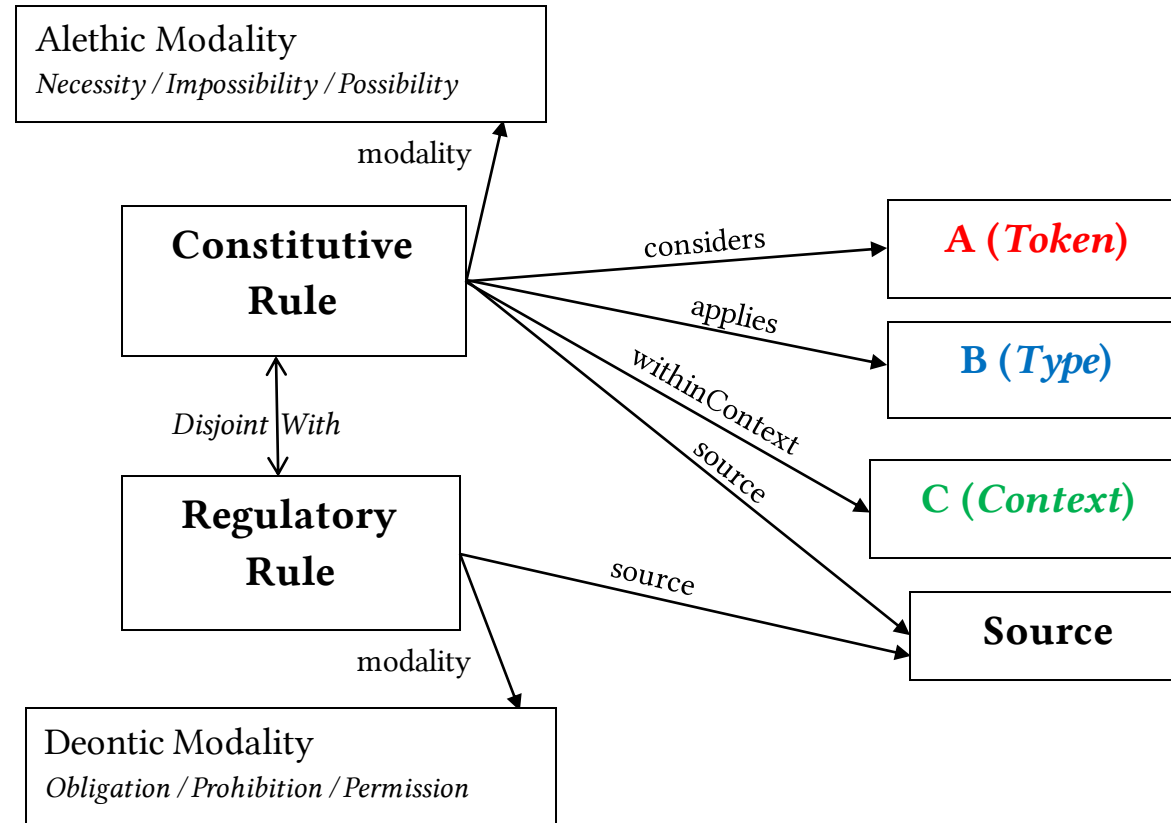
Necessity: It is necessary that a starting kick or a restarting kick *after a* player *scores a* goal *counts as* kick-off *in the* Laws of the Game

THE FIRO Ontology



Al Khalil, F., Ceci, M., Yapa, K. and O'Brien, L. (2016) July. SBVR to OWL 2 Mapping in the Domain of Legal Rules. In International Symposium on Rules and Rule Markup Languages for the Semantic Web (pp. 258-266). Springer International Publishing.

Constitutive Rules in FIRO



(**token**) counts as (**type**) in (**context**)

Legal Concept Patterns for Constitutive Rules

Constitutive Rule	<p>It is necessary that <u>thing₁</u> counts as <u>thing₂</u> in <u>context</u> (token) counts as (type) in (context)</p>
Legal Definition	<p><u>definiendum</u> means <u>definiens</u> = It is necessary that <u>definiens</u> counts as <u>definiendum</u> in <u>context</u> It is impossible that not <u>definiendum</u> counts as <u>definiens</u> in <u>context</u></p>
Party to the Law	<p><u>law</u> applies to <u>Thing</u> Synonymous Form: It is obligatory that <u>thing</u> complies with <u>law</u> = It is necessary that <u>thing</u> counts as <u>addressee</u> in <u>context</u></p>
Relative Necessity	<p><u>Thing</u> must be <u>qualified</u> = It is impossible that not <u>qualified</u> counts as <u>Thing</u> in <u>context</u></p>
Commencement	<p><u>law</u> comes into force on <u>date</u> = It is necessary that <u>date</u> counts as <u>start/end_date</u> in <u>rule</u> or <u>source</u></p>
Amendment	<p><u>Old text</u> is <u>repealed</u> in <u>context</u> <u>New text</u> is <u>added</u> in <u>context</u> <u>old text</u> is replaced by <u>new text</u> in <u>context</u> = It is necessary that <u>new text</u> counts as <u>old text</u> in <u>context</u></p>

Legal Definitions

It is obligatory that each relevant bank makes public a price for each share issued by that bank.

Source: Law X

It is necessary that each bank that operates in more than one country counts as relevant bank in Law X

Rulebook

Vocabulary

Bank Of Ireland

General Concept: Bank

Bank Of Ireland operates in 27 countries

(token) counts as (type) in (context)

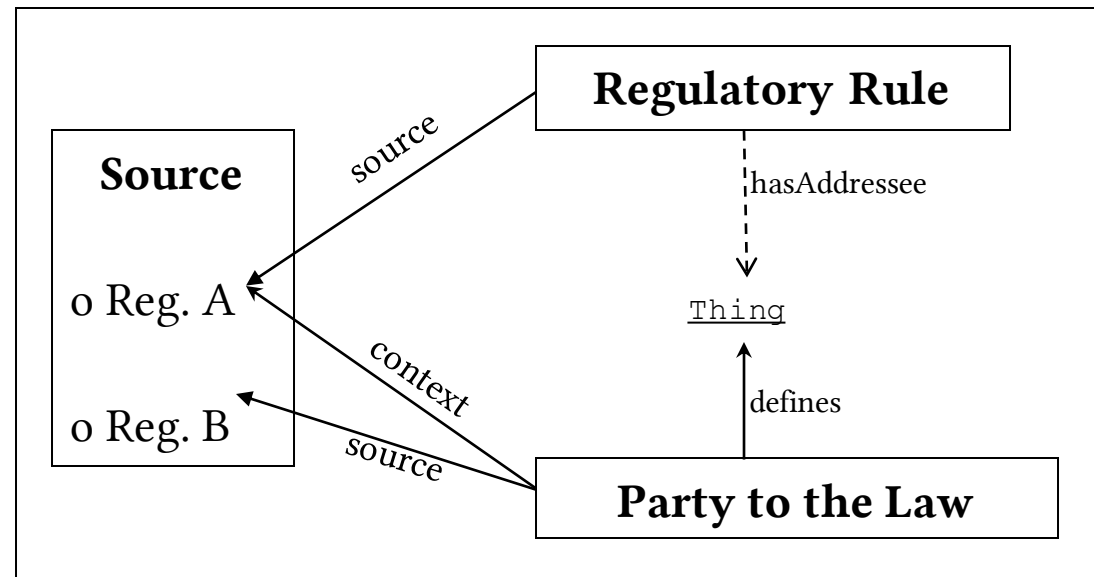
Party to the Law

(context as a legal source)

It is necessary that Person that participates in crime counts as subject to the law in Article 13

(context as an interpreted norm)

It is necessary that Person that participates in crime counts as subject to the law in Obligation L 143



(**token**) counts as (**type**) in (**context**)

Relative Necessities

Some statements are in form of obligation but they really mean necessity

Example:

Rule 1: “whoever appropriates the property of others is going to be punished as a thief”

Rule 2: “the appropriator must have the intention of getting permanent possession of the stolen object”

Rule 2 does not express a regulative rule but rather a constitutive rule defining the appropriation in Rule 1 (can also be rendered as an applicability condition for Rule 1).

Sartor, G. (2006). “Fundamental Legal Concepts: A Formal and Teleological Characterisation”.
In: Artificial Intelligence and Law 21 (2006), pp. 101–42.

(1) if A then B

(2) C must be realised for B to be determined according to (1)

is considered equivalent to the following proposition:

(3) if A and C then B.

Our LCP for Relative Necessities introduces a negation of the opposite of the necessity:

It is prohibited that appropriator steals object

It is impossible that person that has not intention to get permanent possession of object counts as appropriator in Rule1

Commencement Rules

(start date) MIFID II Comes into force on January 10th, 2014

It is necessary that January 10th, 2014 counts as efficacy start in MIFID II

(end date) MIFID I Stops being into force on January 10th 2014

It is necessary that January 10th, 2014 counts as efficacy end in MIFID I

(start and end date) Article 13 is in force from January 1st, 2014 to December 31st, 2014

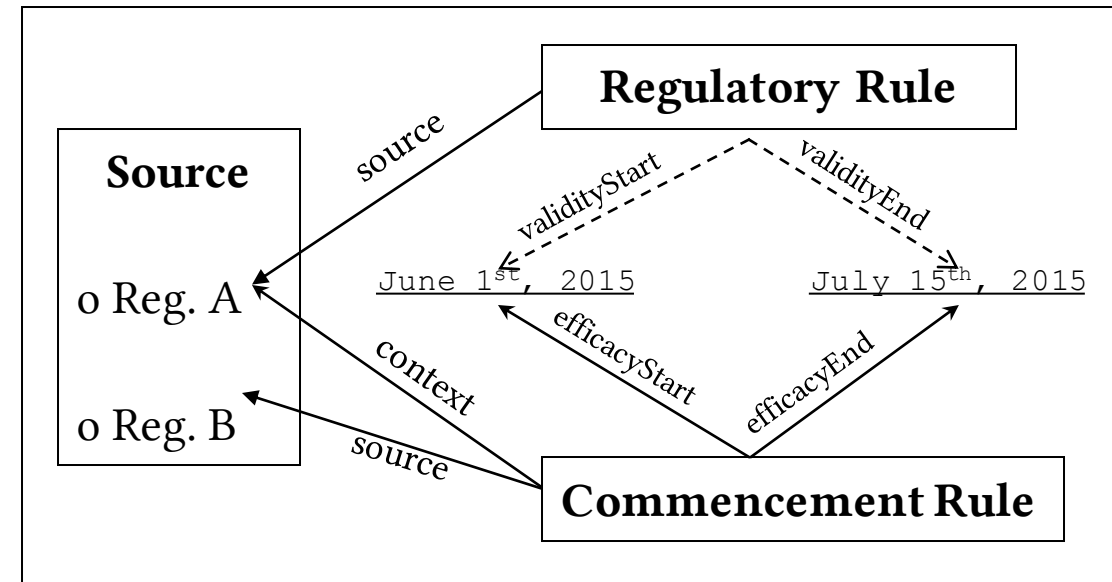
It is necessary that January 1st, 2014 counts as efficacy start in Article 13

It is necessary that December 31st, 2014 counts as efficacy end in Article 13

(end and start date) Article 13 is suspended from June 1st 2014 to June 15th 2014

It is necessary that June 1st, 2014 counts as efficacy end in Article 13

It is necessary that June 14th, 2014 counts as efficacy start in Article 13



(**token**) counts as (**type**) in (**context**)

Amendments

(substitution)

It is necessary that “10” counts as “15” in Article 13 charposition 134-135.

(new text)

It is necessary that “, as specified in Article 13bis” counts as new text in Article 13 charposition 145.

(repeal)

It is necessary that repeal counts as “with the exception of relevant transactions” in Article 13 charposition 180-227.

(token) counts as **(type)** in **(context)**

LegalRuleML

```
<lrml:hasStatements>
  <lrml:Statements key="textblock2">
    <lrml:hasStatement>
      <lrml:ConstitutiveStatement key="ps1">
        <lrml:hasTemplate>
          <ruleml:Rule key="ruleml:key1">
            <lrml:hasStrength>
              <lrml:DefeasibleStrength key="str1" iri="w3:/2001/XMLSchema#defeasible1"/>
            </lrml:hasStrength>
            <ruleml:if>
              <ruleml:Atom key=":atom1">
                </ruleml:Atom>
              </ruleml:if>
              <ruleml:then>
                <ruleml:Atom key=":atom1">
                  </ruleml:Atom>
                </ruleml:then>
              </ruleml:Rule>
            </lrml:hasTemplate>
          </lrml:ConstitutiveStatement>
        </lrml:hasStatement>
      </lrml:Statements>
    </lrml:hasStatements>
```


LegalRuleML

- **Capable of managing context**

```
<lrml:Context key="ruleInfo4" hasCreationDate="#t1">  
  <lrml:appliesSource keyref="#sec504-clsc-pnt2"/>  
  <lrml:appliesTemporalCharacteristics keyref="#tblock1"/>  
  <lrml:appliesStrength iri="/ontology/defeater"/>  
  <lrml:appliesAuthority keyref="#congress"/>  
  <lrml:appliesJurisdiction keyref="#us"/>  
  <lrml:appliesAssociations keyref="#assoc1"/>  
  <lrml:appliesAlternatives keyref="#alt2"/>  
  <lrml:inScope keyref="#rule1"/>  
  <lrml:inScope keyref="#rule4"/>  
</lrml:Context>
```

LegalRuleML

- **For legal definitions it suffices to create the relation "x counts as type" in the head atom**
- **Party To the Law and Relative Necessity**
- "Bearer" role in the head of the constitutive rule, referring to the bearer in the corresponding obligation(s)

```
<lrml:Bearer iri="ex:oblBearer"/>
```

but metarules not supported in current LegalRuleML (will be in v2)

- Alternative methods e.g. association

```
<lrml:Association>
```

```
  <lrml:appliesAuthority keyref="#house"/>
```

```
  <lrml:appliesJurisdiction keyref="#us"/>
```

```
  <lrml:toTarget keyref="#atom_1b"/>
```

```
</lrml:Association>
```

LegalRuleML

- **Commencement Rule:** metarule, still representable as rule metadata with `<lrml:appliesTemporalCharacteristics>` within `<lrml:context>`

```
<lrml:TemporalCharacteristics key="tblock1">
  <lrml:TemporalCharacteristic key="nev1">
    <lrml:forStatus iri="http://docs.oasisopen.org/legalruleml/ns/v1.0/vocab#Efficacious"/>
    <lrml:hasStatusDevelopment iri="http://docs.oasisopen.org/legalruleml/ns/v1.0/vocab#Starts"/>
    <lrml:atTime keyref="#t1"/>
  </lrml:TemporalCharacteristic>
  <lrml:TemporalCharacteristic key="nev2">
    <lrml:forStatus iri="http://docs.oasisopen.org/legalruleml/ns/v1.0/vocab#InForce"/>
    <lrml:hasStatusDevelopment iri="http://docs.oasisopen.org/legalruleml/ns/v1.0/vocab#Starts"/>
    <lrml:atTime keyref="#t2"/>
  </lrml:TemporalCharacteristic>
</lrml:TemporalCharacteristics>
```

LegalRuleML

- **Amendment:** representable in LegalDocML

```
<activeModifications xmlns="http://docs.oasis-open.org/legaldocml/ns/akn/3.0/CSD13">
  <textualMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type="" wId="">{1,1}</textualMod>
  <meaningMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type="" wId="">{1,1}</meaningMod>
  <scopeMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type="" wId="">{1,1}</scopeMod>
  <forceMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type="" wId="">{1,1}</forceMod>
  <efficacyMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type=""
wId="">{1,1}</efficacyMod>
  <legalSystemMod eId="" exclusion="" GUID="" incomplete="" period="" refersTo="" status="" type=""
wId="">{1,1}</legalSystemMod>
</activeModifications>
```

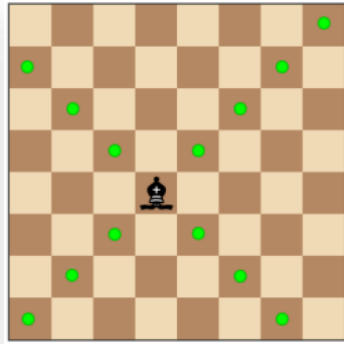
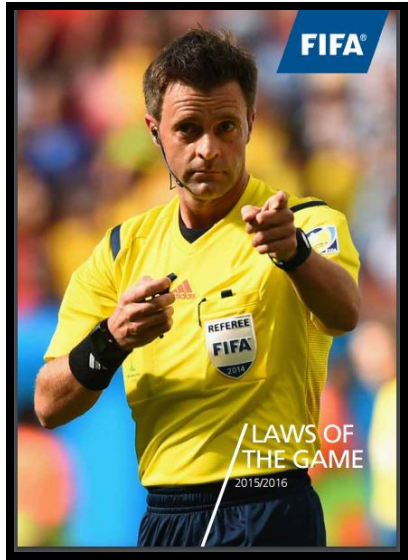
Conclusions

- Legal Theory identifies subcategories of constitutive rules
- For the purpose of interpreting regulatory text, we defined a set of “legal concept patterns” for Constitutive Rules:
 - Legal definitions
 - Party-to-the-law statements
 - Relative necessities
 - Commencement rules
 - Amendments
- A representation that ignores hohfeldian powers.

Future work

- Represent these rules in machine readable format (e.g. LegalRuleML)
- develop these patterns in Mercury-ML and in the SmaRT Tool.
- More patterns?

Thank you!



Questions?

