

Simulations for Harmon & Nuismer

November 8th, 2016

1 Symmetrical transition rates

2 Simulation parameters:

```
pSpec <- runif(n = 1000, min = 0, max = 2)
q01 <- runif(n = 1000, min = 0, max = 1)
q10 <- q01
ntaxa <- runif(n = 1000, min = 10, max = 100)
lambda <- runif(n = 1000, min = 0, max = 2)
```

3 ## Warning: Removed 93 rows containing missing values (geom_point).

4

5 ## Warning: Removed 93 rows containing missing values (geom_point).

6 ## Warning: Removed 44 rows containing missing values (geom_point).

7 ## Warning: Removed 36 rows containing missing values (geom_point).

8 ## Warning: Removed 111 rows containing missing values (geom_point).

9 ## Warning: Removed 35 rows containing missing values (geom_point).

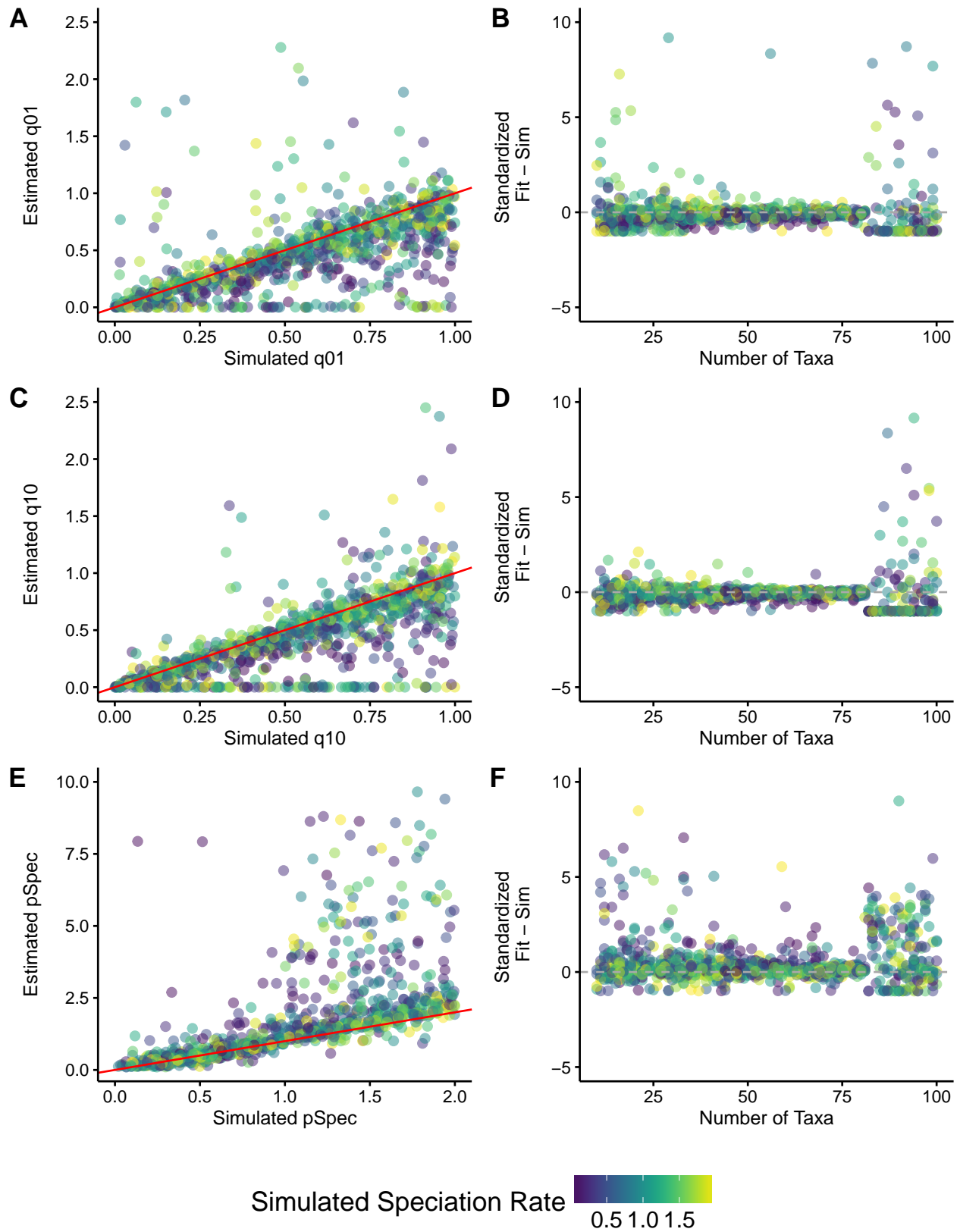


Figure 1: A - Fitted q_{01} by Simulated q_{01} ; B - Standardized (Fitted q_{01} - Simulated q_{01}) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); C - Fitted q_{10} by Simulated q_{10} ; D - Standardized (Fitted q_{10} - Simulated q_{10}) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); E - Fitted $pSpec$ by Simulated $pSpec$; F - Standardized (Fitted $pSpec$ - Simulated $pSpec$) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation)

10 Asymmetrical transition rates

11 Simulation parameters:

```
pSpec <- runif(n = 1000, min = 0, max = 2)
q01 <- runif(n = 1000, min = 0, max = 1)
q10 <- q01
ntaxa <- runif(n = 1000, min = 10, max = 100)
lambda <- runif(n = 1000, min = 0, max = 2)
```

```
12 ## Warning: Removed 115 rows containing missing values (geom_point).
13 ## Warning: Removed 114 rows containing missing values (geom_point).
14 ## Warning: Removed 48 rows containing missing values (geom_point).
15 ## Warning: Removed 62 rows containing missing values (geom_point).
16 ## Warning: Removed 175 rows containing missing values (geom_point).
17 ## Warning: Removed 88 rows containing missing values (geom_point).
```

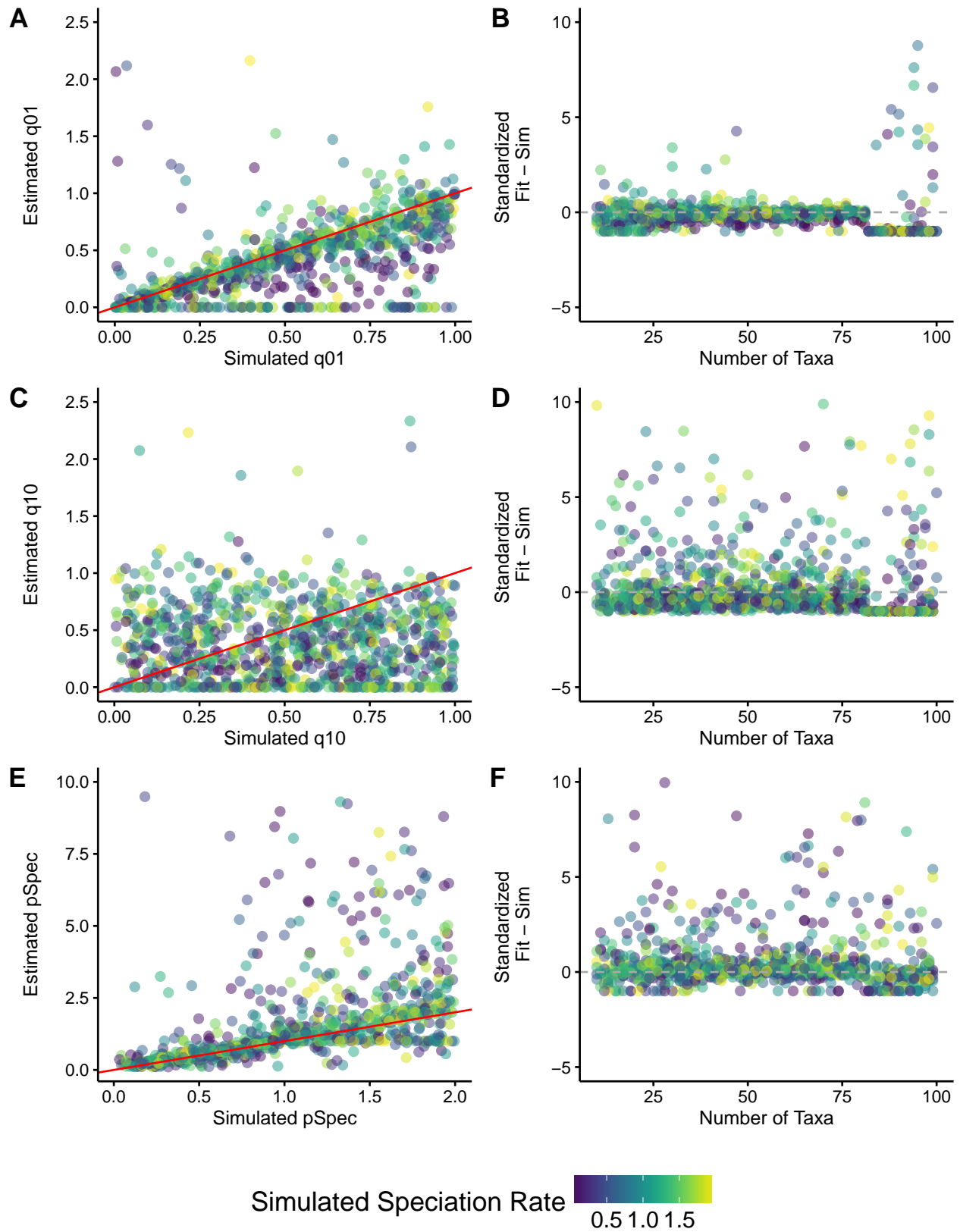


Figure 2: A - Fitted q_{01} by Simulated q_{01} ; B - Standardized (Fitted q_{01} - Simulated q_{01}) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); C - Fitted q_{10} by Simulated q_{10} ; D - Standardized (Fitted q_{10} - Simulated q_{10}) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); E - Fitted $pSpec$ by Simulated $pSpec$; F - Standardized (Fitted $pSpec$ - Simulated $pSpec$) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation)