**1. t-tests means NG-Tax taxa distances versus QIIME taxa distances**

**>** t.test(taxa\_d\_ngtax$MC1.vs.EXP,taxa\_d\_qiime\_default$MC1.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: taxa\_d\_ngtax$MC1.vs.EXP and taxa\_d\_qiime\_default$MC1.vs.EXP

t = -6.18, df = 16, p-value = 1.321e-05

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.18220417 -0.06525177

sample estimates:

mean of x mean of y

0.1415997 0.2653277

**>** t.test(taxa\_d\_ngtax$MC2.vs.EXP,taxa\_d\_qiime\_default$MC2.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: taxa\_d\_ngtax$MC2.vs.EXP and taxa\_d\_qiime\_default$MC2.vs.EXP

t = -17.936, df = 59.574, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1439976 -0.1067919

sample estimates:

mean of x mean of y

0.05810897 0.18350372

**>** t.test(taxa\_d\_ngtax$MC3.vs.EXP,taxa\_d\_qiime\_default$MC3.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: taxa\_d\_ngtax$MC3.vs.EXP and taxa\_d\_qiime\_default$MC3.vs.EXP

t = -9.1152, df = 14.36, p-value = 2.371e-07

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.18367380 -0.09350074

sample estimates:

mean of x mean of y

0.08277303 0.22136030

**>** t.test(taxa\_d\_ngtax$MC4.vs.EXP,taxa\_d\_qiime\_default$MC4.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: taxa\_d\_ngtax$MC4.vs.EXP and taxa\_d\_qiime\_default$MC4.vs.EXP

t = -11.818, df = 45.967, p-value = 1.562e-15

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1738622 -0.1094477

sample estimates:

mean of x mean of y

0.06274908 0.20440401

**2. t test means beta diversity distances to expected. NG-Tax versus QIIME default parameters.**

**>** t.test(bdiv\_ngtax$MC1.vs.EXP,bdiv\_qiime\_default$MC1.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC1.vs.EXP and bdiv\_qiime\_default$MC1.vs.EXP

t = -23.009, df = 57.21, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1921066 -0.1522303

sample estimates:

mean of x mean of y

0.08415392 0.25632239

**>** t.test(bdiv\_ngtax$MC2.vs.EXP,bdiv\_qiime\_default$MC2.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC2.vs.EXP and bdiv\_qiime\_default$MC2.vs.EXP

t = -44.864, df = 207.14, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1773639 -0.1579340

sample estimates:

mean of x mean of y

0.05850063 0.22614958

**>** t.test(bdiv\_ngtax$MC3.vs.EXP,bdiv\_qiime\_default$MC3.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC3.vs.EXP and bdiv\_qiime\_default$MC3.vs.EXP

t = -39.953, df = 57.977, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.2026403 -0.1773122

sample estimates:

mean of x mean of y

0.07230663 0.26228289

**>** t.test(bdiv\_ngtax$MC4.vs.EXP,bdiv\_qiime\_default$MC4.vs.EXP,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC4.vs.EXP and bdiv\_qiime\_default$MC4.vs.EXP

t = -29.03, df = 155.22, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.2010843 -0.1679342

sample estimates:

mean of x mean of y

0.06236392 0.24687314

**3. t test means beta diversity distances within MC type. NG-Tax versus QIIME default parameters.**

**>** t.test(bdiv\_ngtax$MC1.vs.MC1,bdiv\_qiime\_default$MC1.vs.MC1,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC1.vs.MC1 and bdiv\_qiime\_default$MC1.vs.MC1

t = -9.0415, df = 77.596, p-value = 9.357e-14

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1852206 -0.1014849

sample estimates:

mean of x mean of y

0.07036234 0.21371508

**>** t.test(bdiv\_ngtax$MC2.vs.MC2,bdiv\_qiime\_default$MC2.vs.MC2,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC2.vs.MC2 and bdiv\_qiime\_default$MC2.vs.MC2

t = -36.358, df = 1039.6, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1482988 -0.1286425

sample estimates:

mean of x mean of y

0.04229213 0.18076278

**>** t.test(bdiv\_ngtax$MC3.vs.MC3,bdiv\_qiime\_default$MC3.vs.MC3,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC3.vs.MC3 and bdiv\_qiime\_default$MC3.vs.MC3

t = -9.458, df = 70.514, p-value = 3.588e-14

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.2527903 -0.1422233

sample estimates:

mean of x mean of y

0.04389042 0.24139724

**>** t.test(bdiv\_ngtax$MC4.vs.MC4,bdiv\_qiime\_default$MC4.vs.MC4,conf.level=0.99)

Welch Two Sample t-test

data: bdiv\_ngtax$MC4.vs.MC4 and bdiv\_qiime\_default$MC4.vs.MC4

t = -23.986, df = 562.86, p-value < 2.2e-16

alternative hypothesis: true difference in means is not equal to 0

99 percent confidence interval:

-0.1837570 -0.1480085

sample estimates:

mean of x mean of y

0.03664946 0.20253222

**4. F test variance beta diversity distances within MC type. NG-Tax versus QIIME default parameters.**

**>** var.test(bdiv\_ngtax$MC1.vs.MC1,bdiv\_qiime\_default$MC1.vs.MC1,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC1.vs.MC1 and bdiv\_qiime\_default$MC1.vs.MC1

F = 0.03272, num df = 14, denom df = 65, p-value = 1.889e-08

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.01263664 0.11906222

sample estimates:

ratio of variances

0.03271961

> var.test(bdiv\_ngtax$MC2.vs.MC2,bdiv\_qiime\_default$MC2.vs.MC2,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC2.vs.MC2 and bdiv\_qiime\_default$MC2.vs.MC2

F = 0.03608, num df = 209, denom df = 860, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.02750705 0.04832511

sample estimates:

ratio of variances

0.03607978

**>** var.test(bdiv\_ngtax$MC3.vs.MC3,bdiv\_qiime\_default$MC3.vs.MC3,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC3.vs.MC3 and bdiv\_qiime\_default$MC3.vs.MC3

F = 0.010647, num df = 14, denom df = 65, p-value = 8.594e-12

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.00411210 0.03874414

sample estimates:

ratio of variances

0.01064732

**>** var.test(bdiv\_ngtax$MC4.vs.MC4,bdiv\_qiime\_default$MC4.vs.MC4,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC4.vs.MC4 and bdiv\_qiime\_default$MC4.vs.MC4

F = 0.019521, num df = 119, denom df = 495, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.01368327 0.02889983

sample estimates:

ratio of variances

0.01952139

**5. F test variance beta diversity distances between MC type. NG-Tax versus QIIME default parameters.**

**>** var.test(bdiv\_ngtax$MC1.vs.MC2,bdiv\_qiime\_default$MC1.vs.MC2,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC1.vs.MC2 and bdiv\_qiime\_default$MC1.vs.MC2

F = 0.059282, num df = 125, denom df = 503, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.04184057 0.08696998

sample estimates:

ratio of variances

0.05928172

**>** var.test(bdiv\_ngtax$MC1.vs.MC3,bdiv\_qiime\_default$MC1.vs.MC3,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC1.vs.MC3 and bdiv\_qiime\_default$MC1.vs.MC3

F = 0.02426, num df = 35, denom df = 143, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.01284856 0.05201223

sample estimates:

ratio of variances

0.0242604

**>** var.test(bdiv\_ngtax$MC1.vs.MC4,bdiv\_qiime\_default$MC1.vs.MC4,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC1.vs.MC4 and bdiv\_qiime\_default$MC1.vs.MC4

F = 0.050402, num df = 95, denom df = 383, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.03387798 0.07850973

sample estimates:

ratio of variances

0.05040152

**>** var.test(bdiv\_ngtax$MC2.vs.MC3,bdiv\_qiime\_default$MC2.vs.MC3,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC2.vs.MC3 and bdiv\_qiime\_default$MC2.vs.MC3

F = 0.026409, num df = 125, denom df = 503, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.01863957 0.03874429

sample estimates:

ratio of variances

0.02640944

**>** var.test(bdiv\_ngtax$MC2.vs.MC4,bdiv\_qiime\_default$MC2.vs.MC4,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC2.vs.MC4 and bdiv\_qiime\_default$MC2.vs.MC4

F = 0.027494, num df = 335, denom df = 1343, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.02214418 0.03458170

sample estimates:

ratio of variances

0.02749449

**>** var.test(bdiv\_ngtax$MC3.vs.MC4,bdiv\_qiime\_default$MC3.vs.MC4,conf.level=0.99)

F test to compare two variances

data: bdiv\_ngtax$MC3.vs.MC4 and bdiv\_qiime\_default$MC3.vs.MC4

F = 0.025848, num df = 95, denom df = 383, p-value < 2.2e-16

alternative hypothesis: true ratio of variances is not equal to 1

99 percent confidence interval:

0.01737382 0.04026255

sample estimates:

ratio of variances

0.02584767