R Cheatsheet for SSR

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In R is het mogelijk om allerlei berekeningen uit te voeren en de resultaten hiervan op te slaan in zogenoemde variabelen. Hieronder is een lijstje weergegeven waarin de R can be used to do all kind of calculations and store the results in so called variables. Below you will find a list of most used statistical functions that will be used in this course. For every function an example will be given. The variables "a" and "x" are created in the first two examples and will be used in the following examples.

Functions

Symbool	R	Voorbeeld	Resultaat	Uitleg
=	a=9	9	Assign a number to a variable	
c()	x=c(1,2,3)	1, 2, 3	Assign multiple numbers to a variable	
=	==	a==7	FALSE	Logical statement "a is ewual to 7"
-	-	x-1	0, 1, 2	subtraction
+	+	x+1	2, 3, 4	addition
x	*	x*2	2, 4, 6	multiblication
:	/	x/2	0.5, 1, 1.5	devision
$\sqrt{}$	sqrt()	sqrt(a)	3	square root
x^2	^	x^2	1, 4, 9	square
$\bar{x}$	mean()	mean(x)	2	mean
N	length()	length(x)	3	returns the lenght of a vector
$\sum$	sum()	sum(x)	6	adds all numbers in a vector
s^2	var()	var(x)	1	returns the variance of a vector
s	sd()	sd(x)	1	returns the standard deviation of a vector
cbind()	cbind(x,a,b=x-a)	see below	combines multiple vectors	
visualize.t()	visualize.t(2,16,"upper")	see below	visualizes the right sided p-value for t>2 with 16 degrees of freedom	

Symbool	R	Voorbeeld	Resultaat	Uitleg
	visualize.t(2,16,“lower”)		and the left sided p-value	
	visualize.t(c(-2,2),16,“tails”)		and two sided p-value	
visualize.chisq()	visualize.chisq(4,1,“upper”)		visualizes the right sided p-value for χ^2>4 with 1 degree of freedom	
visualize.f()	visualize.f(3,2,10,“upper”)		visualizes the right sided p-value for F>3 with df(2,10)	
subset()	subset(p,group==1)$y		returns the scores on y for group one from data frame p	
ls()	ls()	“a” “x”	shows all variables stored in memory	

cbind

Result of cbind(x,a,b=x-a)

```
##      x a  b
## [1,] 1 9 -8
## [2,] 2 9 -7
## [3,] 3 9 -6
```

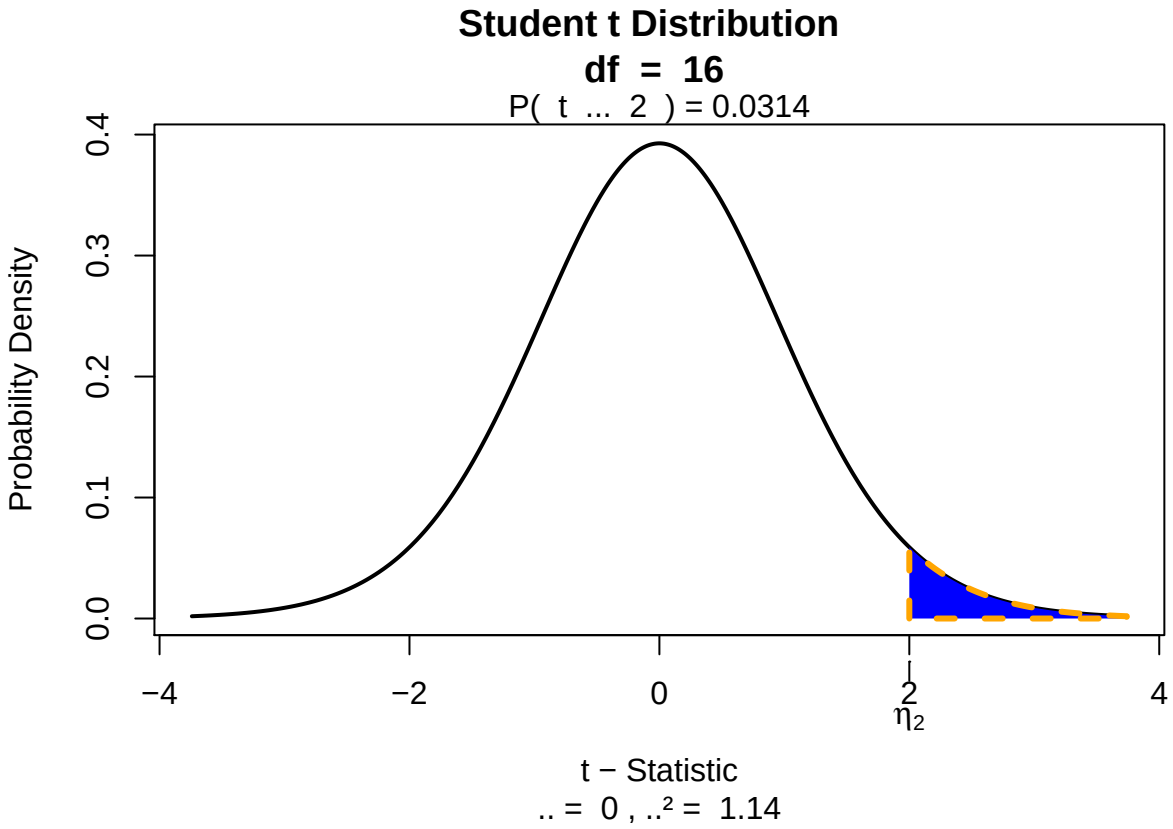
Visualize

To use visualize you need to run the following two lines of code in R.

```
if(!"visualize" %in% installed.packages()) { install.packages("visualize") };
library("visualize");
```

Application

```
library(visualize);
visualize.t(2,16,"upper");
```



Examples

Assign numbers to variables

```
x1=c(5,3,7,4);
x2=c(7,6,6,4);
a=2;
b=c(1,2);
```

Calculating with variables

Variables with the same length can be be subtracted, added, multiplied e.g. Below the number assigned tho variable `x2` is subtracted from the number assigned to `x1`.

```
x1-x2
```

```
## [1] -2 -3  1  0
```

Wanneer variabelen een verschillende lengte hebben worden de getallen / het getal van de kortste variabele herhaald zodat de lengte gelijk wordt aan die van de langere variabele

When variable of different length are used for multiplications, the shortest variable will be repeated.

```
x1-a;
```

```
## [1] 3 1 5 2
```

```
cbind(x1,a)
```

```
##      x1 a
## [1,]  5 2
## [2,]  3 2
## [3,]  7 2
## [4,]  4 2
```

```
x1-b;
```

```
## [1] 4 1 6 2
```

```
cbind(x1,b);
```

```
##      x1 b
## [1,]  5 1
## [2,]  3 2
## [3,]  7 1
## [4,]  4 2
```