

Small Rmarkdown example with opticut and knitr

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Introduction

This is a small example demonstrating how to include opticut results into Rmarkdown (Rmd) documents.

```
library(opticut)
```

```
## Loading required package: pbapply
```

```
## opticut 0.0-9      2016-10-30
```

```
library(knitr)
```

```
ocoptions(cut=-Inf)
```

Analysis

Data set

We have the following data set:

```
## community data
```

```
y <- cbind(  
  Sp1=c(4,6,3,5, 5,6,3,4, 4,1,3,2),  
  Sp2=c(0,0,0,0, 1,0,0,1, 4,2,3,4),  
  Sp3=c(0,0,3,0, 2,3,0,5, 5,6,3,4))
```

```
## stratification
```

```
g <- c(1,1,1,1, 2,2,2,2, 3,3,3,3)
```

Finding optimal partitions

Here is the real deal:

```
oc <- opticut(formula = y ~ 1, strata = g, dist = "poisson")  
summary(oc)
```

```
## Multivariate opticut results, comb = rank, dist = poisson
```

```
##
```

```
## Call:
```

```
## opticut.formula(formula = y ~ 1, strata = g, dist = "poisson")
```

```
##
```

```
## Best supported models with logLR >= -Inf:
```

```
##      split assoc      I  mu0  mu1 logLR      w  
## Sp1    1 2      + 0.2857 2.50 4.50 1.498 0.7611
```

```
## Sp3    2 3     ++ 0.6471 0.75 3.50 4.793 0.6962
```

```
## Sp2     3    +++ 0.8571 0.25 3.25 9.203 0.9577
```

```
## 2 binary splits
```

```
oc$species[[1]]
```

```
## Univariate opticut results, comb = rank, dist = poisson
## I = 0.2857; w = 0.7611; H = 0.6364; logL_null = -22.52
##
## Best supported models with logLR >= -Inf:
##      assoc      I mu0 mu1 logLR      w
## 1 2      + 0.2857 2.5 4.5 1.498 0.7611
## 1      + 0.1250 3.5 4.5 0.339 0.2389
## 2 binary splits
```

The opticut object and its summary are lists, thus the relevant information need to be coerced into data frame using the `as.data.frame` method:

```
kable(as.data.frame(oc))
```

	split	assoc	I	mu0	mu1	logLR	w
Sp1	1 2	+	0.2857143	2.50	4.50	1.497895	0.7611396
Sp3	2 3	++	0.6470588	0.75	3.50	4.792820	0.6962116
Sp2	3	+++	0.8571429	0.25	3.25	9.202773	0.9577425

Single species result is a data frame:

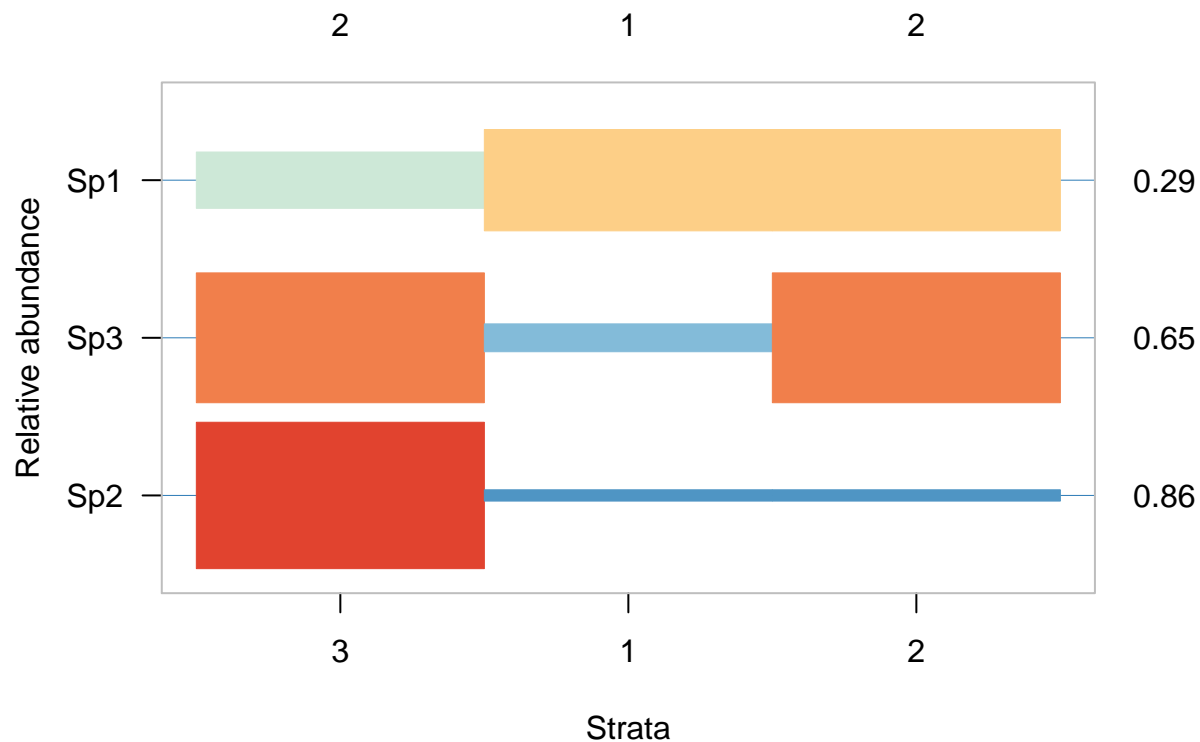
```
kable(oc$species[[1]], digits=3)
```

	assoc	I	null	mu0	mu1	beta0	beta1	logL	logLR	w
1	1	0.125	3.833	3.5	4.5	1.253	0.251	-22.185	0.339	0.239
1 2	1	0.286	3.833	2.5	4.5	0.916	0.588	-21.026	1.498	0.761

Plots

Visualizing the results:

```
plot(oc)
```



Quantifying uncertainty

```
uc <- uncertainty(oc, type = "asympt", B = 999)
summary(uc)
```

```
## Multivariate opticut uncertainty results
## type = asympt, B = 999, level = 0.95
##
##      split R      I   Lower  Upper
## Sp1    1 2 1 0.2763 0.02265 0.5482
## Sp3    2 3 1 0.6145 0.17864 0.8733
## Sp2     3 1 0.8190 0.50040 0.9664
```

The opticut object and its summary are lists, thus the relevant information need to be coerced into data frame using the `as.data.frame` method:

```
kable(as.data.frame(uc))
```

	split	R	I	Lower	Upper
Sp1	1 2	1	0.2762632	0.0226478	0.5481693
Sp3	2 3	1	0.6144909	0.1786442	0.8732539
Sp2	3	1	0.8189637	0.5004027	0.9664116