beta diversity demonstration

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load mobr and example data

```
library(mobr)
```

```
## Warning: replacing previous import 'dplyr::filter' by 'stats::filter' when
## loading 'mobr'
```

```
## Warning: replacing previous import 'dplyr::lag' by 'stats::lag' when loading
## 'mobr'
```

```
data(inv_comm)
```

Calculate whittaker's beta and beta Coverage

```
calc_comm_div(inv_comm[1:2, ], 'S')
```

```
##   scale  index sample_size effort  coverage     value
## 1 alpha      S           1     NA        NA 12.000000
## 2 alpha      S           1     NA        NA  7.000000
## 3 gamma      S           2     NA        NA 14.000000
## 4  beta beta_S           2     NA        NA  1.473684
## 5  beta beta_C           2    142 0.9787356  1.165548
```

Calculate beta S_PIE

```
calc_comm_div(inv_comm[1:2, ], 'S_PIE')
```

```
##   scale      index sample_size effort coverage    value
## 1 alpha      S_PIE           1     NA       NA 6.680108
## 2 alpha      S_PIE           1     NA       NA 3.512354
## 3 gamma      S_PIE           2     NA       NA 5.996554
## 4  beta beta_S_PIE           2     NA       NA 1.176665
```

Calculate beta S_n for 20 individuals

```
calc_comm_div(inv_comm[1:2, ], 'S_n', effort = 20)
```

```
##   scale    index sample_size effort coverage    value
## 1 alpha      S_n           1     20       NA 7.859347
## 2 alpha      S_n           1     20       NA 4.708249
## 3 gamma      S_n           2     20       NA 7.431042
## 4  beta beta_S_n           2     20       NA 1.182572
```

More than two sites can be used at a time

```
calc_comm_div(inv_comm[1:10, ], 'S')
```

```
##    scale  index sample_size effort  coverage     value
## 1  alpha      S           1     NA        NA 12.000000
```

```
## 2  alpha      S           1     NA        NA  7.000000
## 3  alpha      S           1     NA        NA 11.000000
## 4  alpha      S           1     NA        NA 11.000000
## 5  alpha      S           1     NA        NA  5.000000
## 6  alpha      S           1     NA        NA  5.000000
## 7  alpha      S           1     NA        NA  4.000000
## 8  alpha      S           1     NA        NA 11.000000
## 9  alpha      S           1     NA        NA  7.000000
## 10 alpha      S           1     NA        NA  9.000000
## 11 gamma      S          10     NA        NA 38.000000
## 12  beta beta_S          10     NA        NA  4.634146
## 13  beta beta_C          10     40 0.8241092  1.681850
```

It is also possible to just calculate beta diversity but it is generally not recommended to examine beta without reference to alpha and gamma diversity

```
calc_beta_div(inv_comm[1:10, ] , 'S')
```

```
##   scale  index sample_size effort  coverage    value
## 1  beta beta_S          10     NA        NA 4.634146
## 2  beta beta_C          10     40 0.8241092 1.681850
```