# Connecting Brain Imaging Terms to Established Lexicons: a Precursor for Data Sharing and Querying

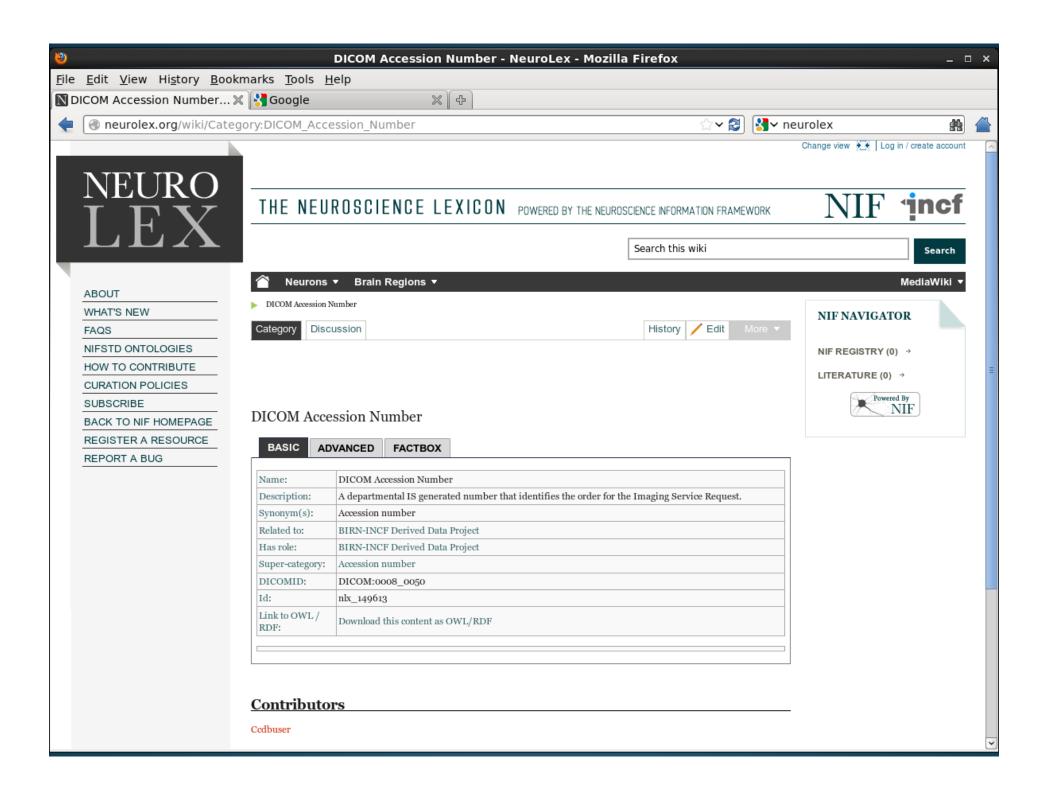






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#### **Subcategories**

• Anatomic Region Sequence

• Anatomic Structure Space or

Anatomic Structure

Region Sequence

This category has the following 1,000 subcategories, out of 1,747 total.

<u>A</u>	D cont.	I cont.
Accessory Code Acquisition Contrast Acquisition Date Acquisition Date Acquisition Datetime Acquisition Device Type Code Sequence Acquisition Duration Acquisition Matrix Acquisition Number Acquisition Start Condition Acquisition Start Condition Data Acquisition Termination Condition Acquisition Termination Condition Data Acquisition Time Acquisition Time Acquisition Time Acquisition Time Acquisitions in Series Acquisitions in Series Acquisitions in Study Active Source Diameter Active Source Length Administration Route Code Sequence Admission ID Admitting Date	Detector Active Shape Detector Active Time Detector Binning Detector Conditions Nominal Flag Detector Configuration Detector Description Detector Element Physical Size Detector Element Size Detector Element Spacing Detector ID Detector Information Sequence Detector Lines of Response Used Detector Manufacturer Name Detector Manufacturers Model Name Detector Mode Detector Primary Angle Detector Secondary Angle Detector Temperature Detector Temperature Detector Device Serial Number Diaphragm Position Diffusion Anisotropy Type	Intervention Drug Name Intervention Drug Start Time Intervention Drug Stop Time Intervention Sequence Intervention Status Intra Ocular Pressure Inversion Recovery Inversion Time Inversion Time Inversion Times Isocenter Position Isotope Number Issue Date of Imaging Service Request Issue Time of Imaging Service Request Issue Time of Patient ID Issuer of Patient ID Item Delimitation Item see note 1 Item Number Item see note 1 K-space Filtering KVP  L
Admitting Date Admitting Diagnoses Code Sequence Admitting Diagnoses Description Admitting Time Air Kerma Rate Reference Date Air Kerma Rate Reference Time Allow Lossy Compression Allow Media Splitting Alternate Representation Sequence Anatomic Region Modifier Sequence	<ul> <li>Diffusion Directionality</li> <li>Diffusion Gradient Direction Sequence</li> <li>Diffusion Gradient Orientation</li> </ul>	LUT Data LUT Descriptor LUT Explanation LUT Label Label Style Selection Label Text Label Using Information Extracted From Instances Largest Image Pixel Value in Plane Largest Monochrome Pixel Value

Dimension Index Values

· Dimension Organization

· Dimension Organization UID

Sequence

• Largest Pixel Value in Series

• Largest Valid Pixel Value

• Last Menstrual Date

• Laterality

# Derived Data Workgroup

- Goal: To promote data sharing by removing barriers related to derived data.
- Composition: Members of the International Neuroinformatics
   Coordinating Facility (INCF), the Biomedical Informatics Research Network (BIRN) and other interested individuals





# Derived Data Workgroup

- Areas of Interest:
  - adding data-sharing relevant terms to existing lexicons and ontologies
  - constructing data models that can be used to organize and structure data
  - construct tools that can be used with common neuroimaging packages to record detailed data provenance information





# Lexicon Augmentation Project

 Goal: To place defined terms related to neuroimaging data and tools in a formal lexical context using the Neurolex and Radlex lexicons.

 Use previously agreed upon definitions where possible; group consensus on definitions where not.





#### **Terms**

- Standard DICOM terms (public and private fields)
- Terms used in the XCEDE data model
- Select set of terms used in Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC)
- Terms used in the Function BIRN's Human Imaging Database (HID)





### Connections

- Terms placed into Neurolex will be used by the data provenance project.
- Provenance code will have the ability to call the needed term's page and thus will have access to the definition.
- DICOM tags will also be available.





### Future Work

- Determine the information content of DICOM private fields used by each of the major 3 MRI scanner vendors (Siemens, Philips, GE).
- Name these fields and work with vendors to provide definitions for each term.
   Monitor private fields on an ongoing basis.



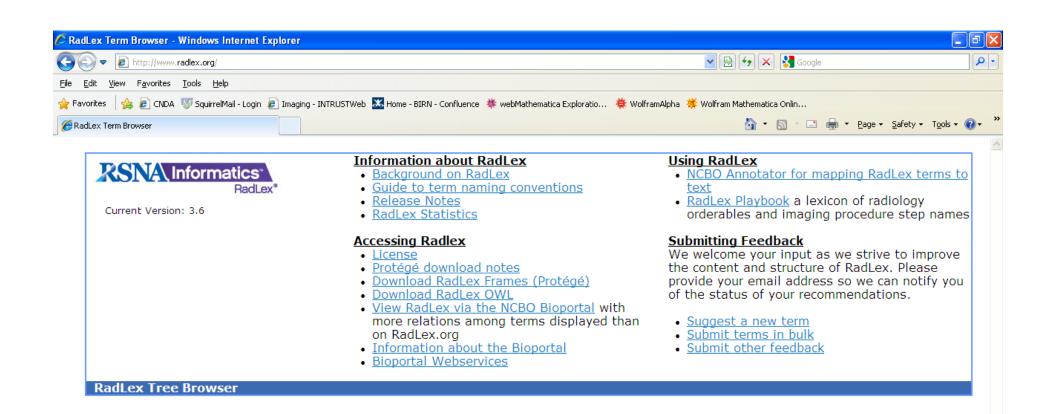


## **Future Work**

- Work with the Neurolex and Radlex teams to place the defined DICOM into lexical context.
- Continue to monitor the development of the XCEDE data model, the provenance library, NITRC and the HID for new terms.







#### RadLex Tree Browser Q Begin typing to seach $\blacksquare$ Object Procedure 1 Report component $\blacksquare$ Anatomical entity Radlex descriptor $\blacksquare$ Imaging observation Imaging protocol Radlex non-anatomical set $\pm$ Non-anatomical substance Clinical finding Imaging modality $\blacksquare$ Property