Simulations for Harmon & Nuismer

November 8th, 2016

Symmetrical transition rates

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)
```

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

```
## Warning: Removed 93 rows containing missing values (geom_point).
## Warning: Removed 44 rows containing missing values (geom_point).
## Warning: Removed 36 rows containing missing values (geom_point).
## Warning: Removed 111 rows containing missing values (geom_point).
## Warning: Removed 35 rows containing missing values (geom_point).
```

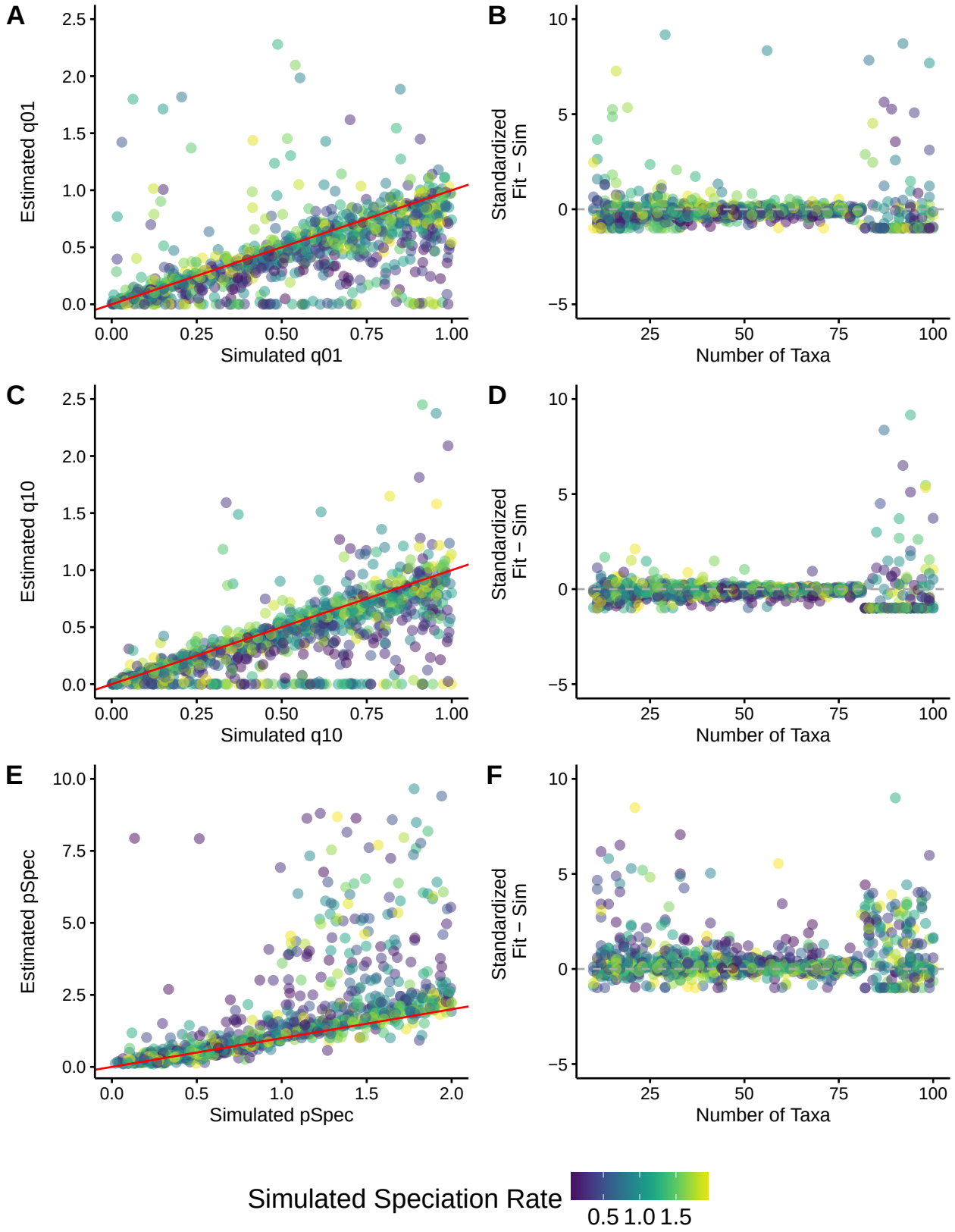

Figure 1: A - Fitted q01 by Simulated q01; B - Standardized (Fitted q01 - Simulated q01) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); C - Fitted q10 by Simulated q10; D - Standardized (Fitted q01 - Simulated q01) by Number of Taxa (values above 0 indicate 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)

Asymmetrical transition rates

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)
```

```
## Warning: Removed 115 rows containing missing values (geom_point).
## Warning: Removed 114 rows containing missing values (geom_point).
## Warning: Removed 48 rows containing missing values (geom_point).
## Warning: Removed 62 rows containing missing values (geom_point).
## Warning: Removed 175 rows containing missing values (geom_point).
## Warning: Removed 88 rows containing missing values (geom_point).
```

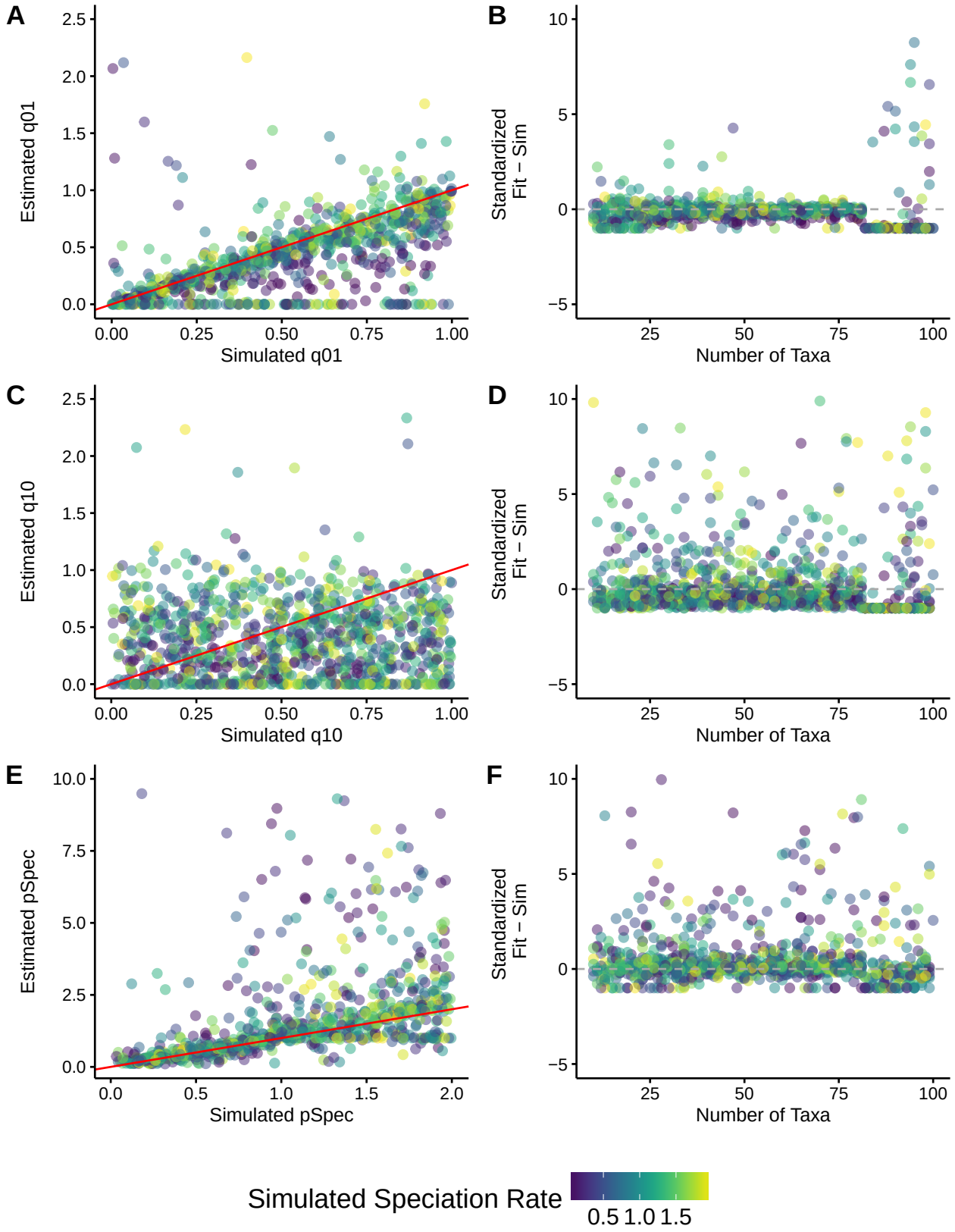

Figure 2: A - Fitted q01 by Simulated q01; B - Standardized (Fitted q01 - Simulated q01) by Number of Taxa (values above 0 indicate overestimation, and below 0 indicate underestimation); C - Fitted q10 by Simulated q10; D - Standardized (Fitted q01 - Simulated q01) by Number of Taxa (values above 0 indicate 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)