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The main script **curation 4.m** calls five functions that represent an arm of the data design.

First arm ([arm_organismv5.m](#)) opens and creates a specimen file and sets up the groups and datasets associated with the organism;

Second arm ([arm_devicev5.m](#)) is associated with instruments used to create data;

Third arm ([arm_anatomicalv5.m](#)) is the anatomy of the organism where the cells were isolated;

Fourth arm ([arm_cellv5.m](#)) is the description of the cell that was used to make the electrical recording and the

Fifth arm ([arm_assayv10.m](#)) is the details of the assay that were conducted.

The five function calls are

[arm_organismv5\(dirname, filename_fits,k_adult_male,count\);](#)

[arm_devicev5\(dirname, filename_fits,k_adult_male,count\);](#)

[arm_anatomicalv5\(dirname, filename_fits,k_adult_male,count\);](#)

[arm_cellv5\(dirname, filename_fits,k_adult_male,count\);](#) and

[arm_assayv10\(dirname, filename_fits,k_adult_male,count\)](#)

where

[dirname](#): the path where the MATLAB data to be translated is found;

[filename_fits](#): the name of the MATLAB data file with extension .MAT to be translated it is an array of structs;

[k_adult_male](#): number of experiments within the original MAT file that are to be translated;

[count](#): is starting number of the specimen file that will be created.

The following additional seven (7) functions are called from the arms.

[write_attribute_for_group\(group_id_1a,dadefinition,ATTRIBUTE\)](#)

This writes metadata that is associated with [group_id_1a](#); the metadata is described in [dadefinition](#) and defined in [ATTRIBUTE](#).

[DATASETID=create_and_write_string_dataset\(group_id_2a,space,type,name_def,vendor\);](#)

This creates and writes dataset of type string that will be found under [group_id_2a](#); with space and type defined, the description of the string is found in [name_def](#) (i.e., description of the dataset coined [vendor](#)) and the contents of the string are found under [vendor](#). The reference associated with the dataset is [DATASETID](#) needed for compiling and is returned to main script.

DATASETID

```
=create_and_write_double_dataset(group_id_3a,space,type,name_def,weight);
```

This creates and writes dataset of type DOUBLE precision that will be found under `group_id_3a`; with `space` (SCALAR or NULL) and `type` (DOUBLE precision) defined. The description a character string is found in `name_def` and the double precision number is found in `weight`. The reference associated with the dataset is `DATASETID` needed for compiling and is returned to main script.

```
DATASETID =create_and_write_int_dataset(group_id_3a,space,type,name_def,age);
```

This creates and writes dataset of type INT that will be found under “`group_id_3a`”; with `space` (SCALAR or NULL) and `type` (INT precision) defined. The description of the dataset is found under character string `name_def` and the integer is found under `age`. The reference associated with the dataset is `DATASETID` needed for compiling and is returned to main script.

DATASETID

```
=create_write_array_of_dble_dset(group_id_4a,space_id,type,dim0,dimw,name_def,Imlf)
```

This creates and writes an array of type DOUBLE with dimensions `dim0` and `dimw` that will be found under `group_id_4a`; with `space` (SCALAR) and `type` (DOUBLE precision) defined. The description of the dataset is found under character string `name_def` and the double precision data array is found in `Imlf`. The reference associated with the dataset is `DATASETID` needed for compiling and is returned to main script.

METADATA

Attributes are METADATA attached to the description of the dataset.

```
attribute_general(DATASETID,researcher,dofexp, cellnumber, datasteward)
```

To every dataset within the collection the name of the researcher (`researcher`) that conducted the experiment, the date of the experiment (`dofexp`); the original cell number (`cellnumber`) and the name of the person responsible for the data (`datasteward`) are attached as attributes to the dataset `DATASETID`.

```
specific_string_attribute(DATASETID,ATTRIBUTE,dadefinition)
```

This is description of the dataset where `ATTRIBUTE` is a string like “`definition`”, “`units`” or “`note`” and the “`dadefinition`” is the actual description of the strings. They are attached to dataset with id: `DATASETID`