main

September 13, 2021

1 Heatmap of sharing

[1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from rpy2.robjects import r, pandas2ri
```

[2]:
```
pandas2ri.activate()
```

1.1 Sign match only

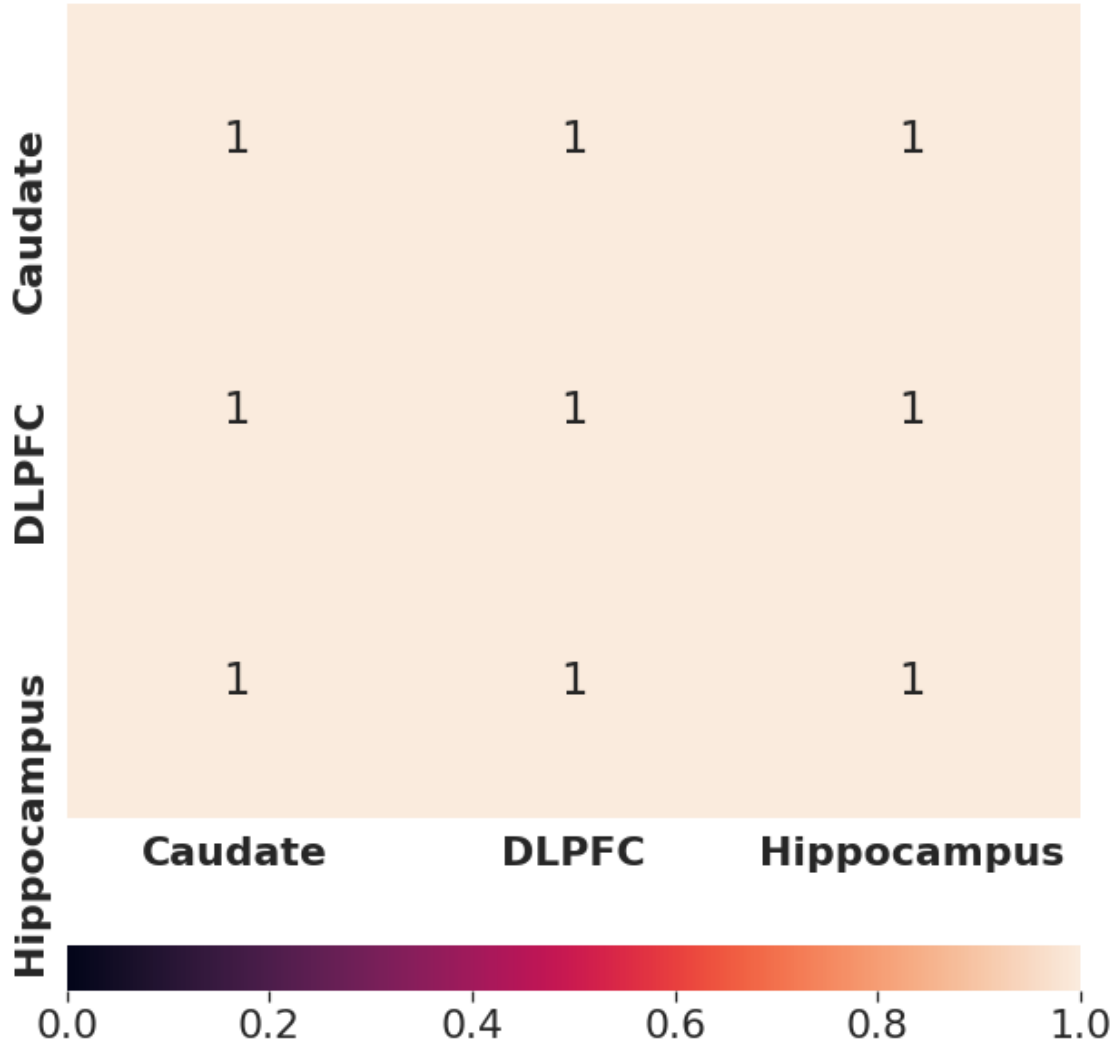
1.1.1 Genes

[3]:
```
mat = r('''load("../../_m/genes/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[3]:

	Caudate	DLPFC	Hippocampus
Caudate	1.0	1.0	1.0
DLPFC	1.0	1.0	1.0
Hippocampus	1.0	1.0	1.0

[4]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_gene.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_gene.png")
```



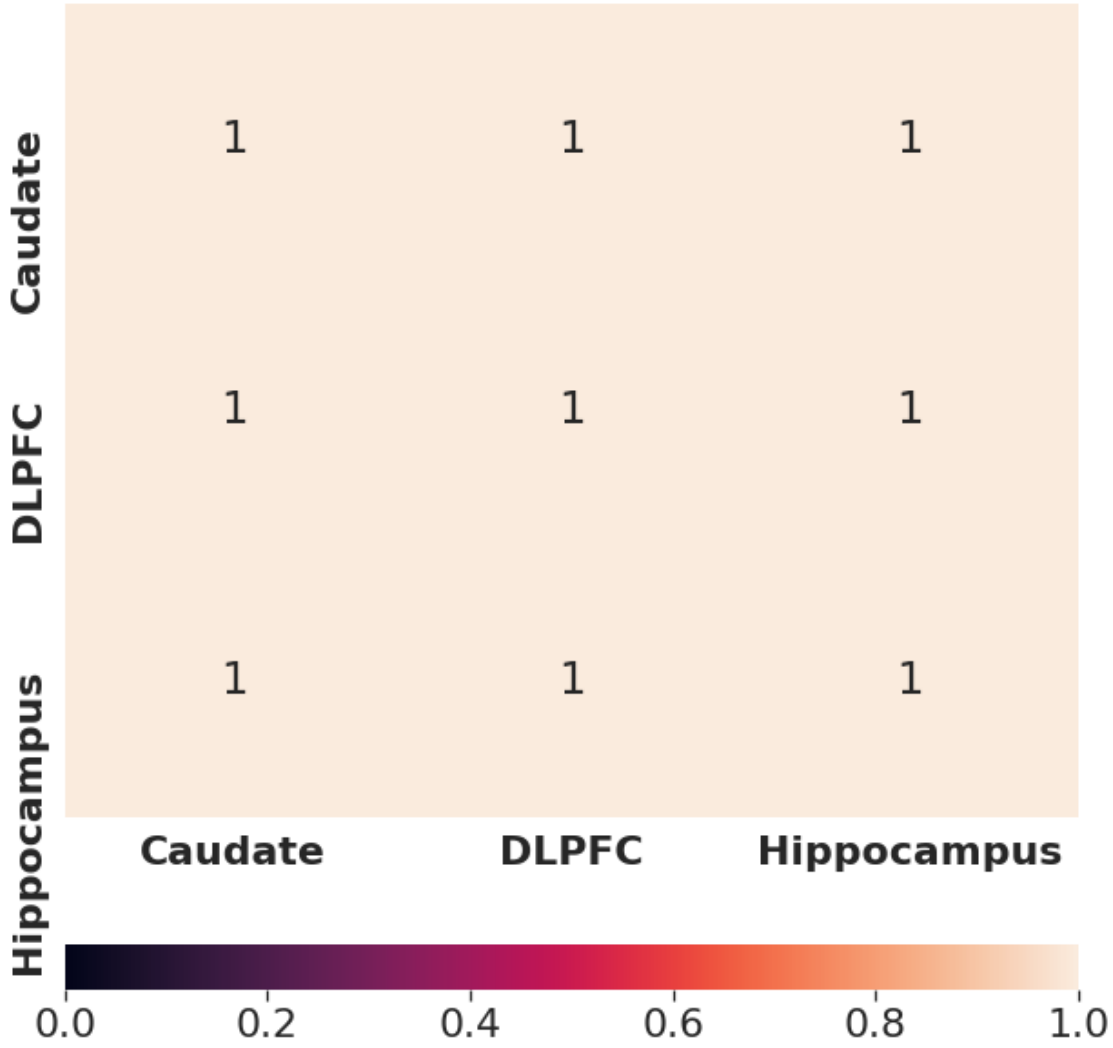
1.1.2 Transcripts

[5]:
```
mat = r('''load("../../_m/transcripts/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[5]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.998077	1.0
DLPFC	0.998077	1.000000	1.0
Hippocampus	1.000000	1.000000	1.0

[6]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_tx.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_tx.png")
```



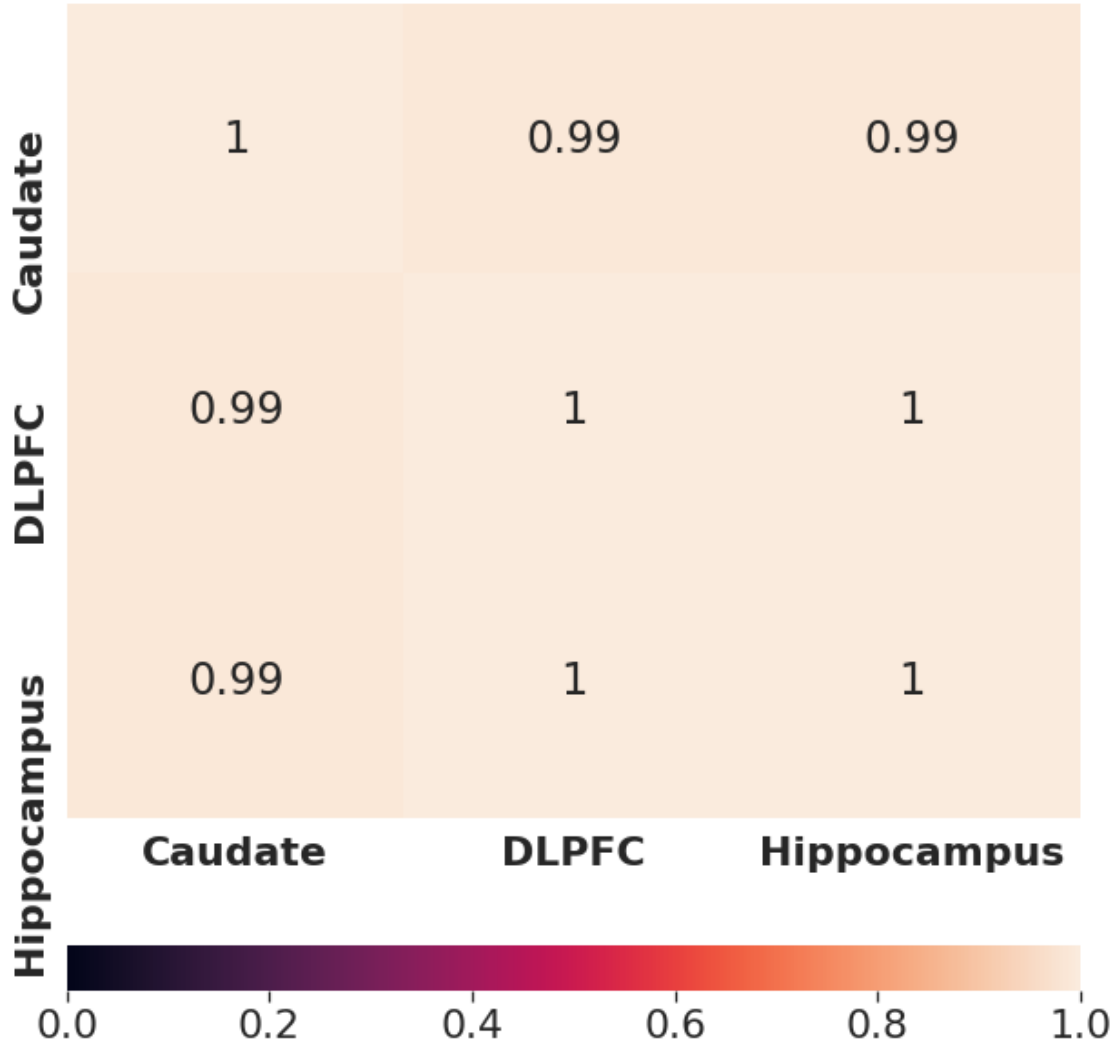
1.1.3 Exons

[7]:
```
mat = r('''load("../../_m/exons/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[7]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.989175	0.990476
DLPFC	0.989175	1.000000	1.000000
Hippocampus	0.990476	1.000000	1.000000

[8]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_exon.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_exon.png")
```



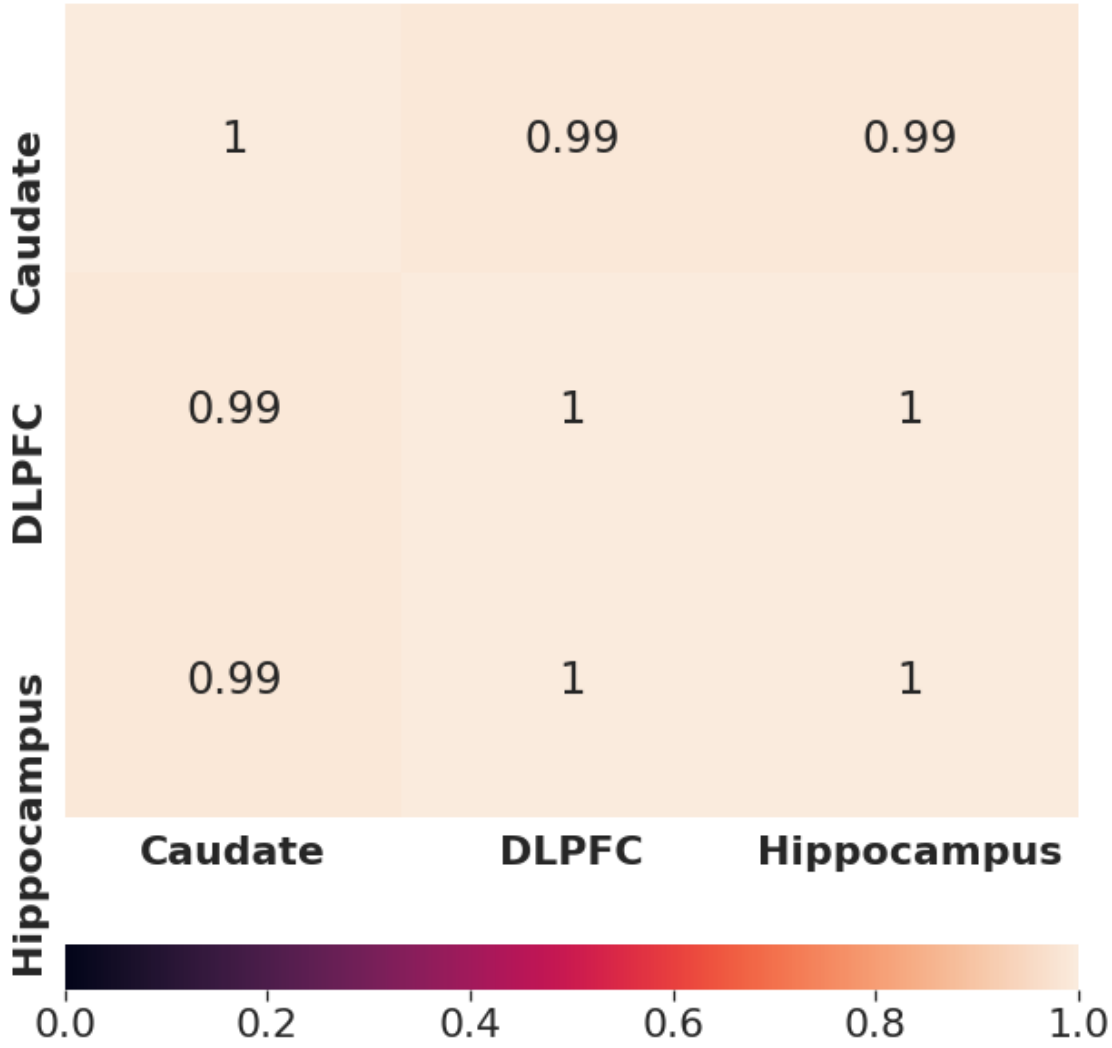
1.1.4 Junctions

[9]:
```
mat = r('''load("../../_m/junctions/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[9]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.991266	0.991228
DLPFC	0.991266	1.000000	1.000000
Hippocampus	0.991228	1.000000	1.000000

[10]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_jxn.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_signOnly_jxn.png")
```



1.2 Factor 0.5

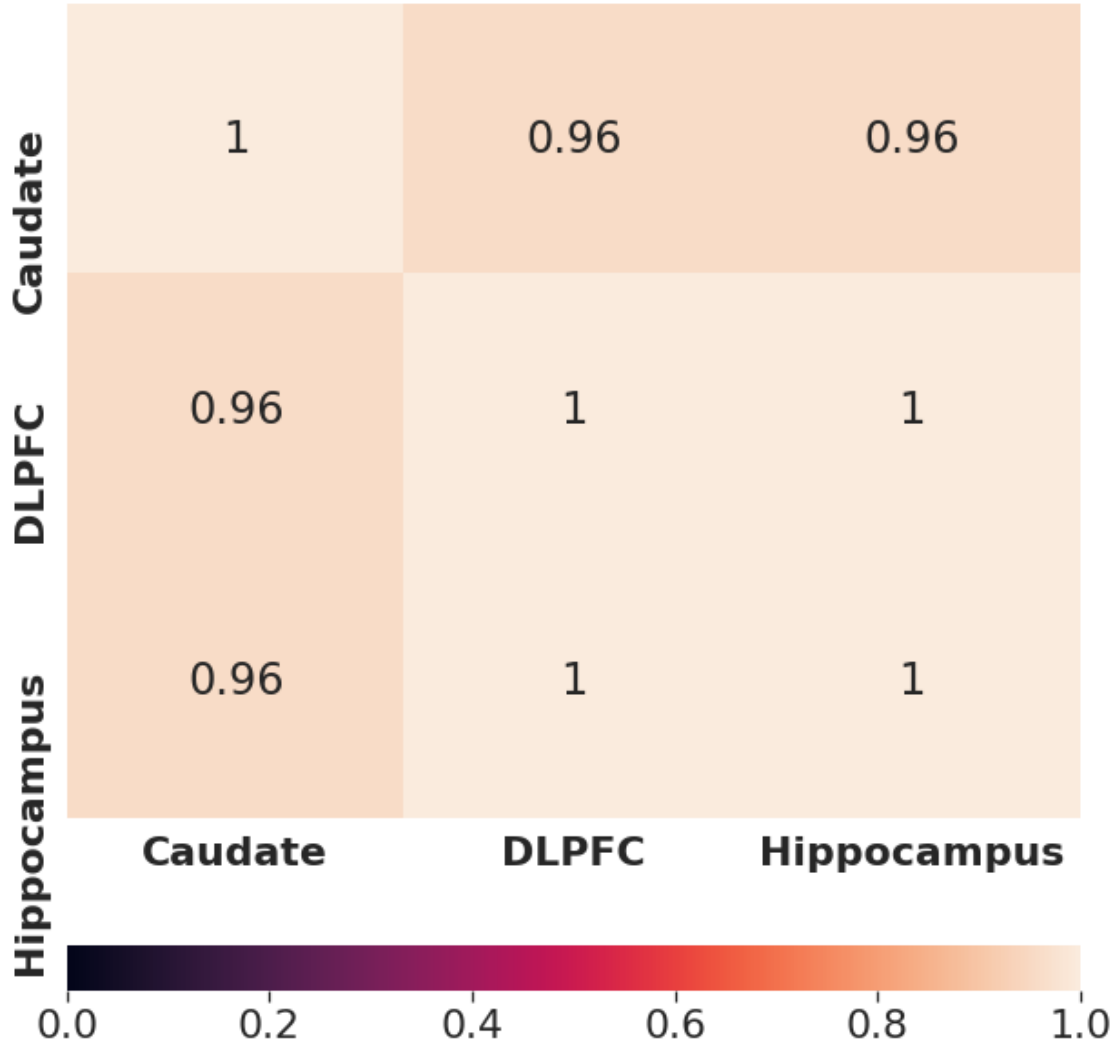
1.2.1 Genes

[11]:
```
mat = r('''load("../../_m/genes/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[11]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.960784	0.960784
DLPFC	0.960784	1.000000	1.000000
Hippocampus	0.960784	1.000000	1.000000

[12]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_gene.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_gene.png")
```



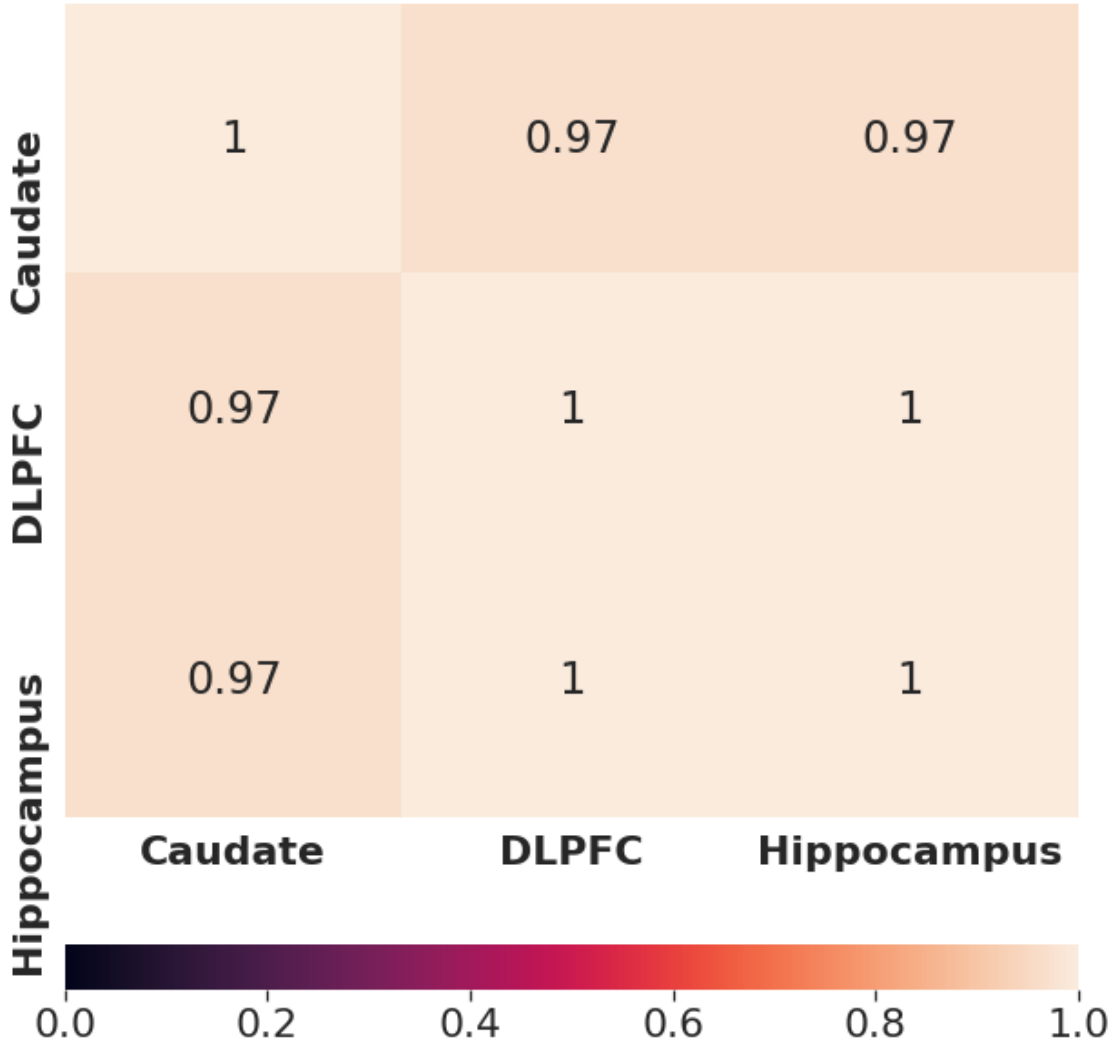
1.2.2 Transcripts

[13]:
```
mat = r('''load("../../_m/transcripts/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[13]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.971154	0.969231
DLPFC	0.971154	1.000000	1.000000
Hippocampus	0.969231	1.000000	1.000000

[14]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_tx.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_tx.png")
```



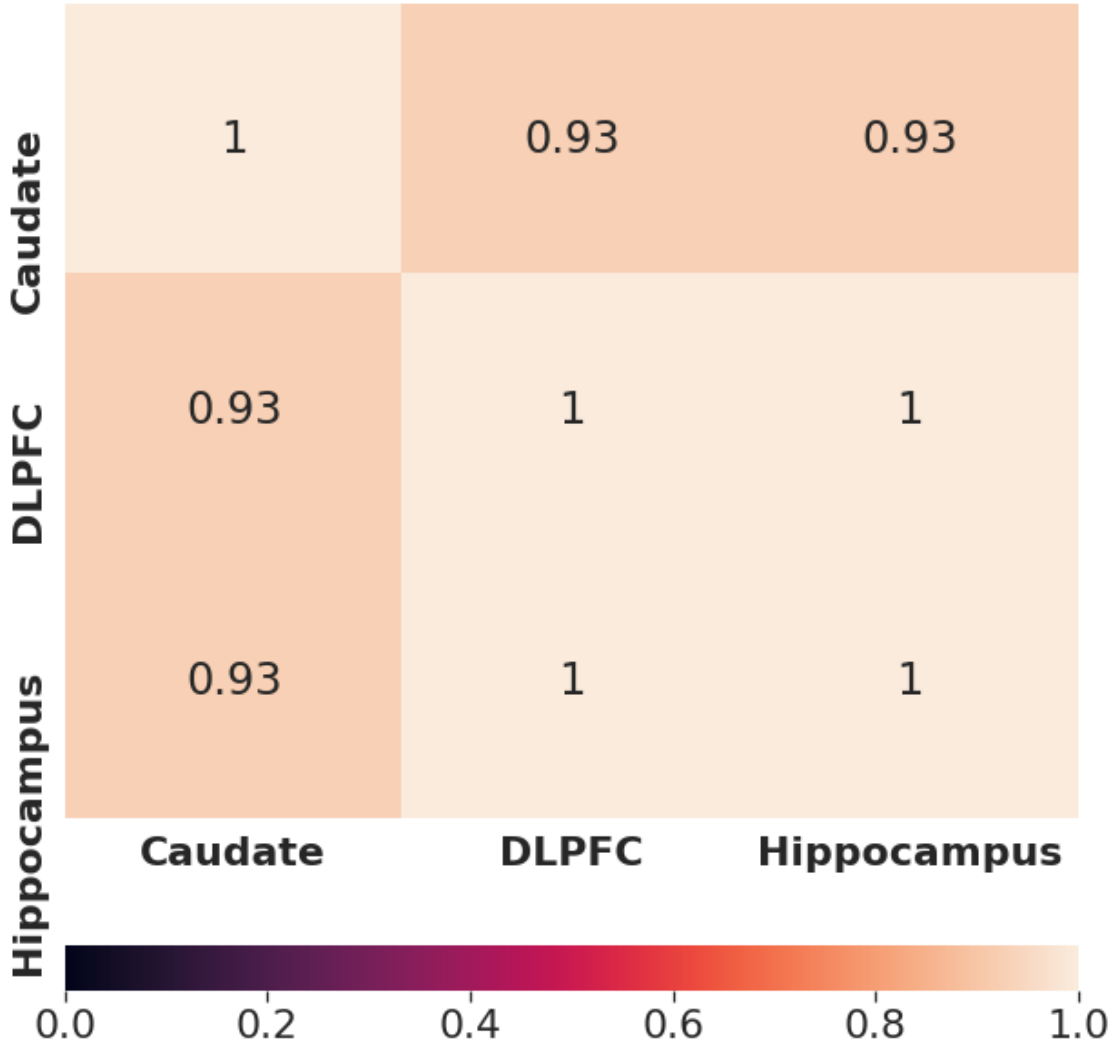
1.2.3 Exons

[15]:
```
mat = r('''load("../../_m/exons/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[15]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.929635	0.927891
DLPFC	0.929635	1.000000	0.998192
Hippocampus	0.927891	0.998192	1.000000

[16]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_exon.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_exon.png")
```



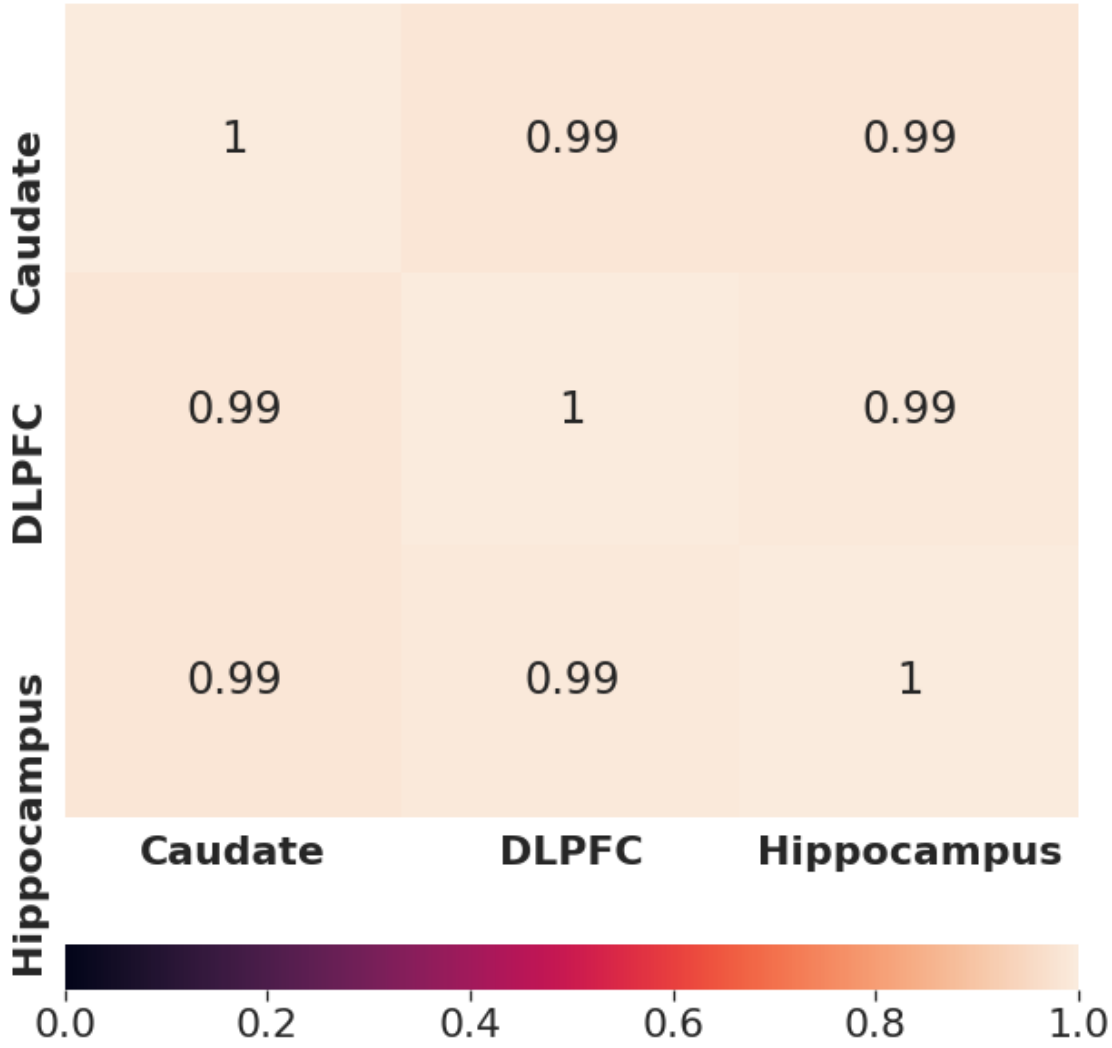
1.2.4 Junctions

[17]:
```
mat = r('''load("../../_m/junctions/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[17]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.9869	0.986842
DLPFC	0.986900	1.0000	0.995000
Hippocampus	0.986842	0.9950	1.000000

[18]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_jxn.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_jxn.png")
```



1.3 Factor 0.99

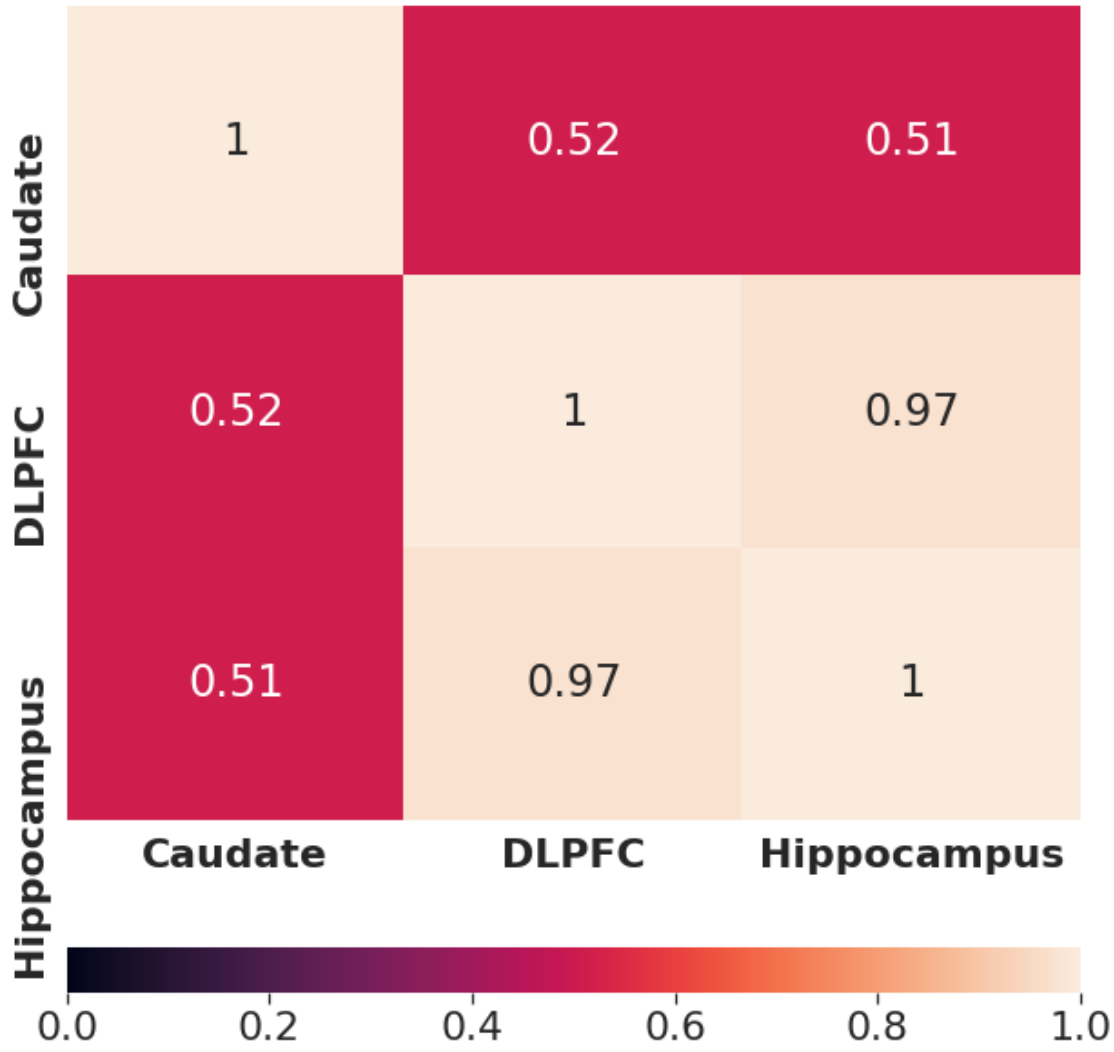
1.3.1 Genes

[19]:
```
mat = r('''load("../../_m/genes/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0.99)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[19]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.515406	0.512605
DLPFC	0.515406	1.000000	0.974170
Hippocampus	0.512605	0.974170	1.000000

[20]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_gene_effect99.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_gene_effect99.png")
```



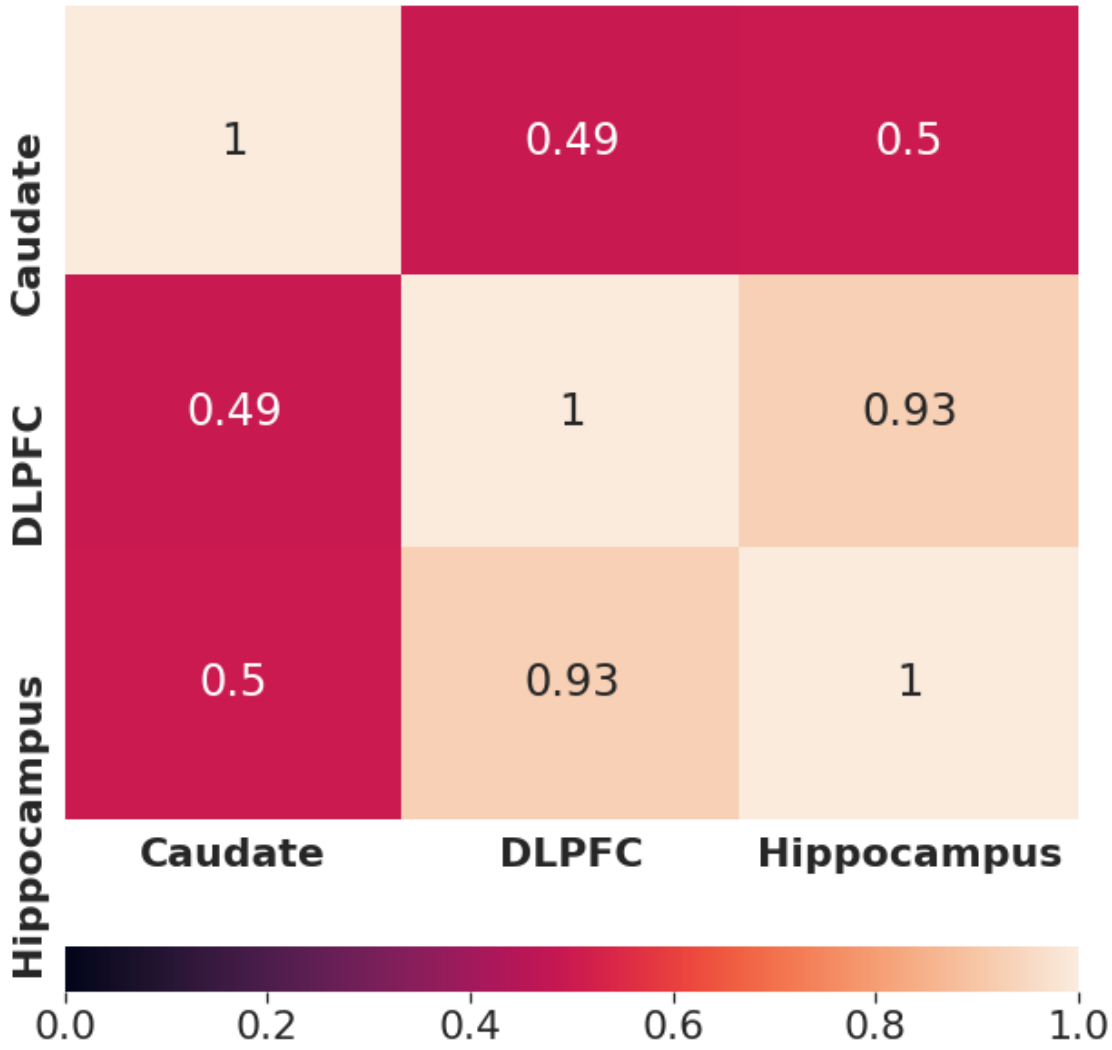
1.3.2 Transcripts

[21]:
```
mat = r('''load("../../_m/transcripts/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0.99)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[21]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.492308	0.496154
DLPFC	0.492308	1.000000	0.929078
Hippocampus	0.496154	0.929078	1.000000

[22]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_tx_effect99.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_tx_effect99.png")
```



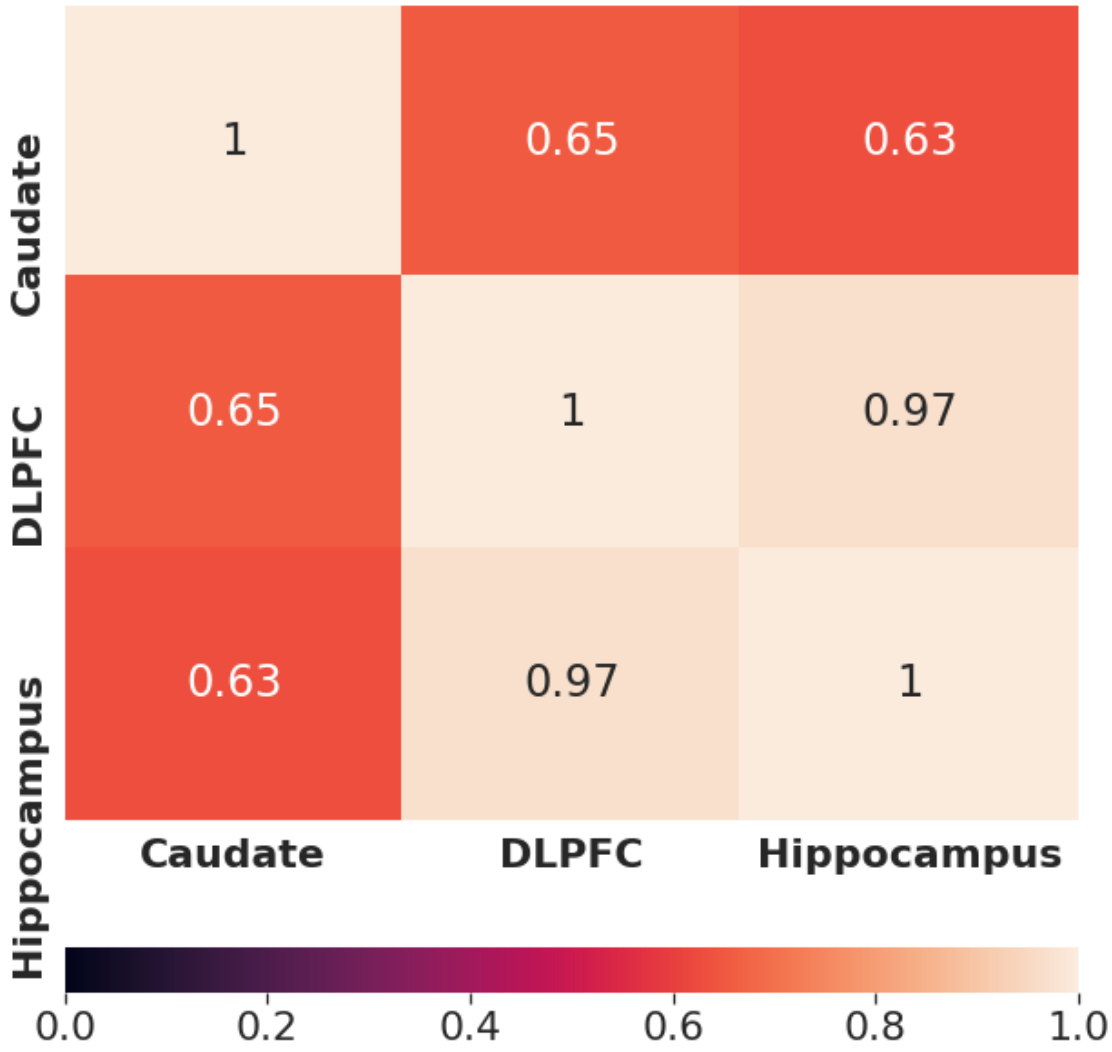
1.3.3 Exons

[23]:
```
mat = r('''load("../../_m/exons/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0.99)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[23]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.654939	0.631293
DLPFC	0.654939	1.000000	0.969259
Hippocampus	0.631293	0.969259	1.000000

[24]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_exon_effect99.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_exon_effect99.png")
```



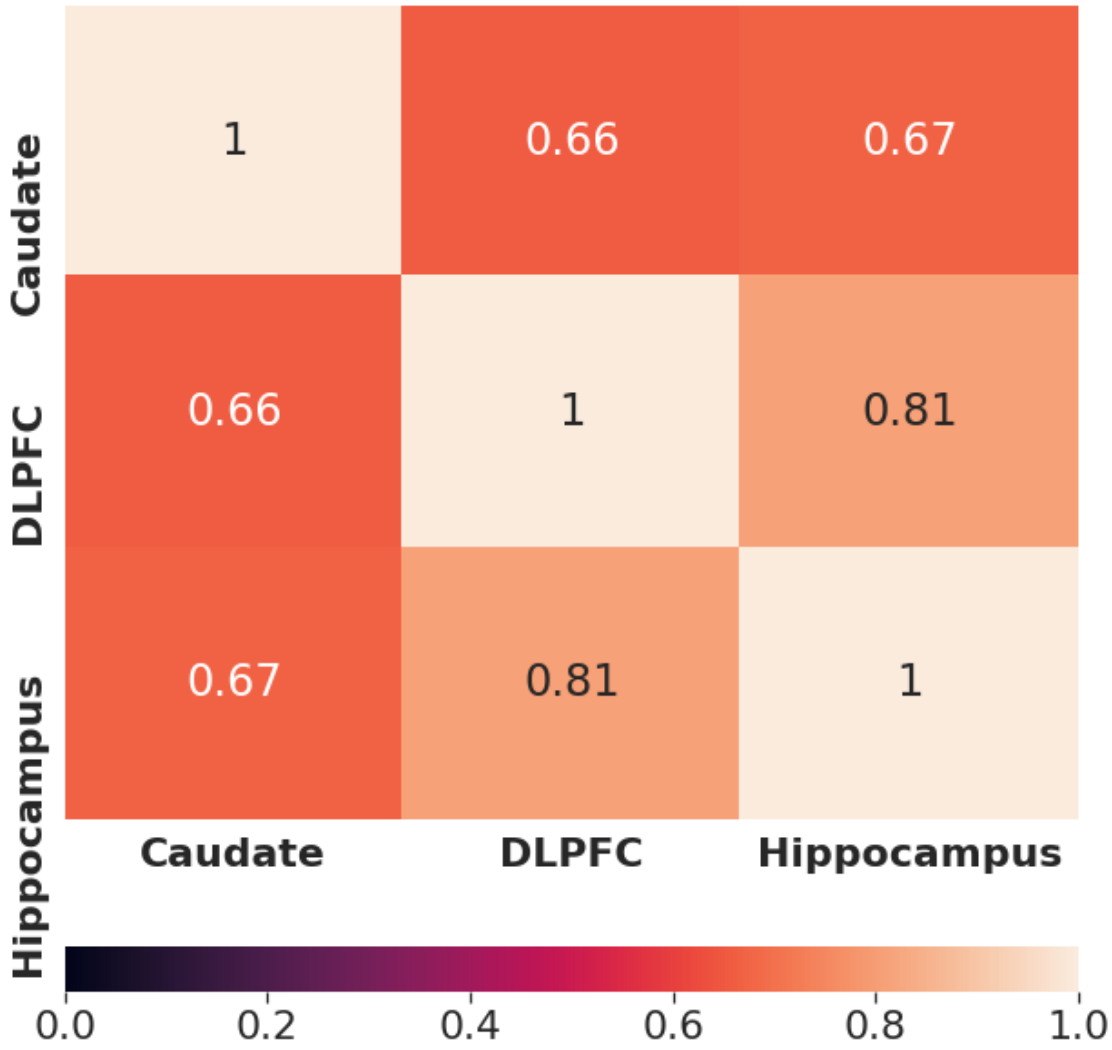
1.3.4 Junctions

[25]:
```
mat = r('''load("../../_m/junctions/mashr_meta_results.RData"); mashr::
 ↪get_pairwise_sharing(m2, factor=0.99)''')
df = pd.DataFrame(np.array(mat), index=["Caudate", "DLPFC", "Hippocampus"],
                  columns=["Caudate", "DLPFC", "Hippocampus"])
df
```

[25]:

	Caudate	DLPFC	Hippocampus
Caudate	1.000000	0.659389	0.671053
DLPFC	0.659389	1.000000	0.810000
Hippocampus	0.671053	0.810000	1.000000

[26]:
```
sns.set(font_scale=2)
grid_kws = {"height_ratios": (.9, .05), "hspace": .3}
f, (ax, cbar_ax) = plt.subplots(2, gridspec_kw=grid_kws, figsize=(10,10))
chart = sns.heatmap(df, ax=ax, vmin=0, vmax=1,
                    annot=True, cbar_ax=cbar_ax,
                    cbar_kws={"orientation": "horizontal"})
chart.set_yticklabels(chart.get_yticklabels(), fontweight="bold")
chart.set_xticklabels(chart.get_xticklabels(), fontweight="bold")
sns_plot = chart.get_figure()
sns_plot.savefig("eQTL_sharing_heatmap_jxn_effect99.pdf")
sns_plot.savefig("eQTL_sharing_heatmap_jxn_effect99.png")
```



[ ]: