ant1b, 10/09/2015

Short legends of demonstration schema   
illustrating the semantic description of   
an example patch clamp setup and classical devices.

Produced using Graphviz 2.38

Setup\_hasParts.png

Uses Relation Ontology object property “has\_part” to relate each class from a series of OEN classes standing for **classical devices expected on a standard patch clamp rig**, to the OEN class “patch clamp setup”.

Amplifier\_hasParts.png

Uses custom “is\_a” and “has\_property” object properties suggested by preliminary DeviceModel.jpg to describe the OEN class “amplifier” with its **relations to odML-issued classes** standing for generic or amplifier-specific device (note: “hardware” in odML) properties.

Setup\_hasParts\_02.png

Uses Relation Ontology object property “connected to” to relate OEN classes pertaining to the patch clamp rig with each other along the expected path of **electrical signal conduction** required to perform an electrophysiological recording.

PatchElectrode\_hasParts.png

Uses Relation Ontology object properties “has\_part”, “has\_property” and “connected to” to describe potential OEN class “patch electrode” with device properties put forward in Model\_patch\_setup.jpg, including measurement unit labels, as well as early stages of electrical signal conduction through devices pertaining to a standard patch clamp rig.

Amplifier\_hasProperty\_01.png

Uses Relation Ontology “has\_specified\_value” and custom minted “has\_specified\_range” object properties to provide numerical values and measuring unit labels attached to potential OEN classes standing for amplifier properties, as can be **retrieved from the specifications section of the Axoclamp 2B amplifier manual from Axon Instruments.**

Microscope\_hasProperty.png

Uses Relation Ontology “has\_part”, “connected to” and “has\_specified\_value” object properties to describe the OEN class “microscope” with its relations to potential OEN classes, their attached numerical values and measuring unit labels, as can be **retrieved from the specifications section of the BX51 BX2 series system microscope manual from Olympus.**

PatchPipette.png

Uses object properties issued from OBO Relation Ontology, Ontology for Biomedical Investigation, and Phenotypic Quality Ontology:

“is\_a”  
“has part”  
“has\_specified\_value”  
“has\_cross\_section”  
“has\_quality”  
“derives into”  
“has supplier”  
“composed primarily of”  
“has category label”  
“contains”  
“has measurement unit label”

To describe OEN class “patch pipette” with suggested potential OEN classes illustrated with their attached numerical values and measurement unit labels for the instantiated **case of glass capillary with reference 300060 from Warner Instruments**.