2. Harmonise conventions between CMLCA and Brightway

Choose a supported ecoinvent version and convert from the CMLCA export format to the Brightway import format.

The infile consists of an XLSX workbook which contains the unit process data with tags to group the rows by process and the allocation information. While CMLCA can automatically export the unit process data, the Excel formulas to group the rows and the allocation information were added manually.

The outfile consists of an XLSX workbook containing the process data compatible with the target version of the ecoinvent database, in a format supported by brightway.

The script assumes that the next XLSX files are already in the `<cwd>`/`data`/`correspondenceFiles` folder:

- Correspondence File for Elementary Exchanges | ecoinvent 2.2 to ecoinvent 3.01
- Correspondence File for Intermediate Exchanges | ecoinvent 2.2 to ecoinvent 3.01
- Activity Overview for ecoinvent v3.1, Cut-Off
- Correspondence File for Intermediate Exchanges | ecoinvent 3.1 to ecoinvent 3.2
- Correspondence File for Intermediate Exchanges | ecoinvent 3.2 to ecoinvent 3.3
- Correspondence File for Intermediate Exchanges | ecoinvent 3.3 to ecoinvent 3.4
- Correspondence File for Intermediate Exchanges | ecoinvent 3.4 to ecoinvent 3.5
- Correspondence File for Intermediate Exchanges | ecoinvent 3.5 to ecoinvent 3.6
- Correspondence File for Intermediate Exchanges | ecoinvent 3.6 to ecoinvent 3.7

These files are not included in the repository. To the date of submission of the accompanying paper, these files could be retrieved from the ecoinvent website, for each ecoinvent version, navigating from 'Information on ecoinvent 3.'

Name	Type	Size
activity_overview_for_users_3.1_cut-off.xlsx	Microsoft Excel Worksheet	1,505 KB
correspondence_file_eiv3.3_to_eiv3.4_20170921_final.xlsx	Microsoft Excel Worksheet	13,009 KB
correspondence_file_eiv3.4_to_eiv3.5_20181008.xlsx	Microsoft Excel Worksheet	8,728 KB
correspondence_file_eiv3.5_to_eiv3.6_2.xlsx	Microsoft Excel Worksheet	11,130 KB
correspondence_file_eiv3.6_to_eiv3.7.xlsx	Microsoft Excel Worksheet	8,447 KB
correspondence_file_intermediate-exchangesv2.2_to_v3.0_20130904.xlsx	Microsoft Excel Worksheet	591 KB
ecoinvent_correspondence_file_eiv3.2_to_eiv3.3_final.xlsx	Microsoft Excel Worksheet	7,029 KB
ecoinvent_correspondence_file_eiv3_1_to_eiv3_2_updated20151214_2.xlsx	Microsoft Excel Worksheet	6,061 KB

Reproduce the system models from the original study in Brightway

Convert the system model from CMLCA to brightway to reproduce the results by Sprecher et al.(2014)

In the output file, the `foreground` variable is a string that is combined with the `target` variable. In a later step, the resulting string is parsed from the file generated here as a database name in brightway.

```python
from CMLCAtoBw import convertFromCMLCAeiV2_2

foreground ='REM_replicated_'
target = '2_2'

convertFromCMLCAeiV2_2(foreground, target, replace2ndNi=False,
    disconnect=True)
```

Generate a modified version that keeps the unintended disconnections for the software comparison

Create a version of the system in which the secondary nickel is replaced by the primary nickel but with the unintended disconections from Sprecher et al. (2014) unfixed.

```python
from CMLCAtoBw import convertFromCMLCAeiV2_2

foreground ='REM_unlinked_'
target = '2_2'

convertFromCMLCAeiV2_2(foreground, target, replace2ndNi=True,
    disconnect=True)
```

Generate the modified and corrected version with ecoinvent v2.2 and migrate to the other supported ecoinvent versions

Convert from CMLCA to Brightway with two changes compared to the study by Sprecher et al. (2014):

- Replacement of the LCI dataset `nickel, secondary, from electronic and electric scrap recycling, at refinery[SE]` with `nickel, 99.5%, at plant[GLO]` in the electroplating process of the short-loop recycling alternative.
- Correction of the unintended disconnections from the study by Sprecher et al. (2014).

In the output files, the `foreground` variable is a string that is combined with the elements in the `targets` list. In a later step, the resulting strings are parsed from the files generated here as database

names in Brightway.

```
1  foreground = 'REM'
2  targets = ['2_2', '3_1', '3_2', '3_3', '3_4', '3_5', '3_6']
3
4  for target in targets:
5      convertFromCMLCAeiV2_2(foreground, target, replace2ndNi=True,
           disconnect=False)
```

Expected output files

The nine files generated from the steps above will be automatically stored at `<cwd>`/`data`/`bw-`
`harmonised`.

CAUTION: These files are already included in the repository. When running the cells above, the files
retrieved from the repository will be overwritten.

Name	Size
REM3_6.xlsx	62 KB
REM3_5.xlsx	62 KB
REM3_4.xlsx	62 KB
REM3_3.xlsx	62 KB
REM3_2.xlsx	63 KB
REM3_1.xlsx	63 KB
REM2_2.xlsx	62 KB
REM_unlinked_2_2.xlsx	58 KB
REM_replicated_2_2.xlsx	58 KB