Database analysis – supplementary materials

An exploratory statistical analysis was conducted on the database, in order to explore and ensure the availability of the data and the required fields for the subsequent connectivity analyses. This analysis allowed to isolate a few issues that are now or will be fixed, and also to identify the number of patients available for analysis.
The following figures were generated on the INCF XNAT database without access to GOSE, because the neurobot interface does not yet include all the required fields (such as the project.id, so we cannot know which center acquired the subjects). These figures are thus optimistic and show more subjects than will be used for rs-fMRI analysis (ie, no filtering by GOSE).
The following describe our observations:

- Discrepancies were observed in the project id (center names) between the acquisition database and the neuroimagery database. For example, CHU of Liège is BE-LI2 in the acquisition database, but it is LIE in the neuroimagery database. Also, project id is not yet available in the neurobot interface, discussions are undergoing to construct anonymized project ids.
- "rs_fMRI" type is not standardized for all scans, we found other scans types referencing resting-state fmri (not exhaustive, see Figure 2 for top 30): ['rs fMRI FE EPI', 'rs fMRI FE_EPI', 'rs fMRI FE_EPI SENSE', 'rs-fMRI', 'rs_fMRI', 'rsfMRI', 'rsfMRI 60CM', 'Resting State fMRI', ' rsfMRI', 'RESTING STATE']

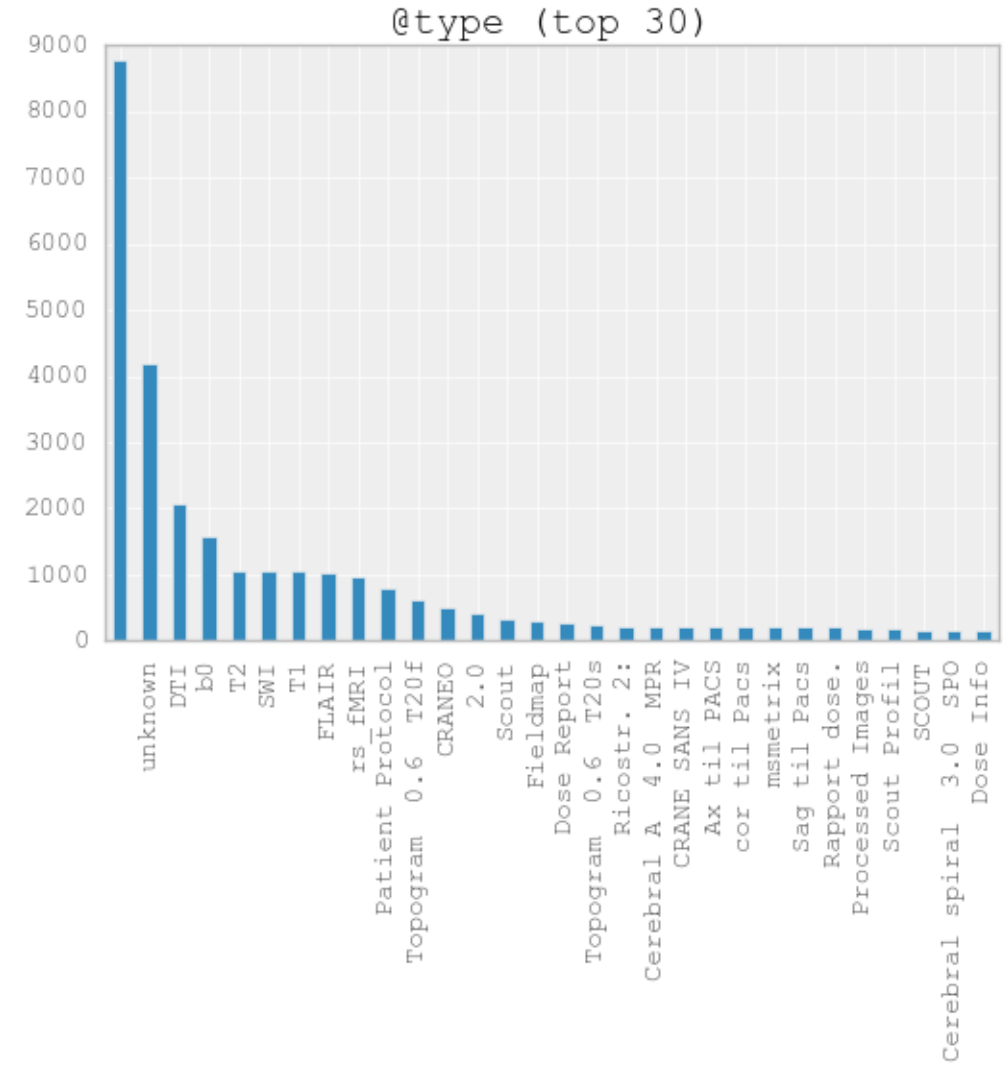

Figure 1: Repartition of the scan types, for the top 30 most frequent types

Figure 2 : Datatype repartition of acquired scans per center.

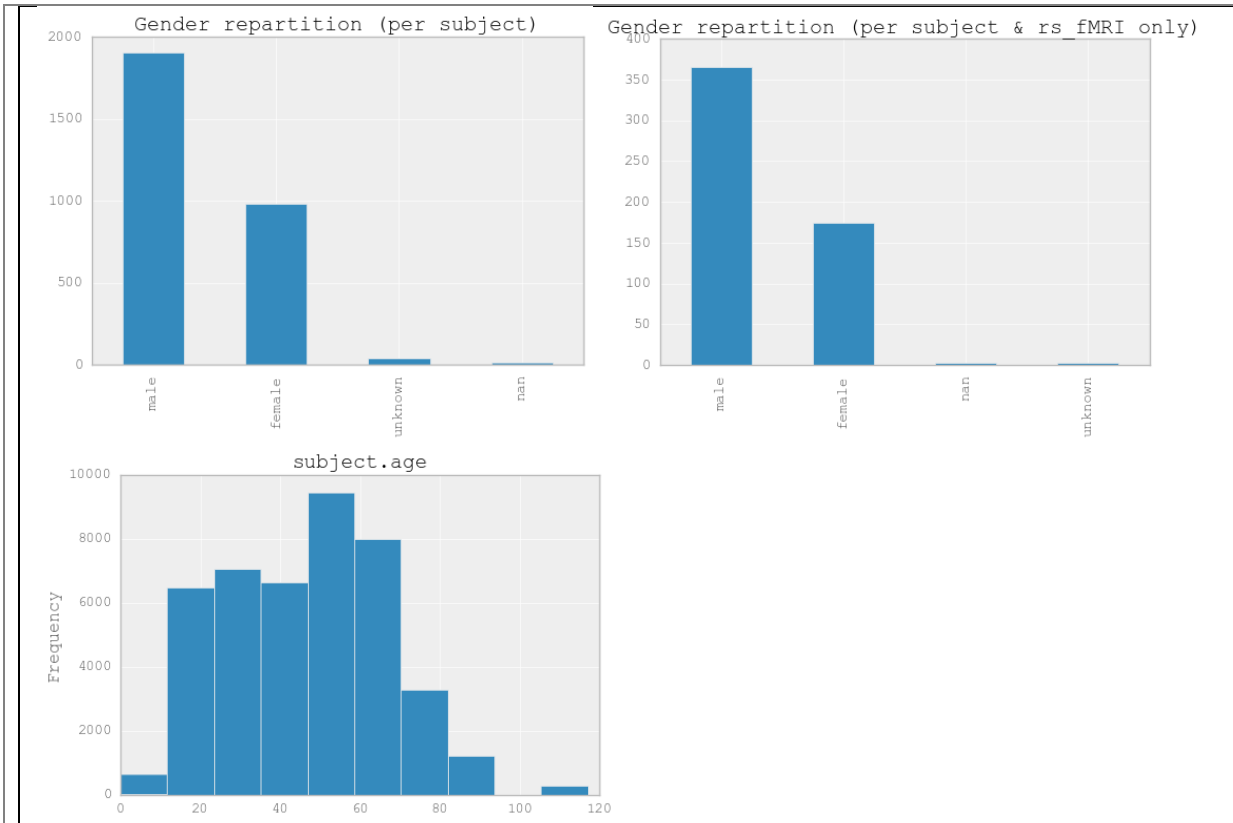

Figure 3 : Summary of subjects demographics. Gender repartition for all scans (upper left) or for only resting-state fMRI scans (upper right). The age repartition (bottom left) is centered around 50 with most subjects of age 50 to 70, and some outliers (bugs?) can be seen having more than 100 years.

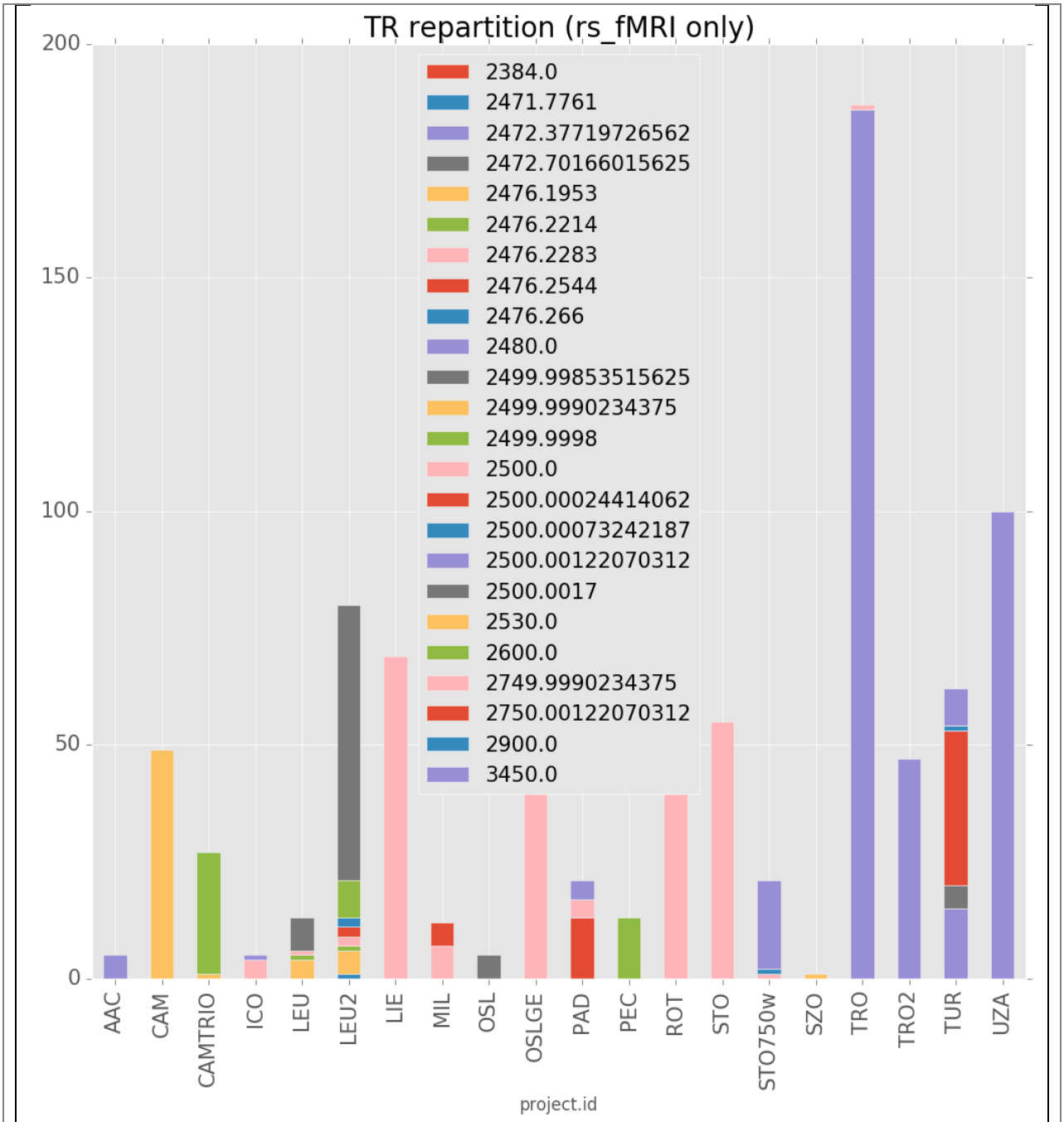

Figure 4 : TR repartition across centers

This figures show the diverse configurations of the scanners between the centers. The values with floating points are not an error but the exact acquisition timing calculated by the machine, this "precise timing" option seems to be available only on scanner Philips Healthcare Ingenia (37 fMRI scans).

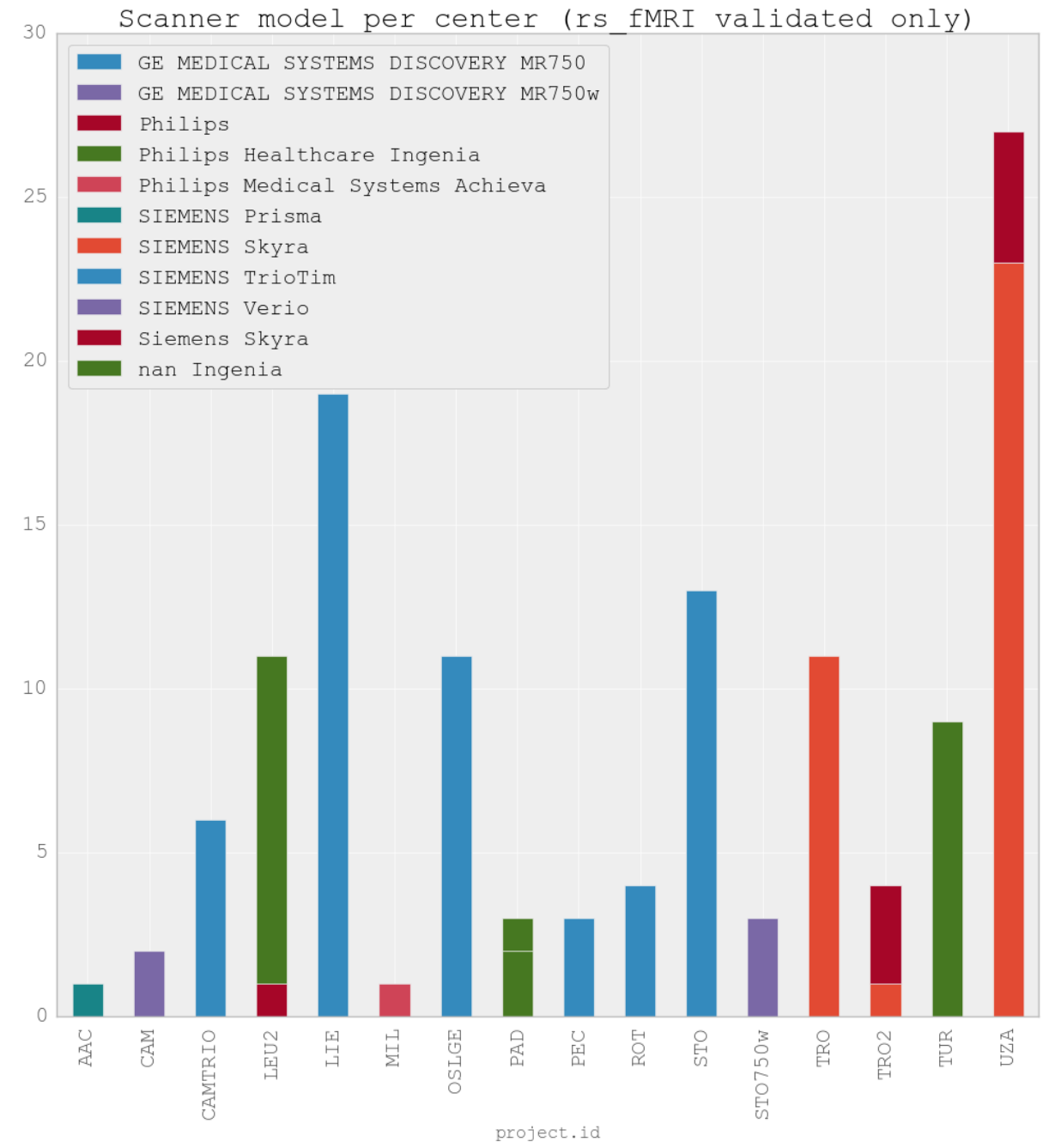

Figure 5: Scanner model per center (for resting-state fmri only)

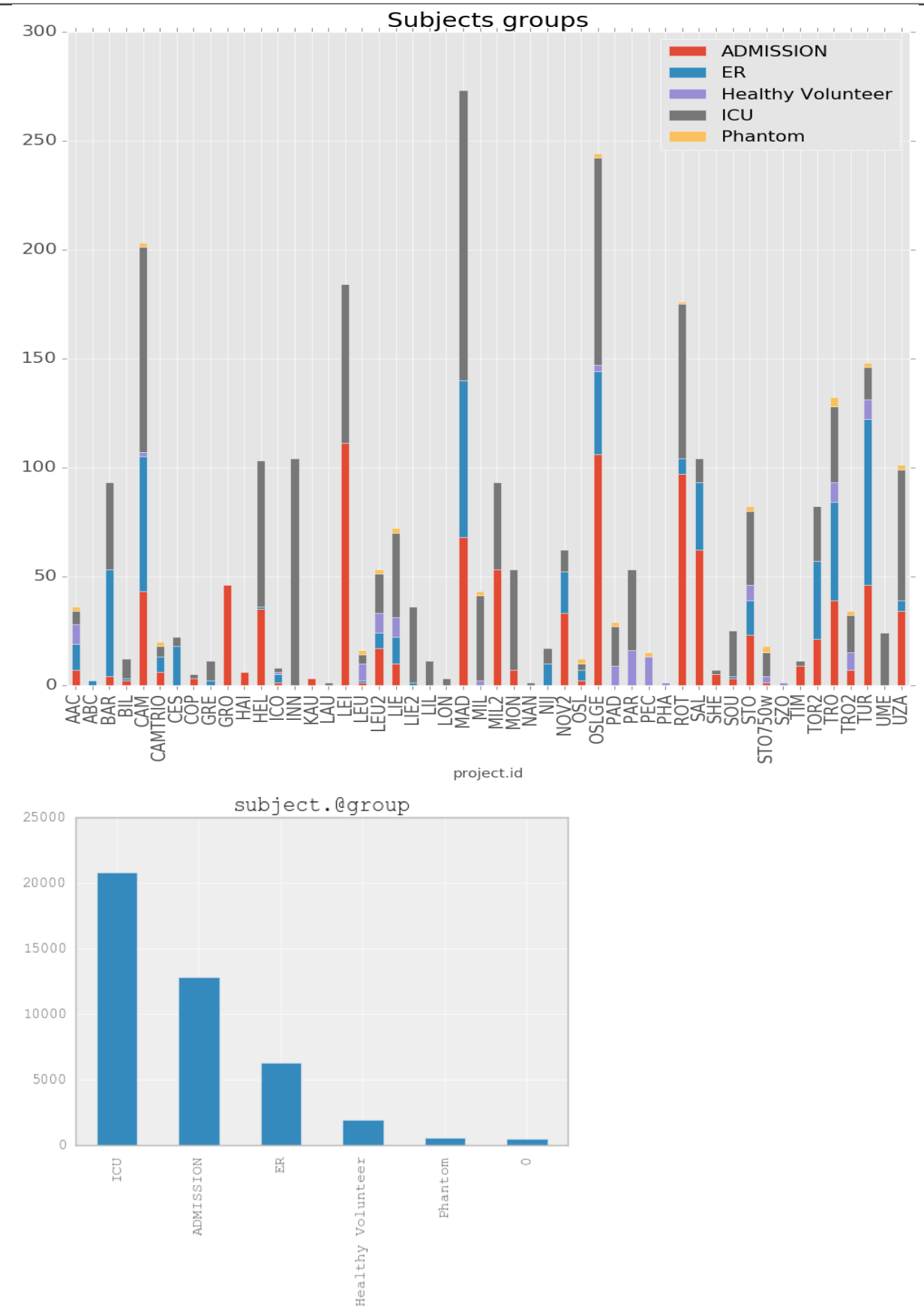

Figure 6: Repartition of the number of subjects acquired per center and per stratum (top) and for all centers (bottom)

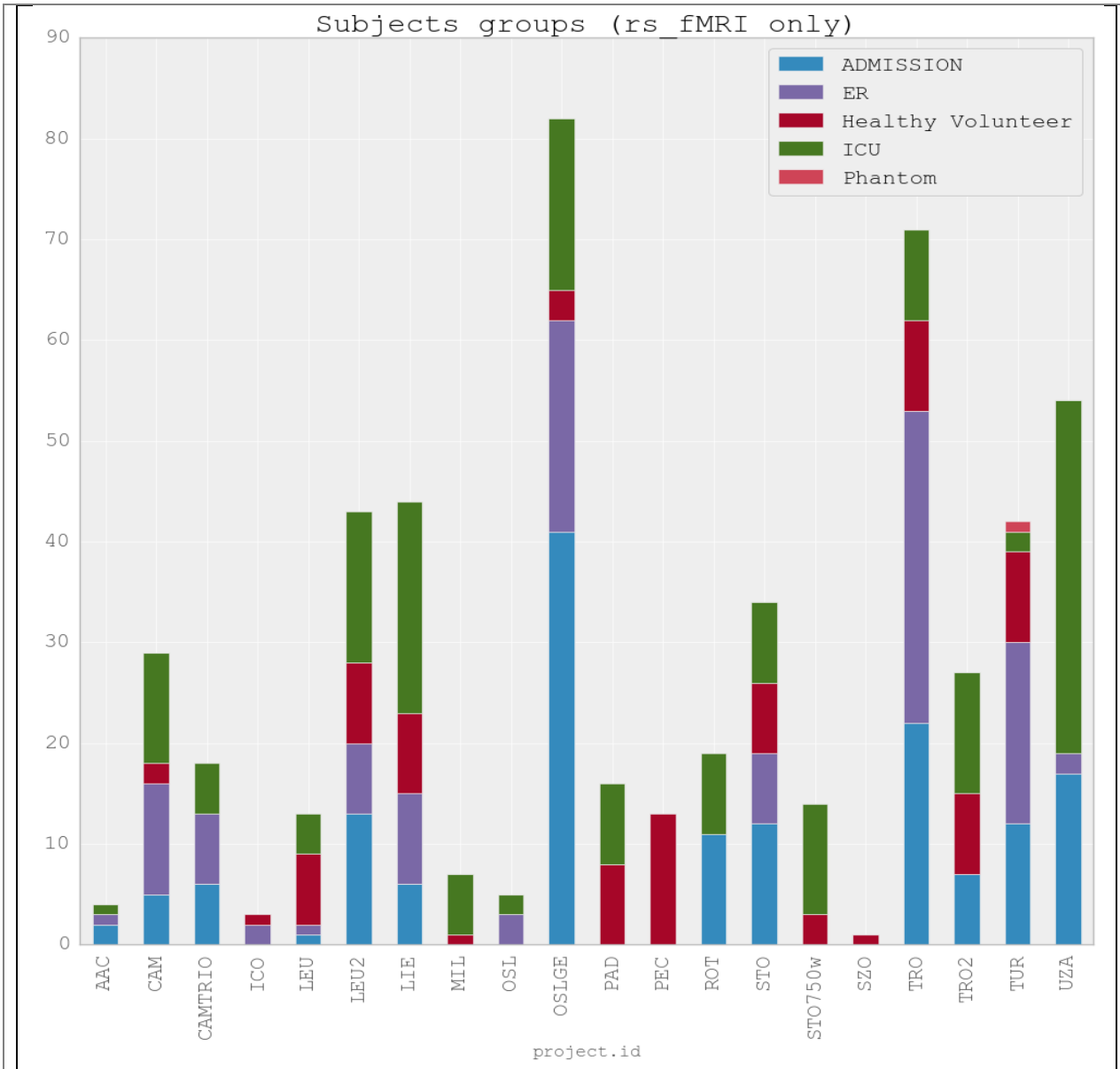

Figure 7: Repartition of the number of subjects acquired per center and per stratum for resting-state fMRI only

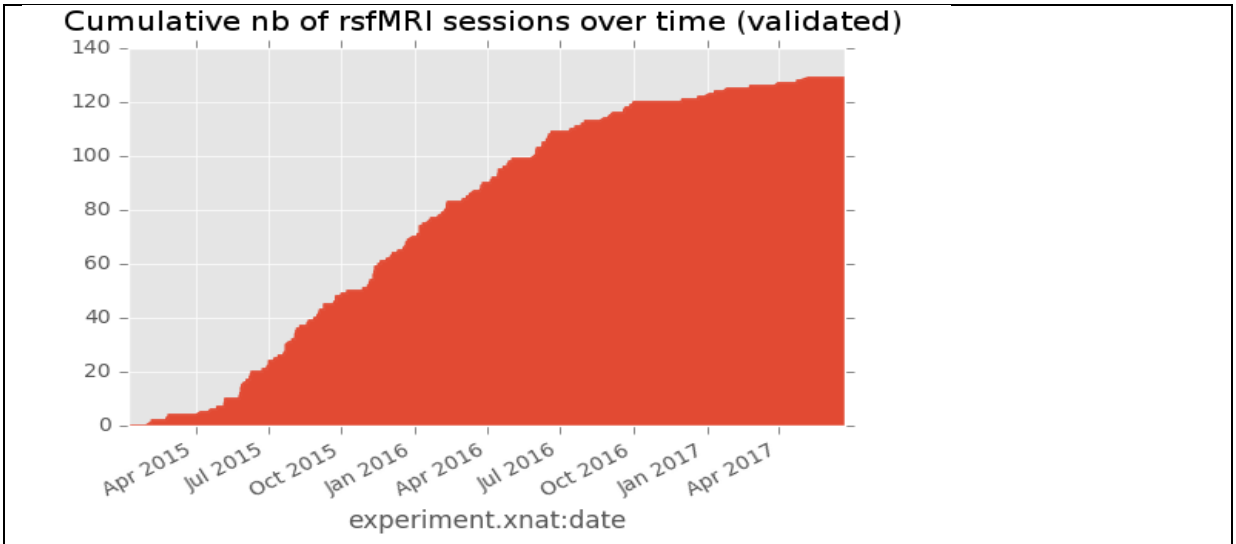

Figure 8: Cumulative number of subjects acquired over time. Only subjects with resting-state fMRI were kept here. We can see a steady increase over time for all centers from the project's start of acquisition in 2015 to the end of 2017.

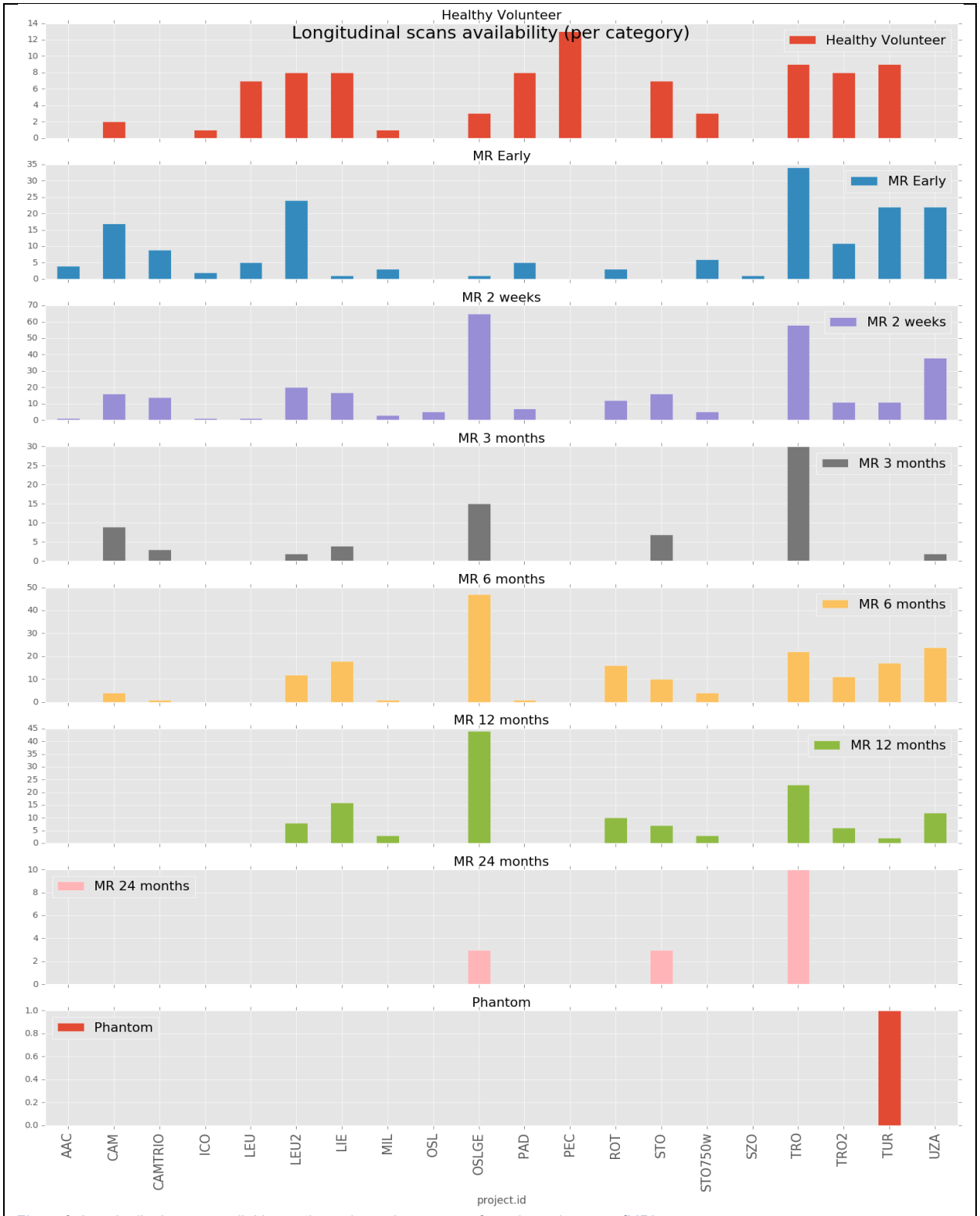

Figure 9: Longitudinal scans available per timepoint and per center, for only resting-state fMRI type scans.

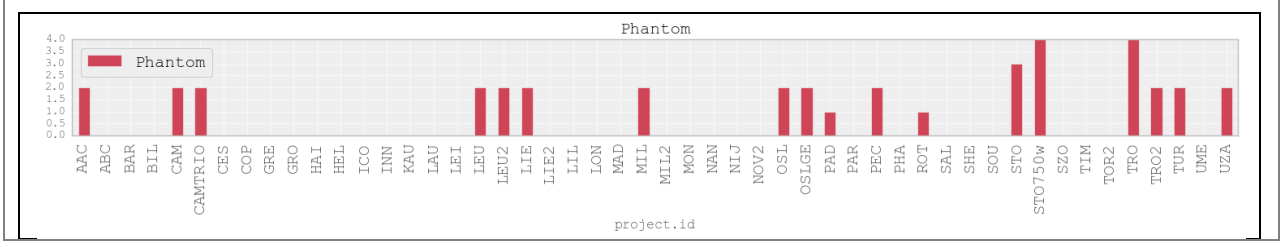

Figure 10: Current state of phantom acquisition per center