Expressing legal norms with Ampersand

Supplement with scenarios for demonstration purposes

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Title:	Expressing legal norms with Ampersand
Version:	1.0
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1 Introduction

This document serves as a supplement to the research thesis with the title ‘Expressing legal norms with Ampersand’. This supplement contains various scenarios’ to demonstrate the working of the implementation with Ampersand language:

- Scenario example of privilege-noright legal concept;
- Scenario example of right-duty legal concepts;
- Scenario example of power-liability legal concepts;
- Scenario example of preconditions concept;
- Scenario example of exception (based on activity) concept.

The implementation works in an environment with Apache webserver, MySQL database and the PHP module. The procedure for installation is available at http://wiki.tarski.nl/index.php/Installation_Guide.

The implementation consists of the following files:

- Main.adl
- NormativeSystem_Relations_V04.adl
- NormativeSystem_Rules_V04.adl
- IFC-RequirementsEngineer.ifc
- HIPAAPrivacyRule.pop

The file ‘Main.adl’ has only references to the other files. The file ‘NormativeSystem_Relations_V04.adl contains the definition of the concepts and relations, the file ‘NormativeSystem_Rules_V04.adl’ contains the definition of the rules. The ‘*..ifc’ file contains the definition for the graphical user interface. The file ‘HIPAAPrivacyRule.pop’ contains the population of the concepts and relations.

2 The Privilege-NoRight implied legal concepts

The purpose of this scenario is to demonstrate the implementation of the privilege-noright legal concepts.

<table>
<tr><td>Scenario 1</td><td>The individual prohibits the use of his private health information</td></tr>
<tr><td>Actions</td><td>NoRight: Prohibit the use of private health information</td></tr>
<tr><td>Stake-holders</td><td>Individual: Fred</td></tr>
<tr><td></td><td>
<table>
<tr><td></td></tr>
<tr><td>-Select the list ‘Main’. Result: The list of actions appears.</td></tr>
<tr><td>-Select the option: ‘Create new script’
Reset database
Create

Create new Action (Overview of scripts)
Create new Action (Overview of initiating actors)
Create new Action (Overview of initiating stakeholders)
Create new Action (Overview of counterparty stakeholders)
Create new Action (Overview of counterparty actors)
Create new Stakeholder (Overview of actors with this role)
Create new Stakeholder (Overview of specializations of this actor)
Create new LegalSource (Overview properties of this legal source)
Create new LegalSource (Overview properties of this legal source (all legal sources))
Create new Actor (Overview of scripts where this covered entity is an actor)
Create new Actor (Overview of scripts where this covered entity is a counterparty)
Create new Script (Overview of actions in this scripts)

-Result: the following screen appears:
Overview of actions in this scripts
Actor <empty> Counterparty <empty> Action <empty></td></tr>
<tr><td>-Fill in the following and press ‘Save’.
Save Cancel
Overview of actions in this scripts
Actor Fred Counterparty Fred’s Hospital Action Prohibit the use of private health information
The consequence of this action is the creation of a new script between the actors ‘Fred’ and ‘Fred’s hospital’, with one action: ‘Prohibit the use of private health information’.</td></tr>
</table>
</td></tr>
</table>

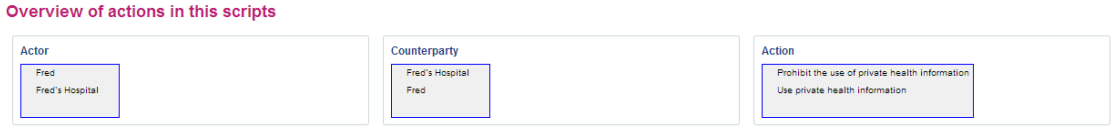
Scenario 2	The covered entity ‘Fred’s hospital’ makes use of the private health information of the individual ‘Fred’.
Actions	Privilege: use of private health information
Stake-holders	Covered Entity: Fred’s Hospital

-Select ‘Fred’ and the option ‘Overview of scripts where this covered entity is a counterparty’ from the dropdown list.

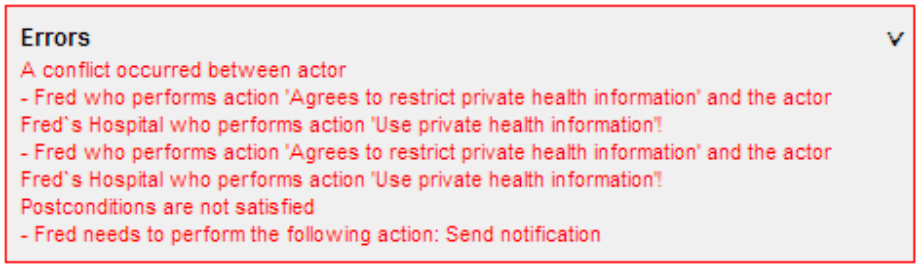
-Select the only script shown.

Result: an overview of actions and actors for this script is shown.

-Press ‘Edit’ and fill the following and press ‘Save’:



-Result: Two violations appear below on the left side of the screen.



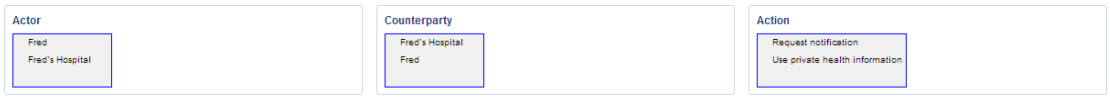
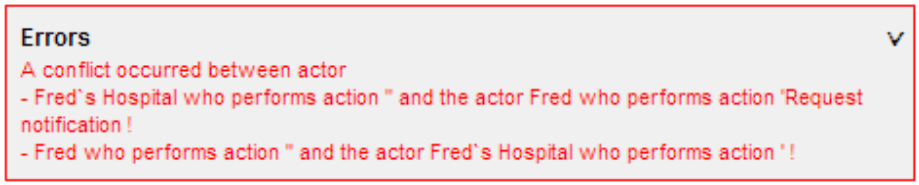
The first violation is a conflict between the actors ‘Fred’ and ‘Fred’s Hospital’. The same message appears twice, because technically both actors have violated the same rule and therefore the message appears twice. The violation can be resolved if one of the actors stops with his action.

The second violation is a post-condition resulting from the action ‘Use of private health information’. This violation can be resolved by following the scenario ‘Send notification’

3 The Right-Duty implied legal concepts

The use cases ‘Use of private health information’ and ‘Send notification’ relate to each other because performing the first action leads to a post conditional action ‘Send notification’, which has the legal concept of Duty.
As long this is action is not performed, the individual has a right, in this case the right to request a notification.

<table>
<tr><td>Scenario</td><td>The individual prohibits the use of his private health information</td></tr>
<tr><td>Actions</td><td>NoRight: Prohibit the use of private health information</td></tr>
<tr><td>Stake-holders</td><td>Individual: Fred</td></tr>
<tr><td></td><td>
-Select the list ‘Main’. Result: The list of actions appears.
-Select the option: ‘Create new script’
• Reset database
Create
• Create new Action (Overview of scripts)
• Create new Action (Overview of initiating actors)
• Create new Action (Overview of initiating stakeholders)
• Create new Action (Overview of counterparty stakeholders)
• Create new Action (Overview of counterparty actors)
• Create new Stakeholder (Overview of actors with this role)
• Create new Stakeholder (Overview of specializations of this actor)
• Create new LegalSource (Overview properties of this legal source)
• Create new LegalSource (Overview properties of this legal source (all legal sources))
• Create new Actor (Overview of scripts where this covered entity is an actor)
• Create new Actor (Overview of scripts where this covered entity is a counterparty)
• Create new Script (Overview of actions in this scripts)
-Result: the following screen appears:
Overview of actions in this scripts
Actor <empty> | Counterparty <empty> | Action <empty>
-Press ‘Edit’ and add the action ‘Request notification’ to the list of actions and press ‘Save’:
Overview of actions in this scripts
Actor Fred | Counterparty Fred's Hospital | Action Request notification
-Result: No violation occurs. This action is a legitimate action.
</td></tr>
</table>

	-Press ‘Edit’ and add the action ‘Use private health information’ to the list of actions and press ‘Save’: Overview of actions in this scripts  	
	-Result: Another violation appears:  This has to do with the fact that the covered entity ‘Fred’s hospital’ has performed the duty ‘Send notification’ and therefore the actor ‘Fred’ must withdraw the action in the previous section.	

4 The Power-Liability legal concepts

Scenario 1	The individual agrees to restriction of the use of his private health information
Actions	NoRight: Agree to restriction of the use of private health information
Stake-holders	Individual: Fred

-Select the list ‘Main’. Result: The list of actions appears.

-Select the option: ‘Create new script’

- Reset database

Create

- Create new Action (Overview of scripts)
- Create new Action (Overview of initiating actors)
- Create new Action (Overview of initiating stakeholders)
- Create new Action (Overview of counterparty stakeholders)
- Create new Action (Overview of counterparty actors)
- Create new Stakeholder (Overview of actors with this role)
- Create new Stakeholder (Overview of specializations of this actor)
- Create new LegalSource (Overview properties of this legal source)
- Create new LegalSource (Overview properties of this legal source (all legal sources))
- Create new Actor (Overview of scripts where this covered entity is an actor)
- Create new Actor (Overview of scripts where this covered entity is a counterparty)
- Create new Script (Overview of actions in this scripts)

-Result: the following screen appears:

Overview of actions in this scripts

Actor	Counterparty	Action
<empty>	<empty>	<empty>

-Fill in the following and press ‘Save’.

Overview of actions in this scripts

Actor	Counterparty	Action
Fred	Fred's Hospital	Agrees to restrict private health information

The consequence of this action is the creation of a new script between the actors ‘Fred’ and ‘Fred’s hospital’, with one action: ‘Agrees to restrict private health information’.

5 Preconditions of actions

The use cases ‘Use of private health information’ and ‘Send notification’ relate to each other because performing the first action has the consequence that the second action must also be performed. As long as this is not the case the violation ‘Post conditions are not satisfied…’ holds.

Scenario	The covered entity ‘Fred’s hospital’ sends a notification to the individual ‘Fred’.
Actions	Right : Send notification
Stake-holders	Covered Entity: Fred’s Hospital

-Select the list ‘Main’. Result: The list of actions appears.

-Select the option: ‘Create new script’

- Reset database

Create

- Create new Action (Overview of scripts)
- Create new Action (Overview of initiating actors)
- Create new Action (Overview of initiating stakeholders)
- Create new Action (Overview of counterparty stakeholders)
- Create new Action (Overview of counterparty actors)
- Create new Stakeholder (Overview of actors with this role)
- Create new Stakeholder (Overview of specializations of this actor)
- Create new LegalSource (Overview properties of this legal source)
- Create new LegalSource (Overview properties of this legal source (all legal sources))
- Create new Actor (Overview of scripts where this covered entity is an actor)
- Create new Actor (Overview of scripts where this covered entity is a counterparty)
- Create new Script (Overview of actions in this scripts)

-Result: the following screen appears:

Overview of actions in this scripts

Actor	Counterparty	Action
<empty>	<empty>	<empty>

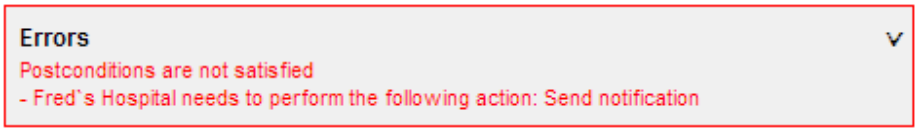
-Fill in the following and press ‘Save’.

Overview of actions in this scripts

Actor	Counterparty	Action
Fred's Hospital	Fred	Use private health information

The consequence of this action is the creation of a new script between the actors ‘Fred’ and ‘Fred’s hospital’, with one action: ‘Use private health information’.

-Result: Another violation appears:



This has to do with the fact that the covered entity ‘Fred’s hospital’ has performed the action ‘Use private health information’ and therefore must send a notification as the law prescribes.

6 Exception based on previously performed actions

Scenario 1	The individual enrolls in a group health plan
Actions	This action has no modality that relates to one of the Hohfeldian legal concepts: 'Receive health benefits'.
Stake-holders	Individual: Bernard
	-Select the list 'Main'. Result: The list of actions appears.
	-Select the option: 'Create new script' • Reset database **Create** • Create new Action (Overview of scripts) • Create new Action (Overview of initiating actors) • Create new Action (Overview of initiating stakeholders) • Create new Action (Overview of counterparty stakeholders) • Create new Action (Overview of counterparty actors) • Create new Stakeholder (Overview of actors with this role) • Create new Stakeholder (Overview of specializations of this actor) • Create new LegalSource (Overview properties of this legal source) • Create new LegalSource (Overview properties of this legal source (all legal sources)) • Create new Actor (Overview of scripts where this covered entity is an actor) • Create new Actor (Overview of scripts where this covered entity is a counterparty) • Create new Script (Overview of actions in this scripts)
	-Fill in the following and press 'Save'. Actor: Bernard Prince Counterparty: Bernard's Group Health Plan Action: Receive health benefits The consequence of this action is the creation of a new script between the actors 'Bernard' and 'Bernard's Group Health Plan', with one action: 'Receive health benefits'.

Scenario 2	The covered entity ‘Bernard’s Group Health Plan’ makes use of the private health information of the individual ‘Bernard’.
Actions	Privilege: use of private health information
Stake-holders	Covered Entity: ‘Bernard’s Group Health Plan’

-Select ‘Bernard’s Group Health Plan ‘and the option ‘Overview of scripts where this covered entity is counterparty from the dropdown list.

-Select the only script shown.

Result: an overview of actions and actors for this script appears.

-Press ‘Edit’ and fill the following and press ‘Save’:

-Result: No violation occurs! This is different than the situation in shown in the section ‘the privilege-noright legal concepts’. The reason for this is the HIPAA Privacy Rule states that the duty to perform the action ‘send notification’ does not apply to the case that the individual receives health benefits from a group health plan. This comes from the following fragment of the HIPAA Privacy Rule:

§ 164.520 Notice of privacy practices for protected health information.

(a) *Standard: notice of privacy practices.*

(1) *Right to notice.* Except as provided by paragraph (a)(2) or (3) of this section, an individual has a right to adequate notice of the uses and disclosures of protected health information that may be made by the covered entity, and of the individual's rights and the covered entity's legal duties with respect to protected health information.

(2) *Exception for group health plans.*

(i) An individual enrolled in a group health plan has a right to notice:

(A) From the group health plan, if, and to the extent that, such an individual does not receive health benefits under the group health plan through an insurance contract with a health insurance issuer or HMO; or