

BFF

```
## Loading required package: lattice

##
## Attaching package: 'BSDA'

## The following object is masked from 'package:datasets':
##
##      Orange
```

The following examples will show how the BFF package calculates Bayes factors based on test statistics

z - test

```
# generate some data
n = 100
data_one = rnorm(n = n, mean = 0.2, sd = 1)
data_two = rnorm(n = n, mean = 0.1, sd = 1)

# calculate a test statistic
z_score_one = z.test(x = data_one, sigma.x = 1)$statistic
z_score_two = z.test(x = data_one, y = data_two, sigma.x = 1, sigma.y = 1)$statistic

# calculate a BFF
z_BFF_one = BFF_z_test(z_stat = z_score_one, n = 100)
z_BFF_two = BFF_z_test(z_stat = z_score_two, one_sample = FALSE, n1 = 100, n2 = 100)
```

t - test

```
# generate some data
n = 100
data_one = rnorm(n = n, mean = -0.1)
data_two = rnorm(n = n, mean = 0.1)

# calculate a test st
t_one = t.test(x = data_one)
t_two = t.test(x = data_one, y = data_two)
t_score_one = t_one$statistic
t_score_two = t_two$statistic
t_df_one = n - 1
```

```
t_df_two = 197.9
```

```
# calculate a BFF
```

```
t_BFF_one = BFF_t_test(t_stat = t_score_one, df = t_df_one, n = 100)
```

```
t_BFF_two = BFF_t_test(t_stat = t_score_two, df = t_df_two, one_sample = FALSE, n1 = 100, n2 = 100)
```

chi² - test

```
# generate some data - take from chisq.test example
```

```
x <- matrix(c(12, 5, 7, 7), ncol = 2)
```

```
chi2_stat = chisq.test(x)$statistic
```

```
# calculate a BFF
```

```
chi2_BFF_one = BFF_chi2_test(chi_stat = chi2_stat, df = 1, n = 4)
```

F - test

```
# generate some data
```

```
n = 100
```

```
p = 3
```

```
X = matrix(rnorm(n*p), nrow = n)
```

```
beta = c(1,1,0)
```

```
y = X %*% beta + rnorm(n)
```

```
model1 = lm(y ~ X)
```

```
anova_model = anova(model1)
```

```
F_stat = anova_model$`F value`[1]
```

```
# calculate a BFF
```

```
F_BFF_one = BFF_F_test(f_stat = F_stat, df1 = anova_model$Df[1], df2 = anova_model$Df[2], n = n)
```