Viewing, Discussing & Contributing NEMO Ontologies:

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TASK #1: VIEW? Browse NEMO.owl through NCBO's BioPortal

You can view the NEMO ontology (current version 0.9) in a web browser through NCBO's BioPortal:

http://bioportal.bioontology.org/visualize/40522

Figure 1. BioPortal home page

Note that you don't need to set up an account on NCBO or sign in to view (or even download) the ontology. At this stage, we recommend to view the ontology through BioPortal, rather than downloading the raw .owl/rdf files. However, if you wish to view the raw .owl/rdf files, you can do so in any text/xml editor, such as BBEdit.
Figure 2. Browse NEMO.owl through BioPortal. BioPortal provides several ways to browse and visualize the ontology contents (class structure, annotations, etc.). Highlight any concept (LEFT panel) and click on Details (RIGHT panel) to view concept annotations (Fig. 3).

Figure 3. Example concept in NEMO_spatial, shown in BioPortal "Details." Click on Visualization > Full Version to view in graphic mode using "FlexoViz" (Fig. 4):
Figure 4. Example concept in NEMO_spatial, shown in BioPortal "Visualization."

Task #2: Discuss? Start a discussion thread via NEMO mailing list

You may think of some issues that you’d like to discuss before requesting a change to the ontology (see Task #3: Contribute for how to request changes). You can start a discussion thread by sending an email to the NEMO consortium at the following address:

nemoontologies-consortium@lists.sourceforge.net

An example is given below (accessed through the sourceforge mail archives for NEMOontologies):
After discussing this issue as a group, we would reach a resolution, document our decision & reasoning, and then enter a Request for Change to NEMO ontologies (Task #3, below).

**TASK #3: CONTRIBUTE? Enter Requests for changes to NEMO via Sourceforge Tracker**

As you become more familiar with NEMO, you will notice errors and gaps in the ontology that need to be addressed. Indeed, addressing these issues is one of our main ontology development tasks for Year 1 of NEMO.
If you have a question or concern, but are uncertain how it should be addressed, please post to the discussion list (see Task #2: DISCUSS). If you detect what you believe to be a clear error or gap in the ontology, the next step is to request a change to the ontology to address the problem.

To request a change to the ontology, first log in to NEMOontologies sourceforge (see Jason Sydes to set up an account):

https://sourceforge.net/tracker/?group_id=263320&atid=1168891

In the sourceforge Tracker, click on Add New (Tracker item or "artifact"), as shown in Fig. 6:

Figure 6. Adding a new change request in NEMOontologies sourceforge Tracker

There are currently six "Categories" of Ontology change requests: Add annotation, Add term, Move term, Remove term, Restrict term, Revise Annotation. The ones you are likely to use most are Add Term, Move Term, and Revise Annotation. Examples of these three task categories are given below.

1. Example: Revise Annotation
Most of our time is going to be spent adding and (even more often) revising term annotations, particularly class Definitions. In NEMO Teleconference #3, Paea illustrated one example (event_offset_latency/ID=NEMO_temporal:NEMO_0000375):

![Image of NEMO ontology editing interface](image_url)

Figure 7. Example of a current concept that needs a new/revised annotation

Note that this concept is lacking a definition. To address this, Paea showed how we could add a new Tracker item:

- **Category**: Add annotation
- **Summary**: Add annotation for `event_offset_latency` (NEMO_temporal:NEMO_0000375)
- **Group**: NEMO_temporal (if you know this...)
- **Description**: Add definition for `event_offset_latency` (NEMO_temporal: NEMO_0000375):

  `event_offset_latency` is the time (instant) when an event terminates. For example, when a visual stimulus disappears, the instant it terminates would be its `event_offset_latency`, as measured from the baseline latency, where the stimulus is the event in question.

**Important** See NEMO-PropertyAnnotations-09012009-gf-v9.pdf for a full list of NEMO annotation properties, along with their definitions and range restrictions.
2. Example: Add Term

NEMO ontologies are far from complete. For example, there are lots of data analysis techniques, parameters for those techniques, and types of output data (measures, statistics) that will be important to capture in the ontology. Figure 8 shows a part of the ontology that is currently underpopulated:

![Figure 8. Example of a current part of the ontology that needs new terms added](image)

For example:

<table>
<thead>
<tr>
<th>Category</th>
<th>Add Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>Add Term to NEMO_data (centroid)</td>
</tr>
<tr>
<td>Group</td>
<td>NEMO_data</td>
</tr>
<tr>
<td>Description</td>
<td>Add new term (centroid)</td>
</tr>
</tbody>
</table>

If you propose to add a new term (concept), please also provide the following required annotations to go with this term, i.e.:

- label (aka preferredLabel)
- curator (your name)
- hasNamespace (if you know it)
- definition
- synonyms (if you can think of any)

Please also indicate the superclass for the new term (i.e., where to put it) -- if you know it. If you're unsure, please don't let this hold you back from contributing. We can systematically address gaps as we go.
3. Example: Move Term

NEMO ontologies are also far from vetted. In fact, we (NEMO Ontology Task Force) have cleverly worked some errors into the current version (by design, of course!). One example is documented in the Sourceforge mail archive (see Fig. 5 above). Let's say we agree that the term (scalp_surface) is in the wrong place in the ontology. Then we could add the following change request to the Sourceforge Tracker:

Category
    Move Term

Summary
    Move Term (scalp_surface/ID=NEMO_spatial:NEMO_0000286)

Group
    NEMO_Spatial

Description
    The class scalp_surface (NEMO_spatial:NEMO_0000286) should be moved. The present superclass is object. The new superclass should be object_boundary. See NEMOontologies sourceforge archives for discussion.