

projectname

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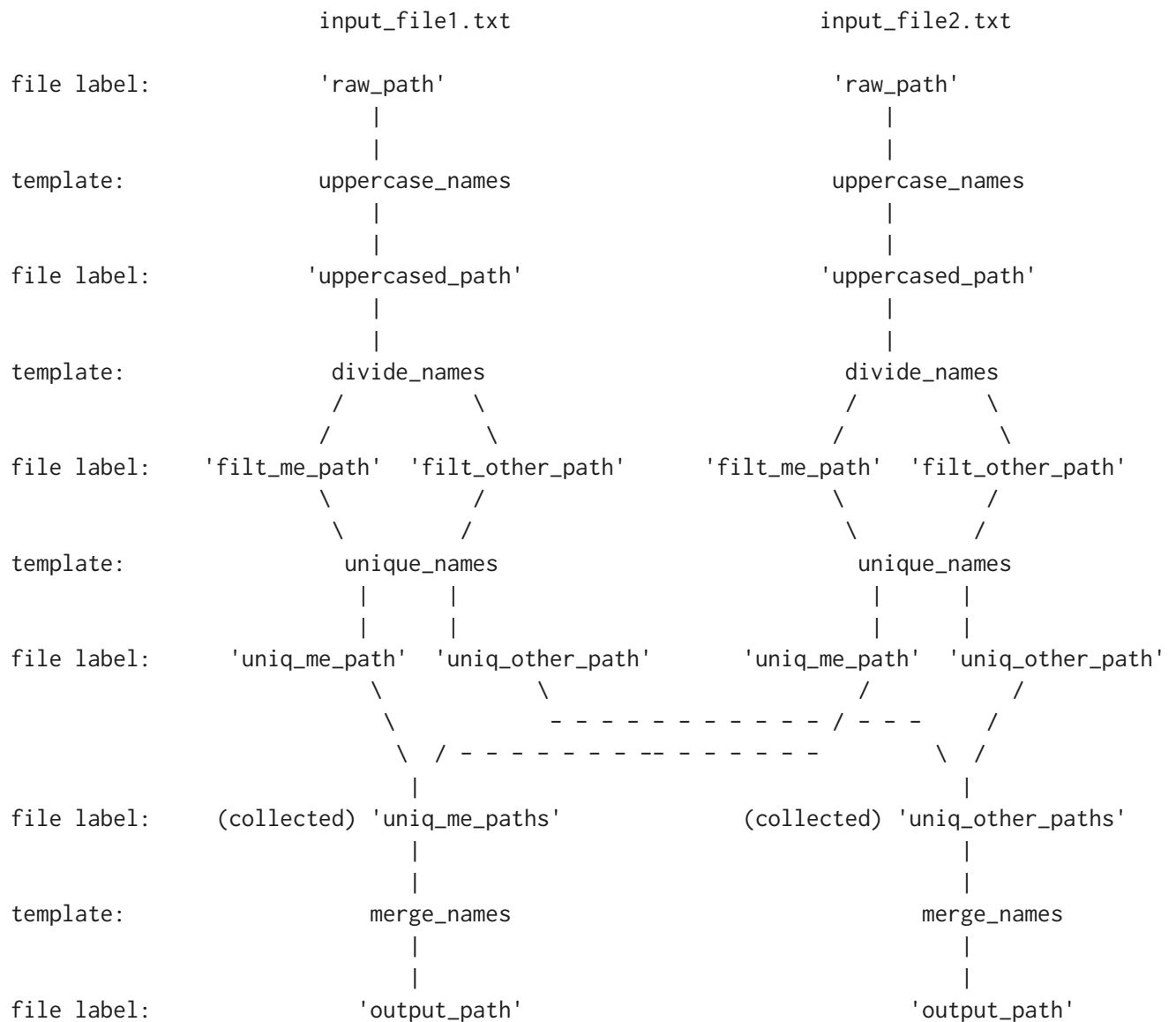
Title

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References

1 GWF workflow

Example workflow using mapping between input and output of each target. It is made to show all the ways information may be passed through an workflow.



1.1 Imports and utility functions

```
from pathlib import Path
from gwf import Workflow, AnonymousTarget
from gwf.workflow import collect
```

Instantiate the workflow with the name of the project folder:

```
# instantiate the workflow
gwf = Workflow(defaults={'account': 'your-project-folder-name'})
```

Utility functions:

```
# utility function
def modify_path(path, **kwargs):
    """
    Utility function for modifying file paths substituting
    the directory (dir), base name (base), or file suffix (suffix)
    """
    for key in ['dir', 'base', 'suffix']:
        kwargs.setdefault(key, None)
    assert len(kwargs) == 3

    par, name = os.path.split(path)
    name_no_suffix, suf = os.path.splitext(name)
    if type(kwargs['suffix']) is str:
        suf = kwargs['suffix']
    if kwargs['dir'] is not None:
        par = kwargs['dir']
    if kwargs['base'] is not None:
        name_no_suffix = kwargs['base']

    new_path = os.path.join(par, name_no_suffix + suf)
    if type(kwargs['suffix']) is tuple:
        assert len(kwargs['suffix']) == 2
        new_path, nsubs = re.subn(r'{}$'.format(kwargs['suffix'][0]),
                                   kwargs['suffix'][1], new_path)
        assert nsubs == 1, nsubs
    return new_path
```


1.2 Template functions:

```
# task template function
def uppercase_names(raw_path):
    """
    Formats names to uppercase.
    """
    # dir for files produces by task
    output_dir = 'steps/upper_cased'
    # path of output file
    uppercased_path = modify_path(raw_path, dir=output_dir, suffix='_uppercased.txt')

    # input specification
    inputs = [raw_path]
    # output specification mapping a label to each file
    outputs = {'uppercased_path': uppercased_path}
    # resource specification
    options = {'memory': '8g', 'walltime': '00:10:00'}

    # temporary output file path
    tmp_uppercased_path = modify_path(raw_path, dir='/tmp')

    # commands to run in task (bash script)
    # we write to a tmp file and move that to the output directory
    # only if the command succeeds (the && takes care of that)
    spec = f"""
mkdir -p {output_dir}
cat {raw_path} | tr [:lower:] [:upper:] > {tmp_uppercased_path} &&
    mv {tmp_uppercased_path} {uppercased_path}
    """

    # return target
    return AnonymousTarget(inputs=inputs, outputs=outputs, options=options, spec=spec)

# task template function
def divide_names(uppercased_path, me=None):
    """
    Splits names into two files. One with my name and one with other names.
    """
    # uppercased version of the me argument
    uppercased_me = me.upper()
```

```

# dir for files produces by task
output_dir = 'steps/filtered_names'
# path of output file with names matching me
filt_me_path = modify_path(uppercased_path, dir=output_dir, suffix='_me')
# path of output file with other names
filt_other_path = modify_path(uppercased_path, dir=output_dir, suffix='_other')

# input specification
inputs = [uppercased_path]
# output specification mapping a label to each file
outputs = {'filt_me_path': filt_me_path, 'filt_other_path': filt_other_path}
# resource specification
options = {'memory': '8g', 'walltime': '00:10:00'}

# temporary output file paths
tmp_filt_me_path = modify_path(filt_me_path, dir='/tmp')
tmp_filt_other_path = modify_path(filt_other_path, dir='/tmp')

# commands to run in task (bash script)
# we write to tmp files and move them to the output directory
# only if the command succeeds (the && takes care of that)
spec = f"""
mkdir -p {output_dir}
grep {uppercased_me} {uppercased_path} > {tmp_filt_me_path} &&
    grep -v {uppercased_me} {uppercased_path} > {tmp_filt_other_path} &&
    mv {tmp_filt_me_path} {filt_me_path} &&
    mv {tmp_filt_other_path} {filt_other_path}
"""

# return target
return AnonymousTarget(inputs=inputs, outputs=outputs, options=options)

# task template function
def unique_names(filt_me_path, filt_other_path):
    """
    Extracts unique names from a file.
    """
    # dir for files produces by task
    output_dir = 'steps/unique_names'
    # path of output file with unique names matching me
    uniq_me_path = modify_path(filt_me_path, dir=output_dir, suffix='_me')
    # path of output file with unique other names
    uniq_other_path = modify_path(filt_other_path, dir=output_dir, suffix='_other')

```

```

# input specification
inputs = [filt_me_path, filt_other_path]
# output specification mapping a label to each file
outputs = {'unique_me_path': uniq_me_path, 'unique_other_path': uniq_other_path}
# resource specification
options = {'memory': '8g', 'walltime': '00:10:00'}

# temporary output file paths
tmp_uniq_me_path = modify_path(uniq_me_path, dir='/tmp')
tmp_uniq_other_path = modify_path(uniq_other_path, dir='/tmp')

# commands to run in task (bash script)
# we write to tmp files and move them to the output directory
# only if the command succeeds (the && takes care of that)
spec = f"""
mkdir -p {output_dir}
sort {filt_me_path} | uniq > {tmp_uniq_me_path} &&
    sort {filt_other_path} | uniq > {tmp_uniq_other_path} &&
    mv {tmp_uniq_me_path} {uniq_me_path} &&
    mv {tmp_uniq_other_path} {uniq_other_path}
"""

# return target
return AnonymousTarget(inputs=inputs, outputs=outputs, options=options, spec=spec)

# task template function
def merge_names(paths, output_path):
    """
    Merges names from many files.
    """
    # dir for files produces by task
    output_dir = modify_path(output_path, base='', suffix='')

    # input specification
    inputs = [paths]
    # output specification mapping a label to the file
    outputs = {'path': output_path}

    # temporary output file path
    tmp_output_path = modify_path(output_path, dir='/tmp')

    # resource specification

```

```

options = {'memory': '8g', 'walltime': '00:10:00'}

# commands to run in task (bash script)
# we write to tmp files and move them to the output directory
# only if the command succeeds (the && takes care of that)
spec = f"""
mkdir -p {output_dir}
cat {' '.join(paths)} > {tmp_output_path} &&
    mv {tmp_output_path} {output_path}
"""

# return target
return AnonymousTarget(inputs=inputs, outputs=outputs, options=

```

1.3 Workflow:

```

# instantiate the workflow
gwf = Workflow(defaults={'account': 'your-project-folder-name'})

# input files for workflow
input_file_names = ['data/input_file1.txt', 'data/input_file2.txt']

# workflow parameter
myname = 'Kasper'

# run an uppercase_names task for each input file
uppercase_names_targets = gwf.map(uppercase_names, input_file_names)

# run an divide_names task for each output file from uppercase_names
filter_names_targets = gwf.map(divide_names, uppercase_names_targets)

# run an unique_names task for each output file from divide_names
unique_names_targets = gwf.map(unique_names, filter_names_targets)

# collect the outputs labelled 'unique_me_path' from all the outputs
collected_outputs = collect(unique_names_targets.outputs, ['unique_me_path'])

# create a single task to merge all those files into one
merge_me_target = gwf.target_from_template(
    'merge_not_me_name_files',
    merge_names(collected_outputs['unique_me_paths'], "results/merge_me")

```

```
)

# collect the outputs labelled 'unique_other_path' from all the outputs of unique_names
collected_outputs = collect(unique_names_targets.outputs, ['unique_other_path'])

# create a single task to merge all those files into one
merge_other_target = gwf.target_from_template(
    'merge_me_name_files',
    merge_names(collected_outputs['unique_other_paths'], "results/merged_not_me_names.txt")
)
```


2 GWF workflow for notebooks

```
from pathlib import Path
from gwf import Workflow, AnonymousTarget
from gwf.workflow import collect
```

Instantiate the workflow with the name of the project folder.

```
# instantiate the workflow
gwf = Workflow(defaults={'account': 'your-project-folder-name'})
```

2.1 Template functions:

```
# task template function
def run_notebook(path, memory='8g', walltime='00:10:00', cores=1):
    """
    Executes a notebook inplace and saves the output.
    """
    # path of output sentinel file
    sentinel = path.parent / '.' + path.name

    # input specification
    inputs = [path]
    # output specification mapping a label to each file
    outputs = {'sentinel': sentinel}
    # resource specification
    options = {'memory': memory, 'walltime': walltime, 'cores': cores}

    # commands to run in task (bash script)
    spec = f"""
```

```
jupyter nbconvert --to notebook --execute --inplace path
"""
# return target
return AnonymousTarget(inputs=inputs, outputs=outputs, options=)
```

2.2 Workflow:

Executes all notebooks in the notebooks directory in sorted order.

```
dependencies = []
# run notebooks in sorted order nb01_, nb02_, ...
for notebook in Path('notebooks/**/*.ipynb'):
    # run a notebook
    target = run_notebook(notebook, dependencies)
    # make each notebook dependent on all previous
    dependencies.append(target.outputs['sentinel'])
    # add target to workflow
    gwf.target(target)
```


Part I

Notebooks

1 Workplace interaction

Import some plotting libraries and set some defaults:

```
import sys
import numpy as np
import pandas as pd
from IPython.display import display, Markdown
import matplotlib.pyplot as plt
import seaborn as sns
sns.set()
sns.set_style("whitegrid")

import random
random_seed = 5

sys.path.append('..')
from global_params import load_params
```

“ **Tip:**
Producing figures in svg format (scalable vector graphics) makes for sharp plots on web-pages. However, if you make plots with thousands of observations you should set this to 'png' instead:

”

```
%config InlineBackend.figure_formats = ['svg']
```

“ **Tip:**
Some values apply globally to your analysis. E.g., sample sizes, cutoffs, names, rates, etc. Keeping those in a yml file like `interaction_params.yml` and loading them in each notebook avoids the risk of manually adding/updating them in each

”

“ notebook where they are used. You can use the `load_globals` function imported above from `global_params.py` to produce an object holding all the global values: ”

```
params = load_params('../global_params.yml')
params
```

```
{'questions': ['Blah blah blah',
               'Blah blah blah',
               'Blah blah blah',
               'Blah blah blah'],
 'sample_size': 24}
```

```
params.sample_size
```

```
24
```

1.1 Sampling

```
subjects = pd.read_csv('../data/data_table.csv')
assert subjects.index.size == params.sample_size
```

“ **Tip:**
By adding a label and caption to a cell displaying a table, you can refer to that table elsewhere and insert it in a manuscript. ”

```
subjects
```

| Table 1.1: People included in the analysis. | | | | | |
|---|--------|-----|-----|------------|-------------|
| | name | age | sex | position | nationality |
| 0 | Julie | 27 | F | PhDstudent | DK |
| 1 | Thomas | 33 | M | Postdoc | GB |

Table 1.1: People included in the analysis.

| | name | age | sex | position | nationality |
|----|----------|-----|-----|------------|-------------|
| 2 | Emilie | 23 | F | PhDstudent | CH |
| 3 | Sofie | 31 | F | Postdoc | DK |
| 4 | Sara | 29 | F | Postdoc | US |
| 5 | Cecilie | 34 | F | Postdoc | DK |
| 6 | Anders | 32 | M | PhDstudent | UK |
| 7 | Emma | 42 | F | Professor | DK |
| 8 | Caroline | 31 | F | PhDstudent | DK |
| 9 | Laura | 30 | F | Postdoc | DK |
| 10 | Mikkel | 33 | M | Postdoc | NL |
| 11 | Jens | 27 | M | PhDstudent | DK |
| 12 | Andreas | 29 | M | PhDstudent | DK |
| 13 | Jakob | 28 | M | PhDstudent | DK |
| 14 | Mathilde | 61 | F | Professor | DK |
| 15 | Katrine | 35 | F | Postdoc | DK |
| 16 | Poul | 30 | M | Postdoc | DK |
| 17 | Anna | 26 | F | PhDstudent | DK |
| 18 | Peter | 42 | M | Professor | GB |
| 19 | Ida | 53 | F | Postdoc | DK |
| 20 | Freja | 30 | F | Postdoc | DK |
| 21 | Maria | 39 | F | Professor | UK |
| 22 | Amalie | 29 | F | PhDstudent | DK |
| 23 | Camilla | 35 | F | Postdoc | DK |

“

Tip:

By generaing markdown for descriptions that will eventually end up in the manuscript, you can imbed python values. It also ensures that the manuscript exactly reflects the notebook.

”

The 24 subjects from workplaces in Denmark were interviewed blah blah blah blah blah blah blah blah
 blah blah blah blah blah blah blah blah blah blah
 blah blah blah blah blah blah blah blah blah blah
 blah blah blah

1.2Interviews

The 24 subjects were asked to score the follow statements:

1. Blah blah blah
2. Blah blah blah
3. Blah blah blah
4. Blah blah blah

In interviewed {python} params.sample_size workplace individuals were interviewed by blah,

```
df = pd.DataFrame({'name': subjects.name,  
                  'seniority': np.random.randint(0, 5, params.sample_size),  
                  'age': subjects.age})  
df['informality'] = np.random.normal(loc=10, scale=1, size=params.sample_size)  
df
```

| | name | seniority | age | informality |
|----|----------|-----------|-----|-------------|
| 0 | Julie | 2 | 27 | 10.061504 |
| 1 | Thomas | 2 | 33 | 9.795845 |
| 2 | Emilie | 0 | 23 | 10.704674 |
| 3 | Sofie | 4 | 31 | 9.995386 |
| 4 | Sara | 1 | 29 | 9.384324 |
| 5 | Cecilie | 4 | 34 | 9.617037 |
| 6 | Anders | 3 | 32 | 8.822115 |
| 7 | Emma | 3 | 42 | 8.654268 |
| 8 | Caroline | 0 | 31 | 10.571754 |
| 9 | Laura | 3 | 30 | 12.278083 |
| 10 | Mikkel | 2 | 33 | 10.181373 |
| 11 | Jens | 4 | 27 | 11.043315 |
| 12 | Andreas | 3 | 29 | 10.194166 |
| 13 | Jakob | 2 | 28 | 9.740300 |
| 14 | Mathilde | 2 | 61 | 8.671047 |
| 15 | Katrine | 1 | 35 | 10.177327 |
| 16 | Poul | 4 | 30 | 9.894090 |
| 17 | Anna | 1 | 26 | 7.958770 |
| 18 | Peter | 2 | 42 | 11.287880 |
| 19 | Ida | 0 | 53 | 10.254190 |

| | name | seniority | age | informality |
|----|---------|-----------|-----|-------------|
| 20 | Freja | 0 | 30 | 11.093569 |
| 21 | Maria | 0 | 39 | 10.223915 |
| 22 | Amalie | 1 | 29 | 9.613552 |
| 23 | Camilla | 0 | 35 | 9.975990 |

```
sns.scatterplot(x='age', y='informality', data=df, hue='seniority', palette='viridis')
plt.ylabel('How informal you can be')
plt.xlabel('Age')
plt.legend(title='Seniority', loc='lower right', labels=['Undergrad', 'Postgrad', 'PhD', 'Postdoc', 'Professor'])
plt.ylim(bottom=0) ;
```

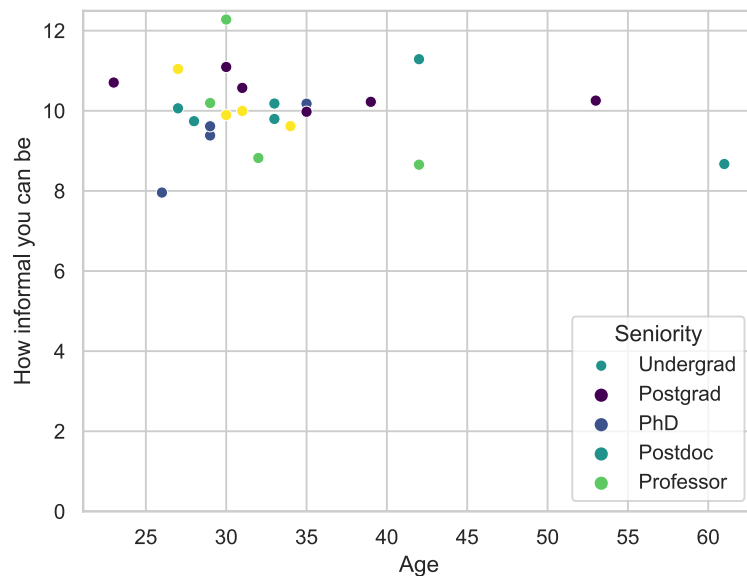


Figure 1.1: Interaction among Danes: How Danes interact is has very little to do with age and seniority, compared to most other contries.

Seems Danish people act very informally unaffected by age and seniority.

```
informality_age_cor = df.informality.corr(df.age)
informality_age_cor
```

-0.1949220780248677

```
informality_seniority_cor = df.informality.corr(df.seniority)
informality_seniority_cor
```

```
-0.05515869516915789
```

The correlation between informality and age was -0.195 and the correlation between informality and seniority was -0.055.

```
sns.lmplot(x='age', y='informality', data=df, hue='seniority', pal
plt.ylabel('How informal you can be')
plt.xlabel('Age') ;
```

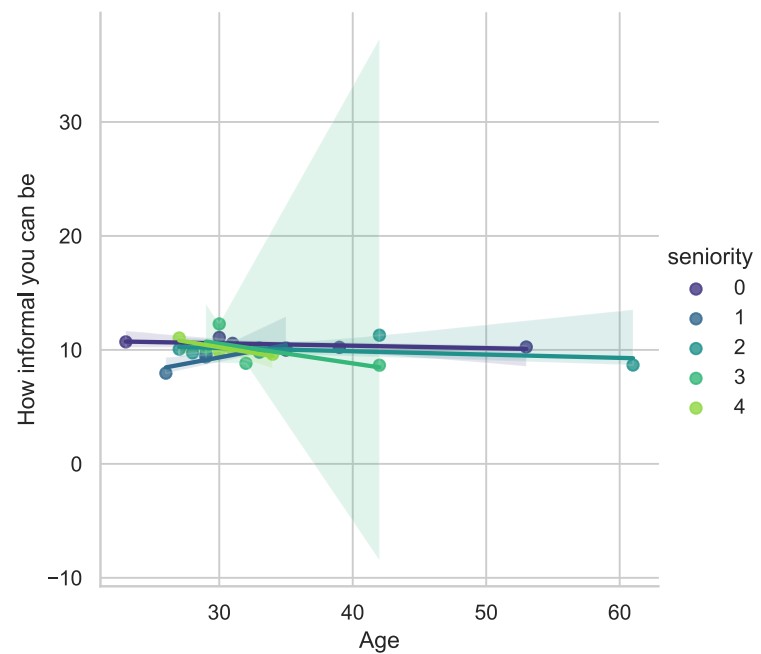


Figure 1.2: Interaction among Danes: Regressions of informality against age for five levels of seniority.

Part II

Reports

1 My manuscript

1.1 Abstract

Denmark ... Praesent ornare dolor turpis, sed tincidunt nisl pretium eget. Curabitur sed iaculis ex, vitae tristique sapien. Quisque nec ex dolor. Quisque ut nisl a libero egestas molestie. Nulla vel porta nulla. Phasellus id pretium arcu. Etiam sed mi pellentesque nibh scelerisque elementum sed at urna. Ut congue molestie nibh, sit amet pretium ligula consectetur eu. Integer consectetur augue justo, at placerat erat posuere at. Ut elementum urna lectus, vitae bibendum neque pulvinar quis. Suspendisse vulputate cursus eros id maximus. Duis pulvinar facilisis massa, et condimentum est viverra congue. Curabitur ornare convallis nisl. Morbi dictum scelerisque turpis quis pellentesque. Etiam lectus risus, luctus lobortis risus ut, rutrum vulputate justo. Nulla facilisi.

1.2 Introduction

Denmark is Nulla eget cursus ipsum. Vivamus porttitor leo diam, sed volutpat lectus facilisis sit amet. Maecenas et pulvinar metus. Ut at dignissim tellus. In in tincidunt elit. Etiam vulputate lobortis arcu, vel faucibus leo lobortis ac. Aliquam erat volutpat. In interdum orci ac est euismod euismod. Nunc eleifend tristique risus, at lacinia odio commodo in. Sed aliquet ligula odio, sed tempor neque ultricies sit amet. Etiam quis tortor luctus, pellentesque ante a, finibus dolor. Phasellus in nibh et magna pulvinar malesuada. Ut nisl ex, sagittis at sollicitudin et, sollicitudin id nunc. In id porta urna. Proin porta dolor dolor, vel dapibus nisi lacinia in. Pellentesque ante mauris, ornare non euismod a, fermentum ut sapien. Proin sed vehicula enim. Aliquam tortor odio, vestibulum vitae odio in, tempor molestie justo.

Praesent maximus lacus nec leo maximus blandit. Maecenas turpis velit, ultricies non elementum vel, luctus nec nunc. Nulla a diam interdum, faucibus sapien viverra, finibus metus. Donec non tortor diam. In ut elit aliquet, bibendum sem et, aliquam tortor. Donec congue, sem at rhoncus ultrices, nunc augue cursus erat, quis porttitor mauris libero ut ex. Nullam quis leo urna. Donec faucibus ligula eget pellentesque interdum. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean rhoncus interdum erat ut ultricies. Aenean tempus ex non elit suscipit, quis dignissim enim efficitur. Proin laoreet enim massa, vitae laoreet nulla mollis quis.

1.3Results

1.3.1 Social norms

In Denmark, the workplace interaction is very informal and largely unaffected by seniority and age.

The 24 subjects from workplaces in Denmark were interviewed blah

I found that neither academic seniority or age of workplace individuals much affected how informal our interaction was (see Figure 1.2).

The correlation between informality and age was -0.195 and the correlation between informality and seniority was -0.055.

Ut ut condimentum augue, nec eleifend nisl. Sed facilisis egestas odio ac pretium. Pellentesque consequat magna sed venenatis sagittis. Vivamus feugiat lobortis magna vitae accumsan. Pellentesque euismod malesuada hendrerit. Ut non mauris non arcu condimentum sodales vitae vitae dolor. Nullam dapibus, velit eget lacinia rutrum, ipsum justo malesuada odio, et lobortis sapien magna vel lacus. Nulla purus neque, hendrerit non malesuada eget, mattis vel erat. Suspendisse potenti.

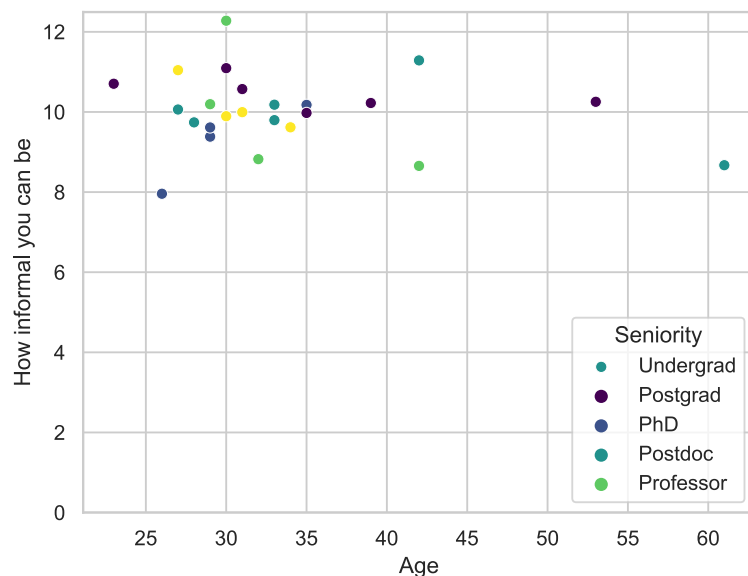


Figure 1.1: Interaction among Danes: How Danes interact is has very little to do with age and seniority, compared to most other contries.

1.4Discussion

This this investigation of 24 Danes. . . ,

Ut ut condimentum augue, nec eleifend nisl. Sed facilisis egestas odio ac pretium. Pellentesque consequat magna sed venenatis sagittis. Vivamus feugiat lobortis magna vitae accumsan. Pellentesque euismod malesuada hendrerit. Ut non mauris non arcu condimentum sodales vitae vitae dolor. Nullam dapibus, velit eget lacinia rutrum, ipsum justo malesuada odio, et lobortis sapien magna vel lacus. Nulla purus neque, hendrerit non malesuada eget, mattis vel erat. Suspendisse potenti.

1.5Methods

1.5.1 Interaction analysis

Etiam non efficitur urna, quis elementum nisi. Mauris posuere a augue vel gravida. Praesent luctus erat et ex iac-

ulis interdum. Nulla vestibulum quam ac nunc consequat vulputate. Nullam iaculis lobortis sem sit amet fringilla. Aliquam semper, metus ut blandit semper, nulla velit fermentum sapien, fermentum ultrices dolor sapien sed leo. Vestibulum molestie faucibus magna, at feugiat nulla ullamcorper a. Aliquam erat volutpat. Praesent scelerisque magna a justo maximus, sit amet suscipit mauris tempor. Nulla nec dolor eget ipsum pellentesque lobortis a in ipsum. Morbi turpis turpis, fringilla a eleifend maximus, viverra nec neque. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos.

Table 1.1 lists the samples included in the analysis.

| Table 1.1: People included in the analysis. | | | | | |
|---|----------|-----|-----|------------|-------------|
| | name | age | sex | position | nationality |
| 0 | Julie | 27 | F | PhDstudent | DK |
| 1 | Thomas | 33 | M | Postdoc | GB |
| 2 | Emilie | 23 | F | PhDstudent | CH |
| 3 | Sofie | 31 | F | Postdoc | DK |
| 4 | Sara | 29 | F | Postdoc | US |
| 5 | Cecilie | 34 | F | Postdoc | DK |
| 6 | Anders | 32 | M | PhDstudent | UK |
| 7 | Emma | 42 | F | Professor | DK |
| 8 | Caroline | 31 | F | PhDstudent | DK |
| 9 | Laura | 30 | F | Postdoc | DK |
| 10 | Mikkel | 33 | M | Postdoc | NL |
| 11 | Jens | 27 | M | PhDstudent | DK |
| 12 | Andreas | 29 | M | PhDstudent | DK |
| 13 | Jakob | 28 | M | PhDstudent | DK |
| 14 | Mathilde | 61 | F | Professor | DK |
| 15 | Katrine | 35 | F | Postdoc | DK |
| 16 | Poul | 30 | M | Postdoc | DK |
| 17 | Anna | 26 | F | PhDstudent | DK |
| 18 | Peter | 42 | M | Professor | GB |
| 19 | Ida | 53 | F | Postdoc | DK |
| 20 | Freja | 30 | F | Postdoc | DK |
| 21 | Maria | 39 | F | Professor | UK |
| 22 | Amalie | 29 | F | PhDstudent | DK |
| 23 | Camilla | 35 | F | Postdoc | DK |

Nullam dapibus cursus dolor sit amet consequat. Nulla fa-

cilisi. Curabitur vel nulla non magna lacinia tincidunt. Duis porttitor quam leo, et blandit velit efficitur ut. Etiam auctor tincidunt porttitor. Phasellus sed accumsan mi. Fusce ut erat dui. Suspendisse eu augue eget turpis condimentum finibus eu non lorem. Donec finibus eros eu ante condimentum, sed pharetra sapien sagittis. Phasellus non dolor ac ante mollis auctor nec et sapien. Pellentesque vulputate at nisi eu tincidunt. Vestibulum at dolor aliquam, hendrerit purus eu, eleifend massa. Morbi consectetur eros id tincidunt gravida. Fusce ut enim quis orci hendrerit lacinia sed vitae enim.

The 24 subjects were asked to score the follow statements:

1. Blah blah blah
2. Blah blah blah
3. Blah blah blah
4. Blah blah blah

1.6References

Part III

Tables

1 Result tables

This is a table of results from a csv file:

Table 1.1: This could be a table listing results of an analysis.

| | pos | when_DAF_is_half | when_mutation_has_freq2 | population |
|----|-----------|------------------|-------------------------|------------|
| 0 | 10122953 | -1.390610 | -6.29509 | CDX |
| 1 | 11859476 | -2.693320 | -6.64483 | CDX |
| 2 | 11864438 | -2.693320 | -6.64483 | CDX |
| 3 | 32635171 | -2.224110 | -6.58804 | CDX |
| 4 | 105249963 | -1.406140 | -6.11750 | CDX |
| 5 | 3712725 | -1.086690 | -6.50623 | CHB |
| 6 | 3713920 | -2.062530 | -9.86443 | CHB |
| 7 | 3717514 | -2.635040 | -6.90527 | CHB |
| 8 | 3720564 | -2.399250 | -6.07486 | CHB |
| 9 | 3720591 | -2.399250 | -6.07486 | CHB |
| 10 | 3721203 | -2.399250 | -6.07486 | CHB |
| 11 | 3721452 | -2.399250 | -6.07486 | CHB |
| 12 | 32812742 | -3.157760 | -6.19174 | CHB |
| 13 | 47349640 | -1.544110 | -6.06731 | CHB |
| 14 | 47352820 | -2.056060 | -8.20242 | CHB |
| 15 | 151669901 | -1.644880 | -8.53576 | CHB |
| 16 | 3706646 | -2.436120 | -6.34196 | CHS |
| 17 | 10214581 | -2.539500 | -9.20117 | CHS |
| 18 | 122431333 | -0.937105 | -6.22082 | CHS |
| 19 | 141669308 | -1.019170 | -6.12830 | CHS |
| 20 | 49962327 | -1.766100 | -6.61933 | JPT |
| 21 | 142111497 | -1.409290 | -6.26781 | JPT |
| 22 | 20348765 | -2.042520 | -6.05583 | KHV |
| 23 | 20349644 | -1.773100 | -8.27088 | KHV |
| 24 | 69126919 | -1.338150 | -6.76224 | KHV |
| 25 | 151669901 | -2.155580 | -7.15834 | KHV |
| 26 | 153982797 | -1.289470 | -6.11440 | KHV |

Show more tables (these are the same again):

```
import pandas as pd
pd.read_csv('../results/result_table.csv')
```

| | pos | when_DAF_is_half | when_mutation_has_freq2 | popula |
|----|-----------|------------------|-------------------------|--------|
| 0 | 10122953 | -1.390610 | -6.29509 | CDX |
| 1 | 11859476 | -2.693320 | -6.64483 | CDX |
| 2 | 11864438 | -2.693320 | -6.64483 | CDX |
| 3 | 32635171 | -2.224110 | -6.58804 | CDX |
| 4 | 105249963 | -1.406140 | -6.11750 | CDX |
| 5 | 3712725 | -1.086690 | -6.50623 | CHB |
| 6 | 3713920 | -2.062530 | -9.86443 | CHB |
| 7 | 3717514 | -2.635040 | -6.90527 | CHB |
| 8 | 3720564 | -2.399250 | -6.07486 | CHB |
| 9 | 3720591 | -2.399250 | -6.07486 | CHB |
| 10 | 3721203 | -2.399250 | -6.07486 | CHB |
| 11 | 3721452 | -2.399250 | -6.07486 | CHB |
| 12 | 32812742 | -3.157760 | -6.19174 | CHB |
| 13 | 47349640 | -1.544110 | -6.06731 | CHB |
| 14 | 47352820 | -2.056060 | -8.20242 | CHB |
| 15 | 151669901 | -1.644880 | -8.53576 | CHB |
| 16 | 3706646 | -2.436120 | -6.34196 | CHS |
| 17 | 10214581 | -2.539500 | -9.20117 | CHS |
| 18 | 122431333 | -0.937105 | -6.22082 | CHS |
| 19 | 141669308 | -1.019170 | -6.12830 | CHS |
| 20 | 49962327 | -1.766100 | -6.61933 | JPT |
| 21 | 142111497 | -1.409290 | -6.26781 | JPT |
| 22 | 20348765 | -2.042520 | -6.05583 | KHV |
| 23 | 20349644 | -1.773100 | -8.27088 | KHV |
| 24 | 69126919 | -1.338150 | -6.76224 | KHV |
| 25 | 151669901 | -2.155580 | -7.15834 | KHV |
| 26 | 153982797 | -1.289470 | -6.11440 | KHV |

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import pandas as pd
pd.read_csv('../results/result_table.csv')
```

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|---|----------|------------------|-------------------------|--------|
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| | pos | when_DAF_is_half | when_mutation_has_freq2 | population |
|----|-----------|------------------|-------------------------|------------|
| 4 | 105249963 | -1.406140 | -6.11750 | CDX |
| 5 | 3712725 | -1.086690 | -6.50623 | CHB |
| 6 | 3713920 | -2.062530 | -9.86443 | CHB |
| 7 | 3717514 | -2.635040 | -6.90527 | CHB |
| 8 | 3720564 | -2.399250 | -6.07486 | CHB |
| 9 | 3720591 | -2.399250 | -6.07486 | CHB |
| 10 | 3721203 | -2.399250 | -6.07486 | CHB |
| 11 | 3721452 | -2.399250 | -6.07486 | CHB |
| 12 | 32812742 | -3.157760 | -6.19174 | CHB |
| 13 | 47349640 | -1.544110 | -6.06731 | CHB |
| 14 | 47352820 | -2.056060 | -8.20242 | CHB |
| 15 | 151669901 | -1.644880 | -8.53576 | CHB |
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| 18 | 122431333 | -0.937105 | -6.22082 | CHS |
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| 21 | 142111497 | -1.409290 | -6.26781 | JPT |
| 22 | 20348765 | -2.042520 | -6.05583 | KHV |
| 23 | 20349644 | -1.773100 | -8.27088 | KHV |
| 24 | 69126919 | -1.338150 | -6.76224 | KHV |
| 25 | 151669901 | -2.155580 | -7.15834 | KHV |
| 26 | 153982797 | -1.289470 | -6.11440 | KHV |

Part IV

Slides

1 Main talk

1.1 Admixture displacement in each geographical region

1.1.1 This is a subtitle

Here we have some text that may run over several lines of the slide frame, depending on how long it is.

- first item
 - A sub item

Next, we'll brief review some theme-specific components.

- Note that *all* of the standard Reveal.js features can be used with this theme, even if we don't highlight them here.

1.2 Additional theme classes

1.2.1 Some extra things you can do with the clean theme

Special classes for emphasis

- `.alert` class for default emphasis, e.g. important note.
- `.fg` class for custom colour, e.g. important note.
- `.bg` class for custom background, e.g. important note.

Cross-references

- `.button` class provides a Beamer-like button, e.g. Summary

1.3Social norms

1.3.1 Sampling

We used a sample size of 24.

In Denmark, the workplace interaction is very informal and largely unaffected by seniority and age.

The 24 subjects from workplaces in Denmark were interviewed blah

1.4Social norms

1.4.1 Neither academic seniority or age affected interaction

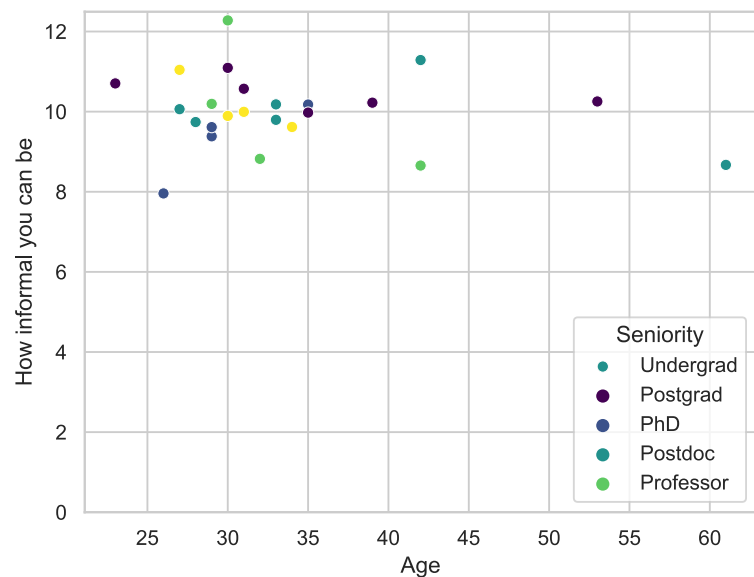


Figure 1.1: Interaction among Danes: How Danes interact has very little to do with age and seniority, compared to most other countries.

The correlation between informality and age was -0.195 and the correlation between informality and seniority was -0.055.

1.5Slide title

- Eat spaghetti
- Drink wine

1.6Slide title

Left column

- One
- Two
- Three

1.7Admixture displacement in each geographical region

The correlation between informality and age was -0.195 and the correlation between informality and seniority was -0.055.

1.8Slide Title

Slide content

Schumer et al. (2018)

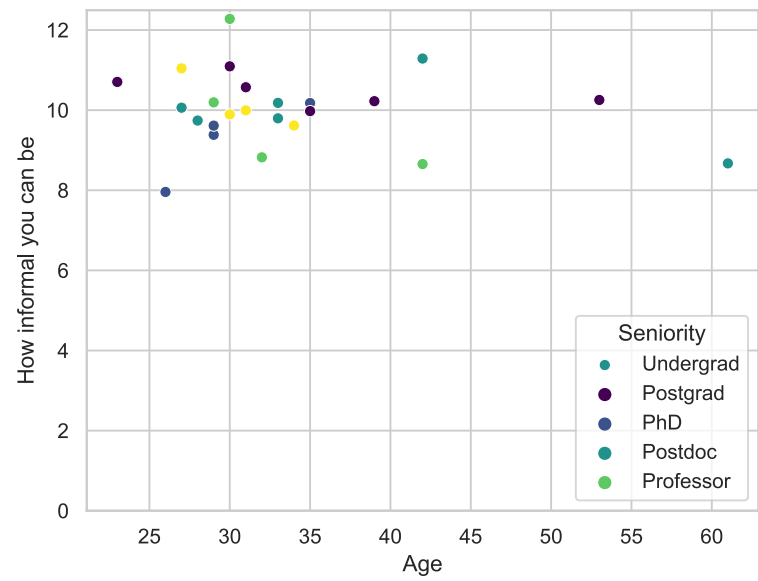


Figure 1.2: Interaction among Danes: How Danes interact is has very little to do with age and seniority, compared to most other contries.