Functions

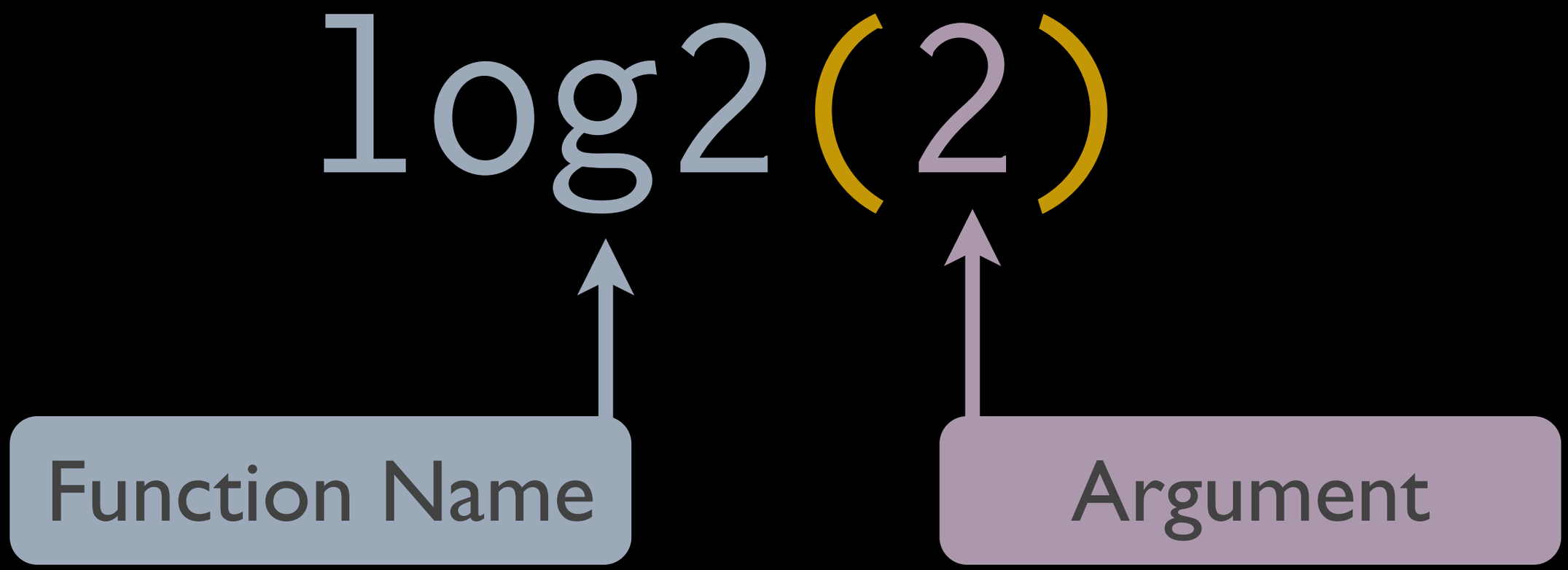
Functions

```
log2(2)
```

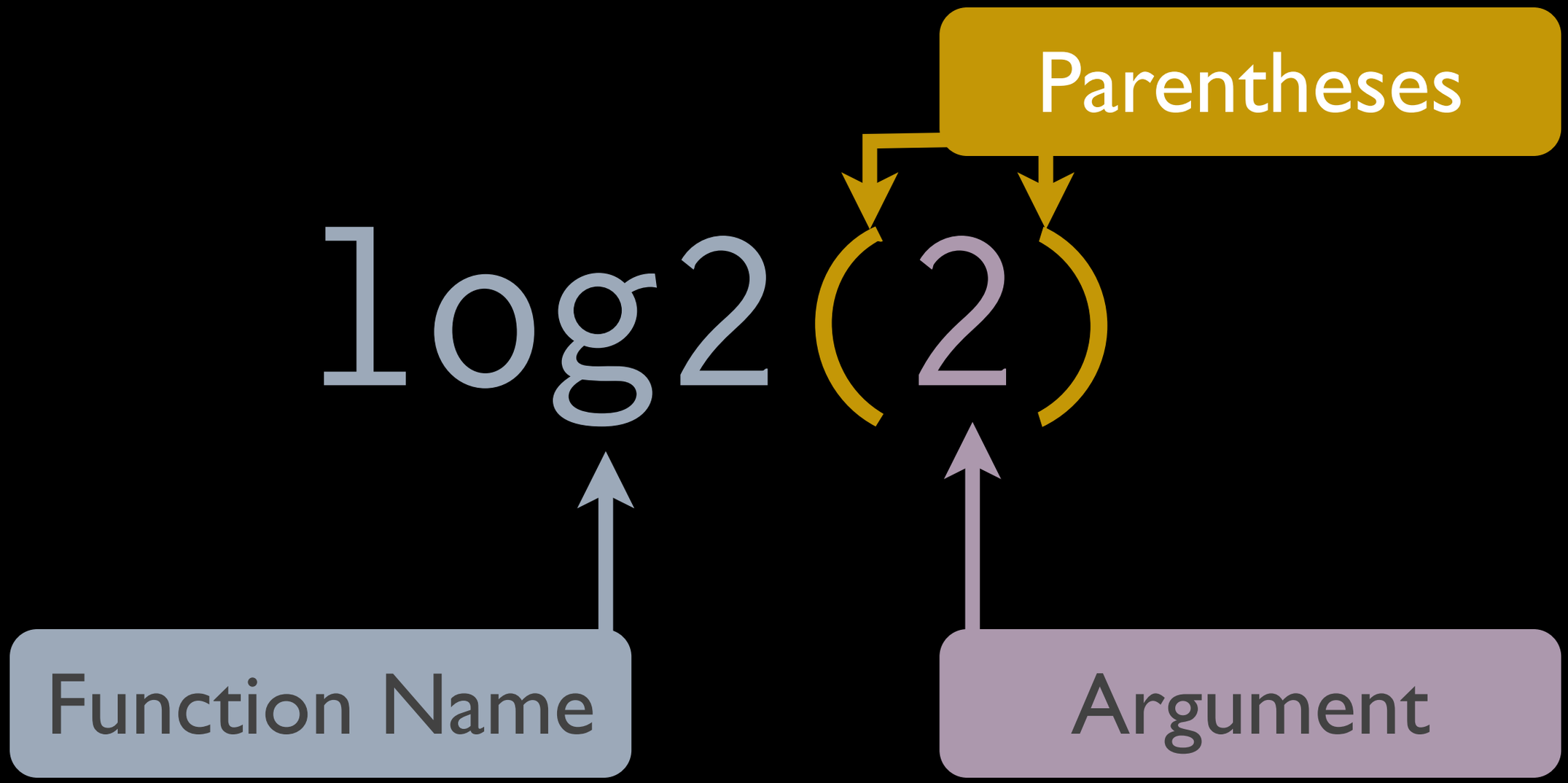
Functions

```
log2(2)
```

Functions



Functions



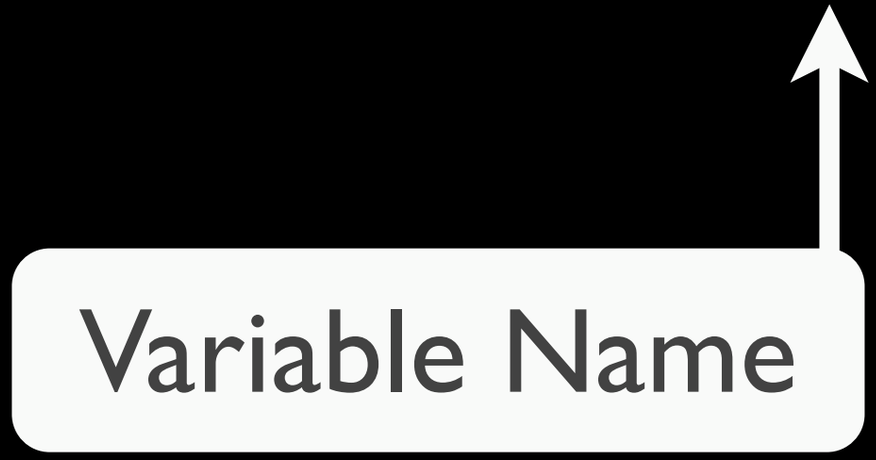
Variables

Variables

```
num <- 2
```

Variables

```
num <- 2
```



Variables

num <- 2

Variable Name

Assignment Operator

Variables

num <- 2

Variable Name

Assignment Operator

Value

Functions & Variables

Functions & Variables

```
num <- 2
```

Functions & Variables

```
num <- 2
log2(num)
```

Functions & Variables

Create Variable →

```
num <- 2
```

```
log2(num)
```

Functions & Variables

Create Variable

```
num <- 2
```

```
log2(num)
```

Use As Argument

Multiple Arguments

Multiple Arguments

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Multiple Arguments

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Multiple Arguments

Assignment

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Multiple Arguments

Assignment

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Function Name

Multiple Arguments

Assignment

Parentheses

Parentheses

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Function Name

Multiple Arguments

Assignment

Parentheses

Parentheses

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Function Name

Argument

Multiple Arguments

Assignment

Parentheses

Parentheses

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Function Name

Argument

Named Arguments

Multiple Arguments

Assignment

Parentheses

Commas

Parentheses

```
df <- read.table("H:/input.txt",header = T,sep = "\t")
```

Variable Name

Function Name

Argument

Named Arguments

Data Frames

Data Frames

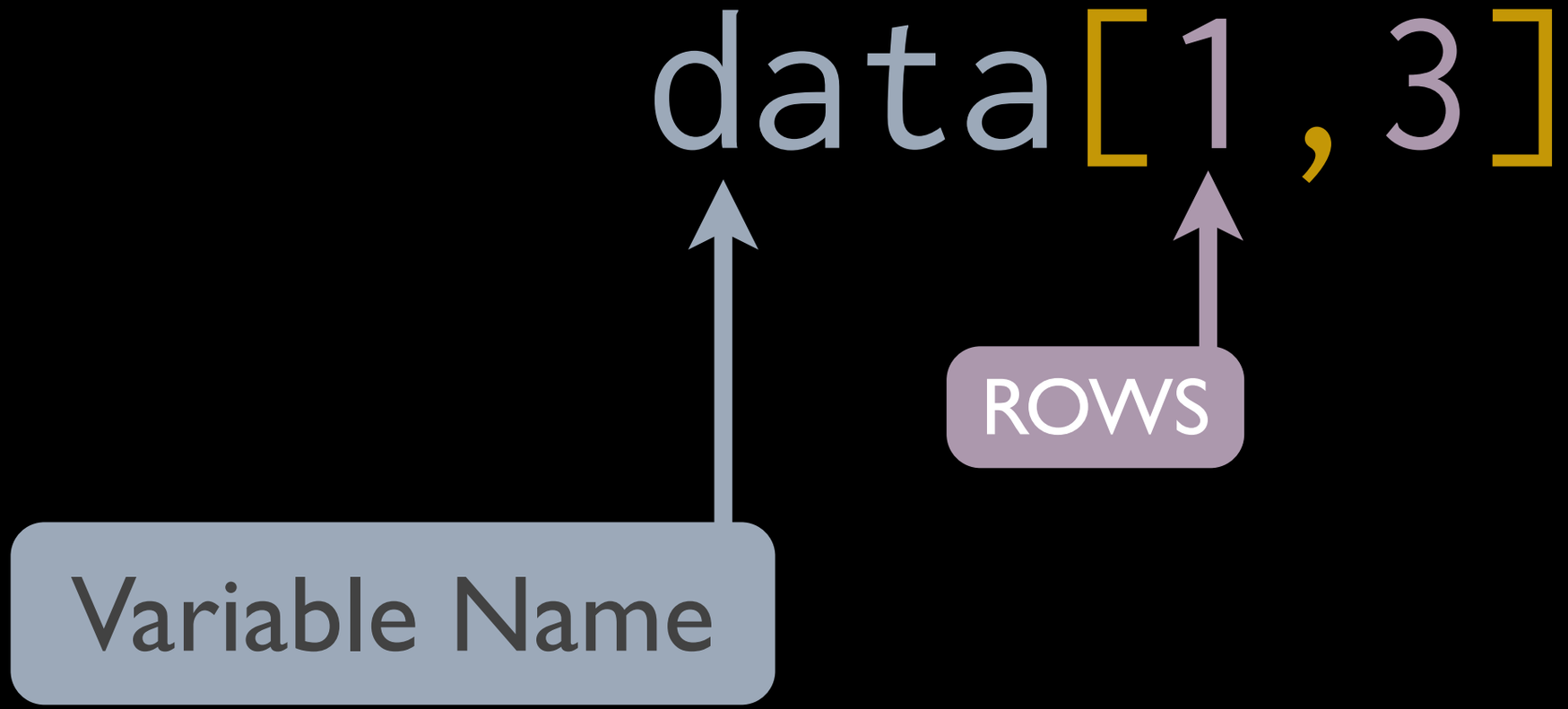
```
data[1,3]
```

Data Frames

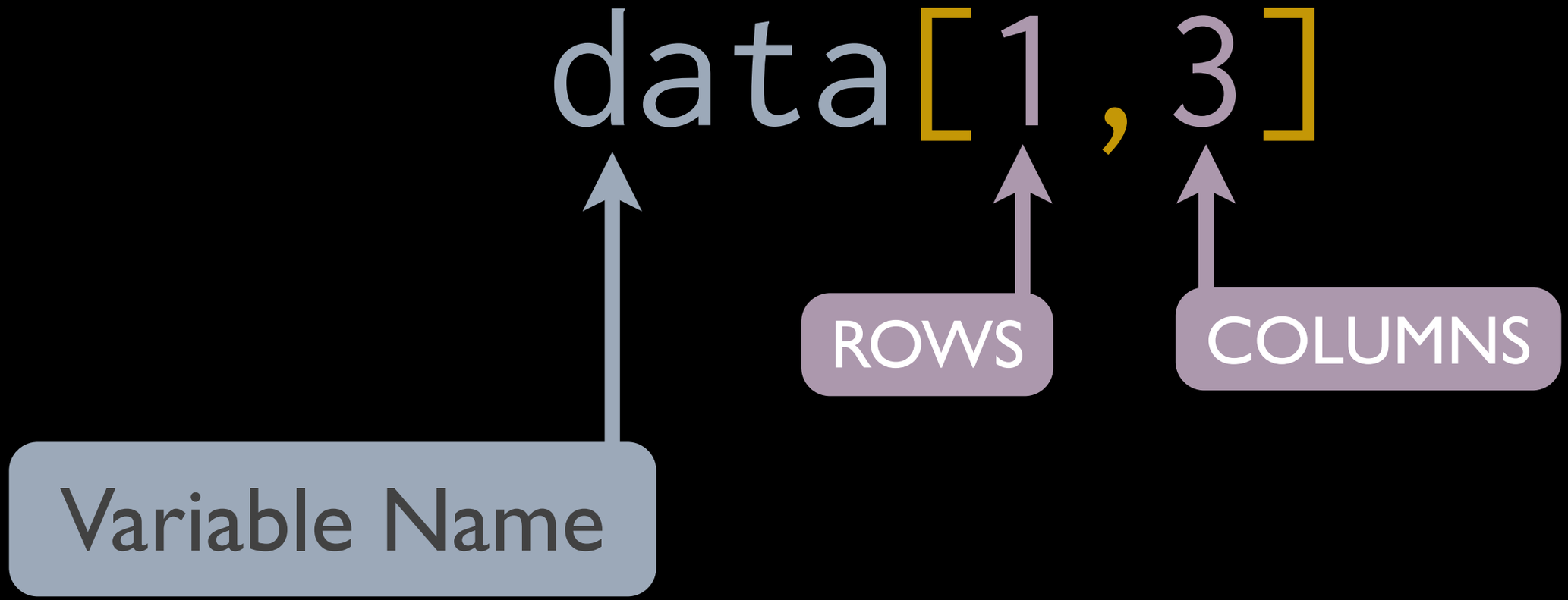
```
data[1,3]
```

Variable Name

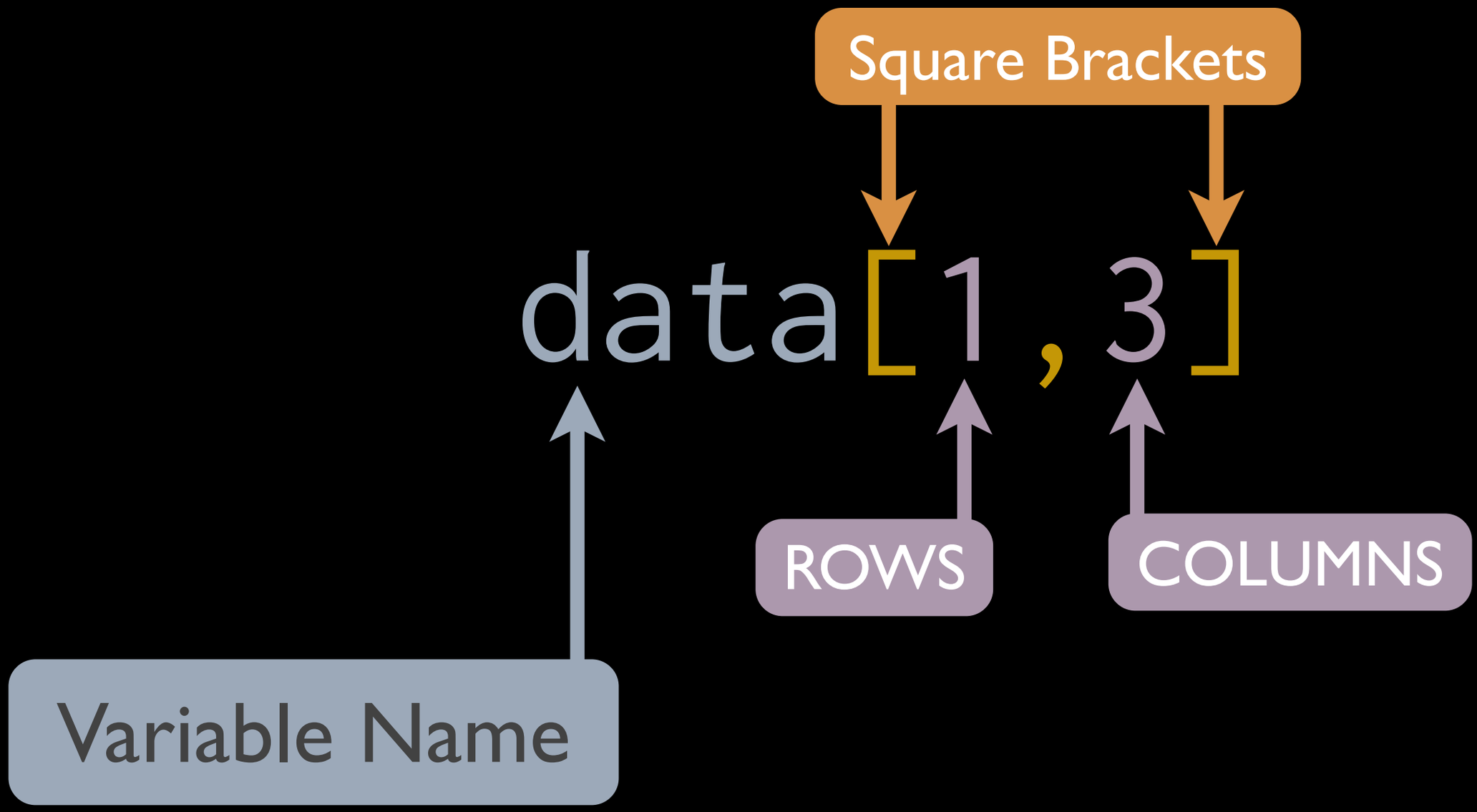
Data Frames



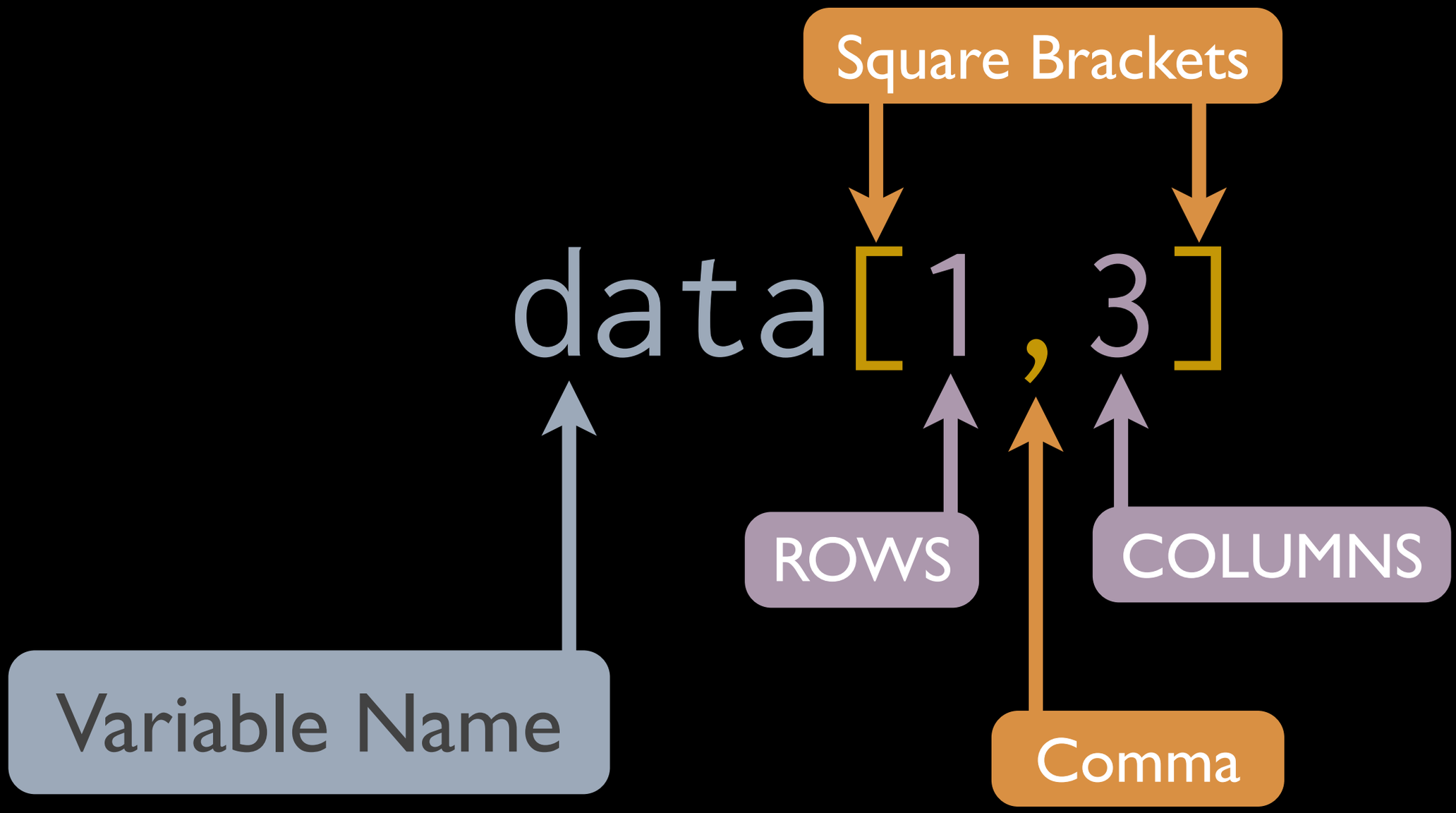
Data Frames



Data Frames



Data Frames



Data Frames

Give me the value stored in row 1, column 3 of ‘data’

Square Brackets

```
data[1,3]
```

Variable Name

ROWS

Comma

COLUMNS

Data Frames

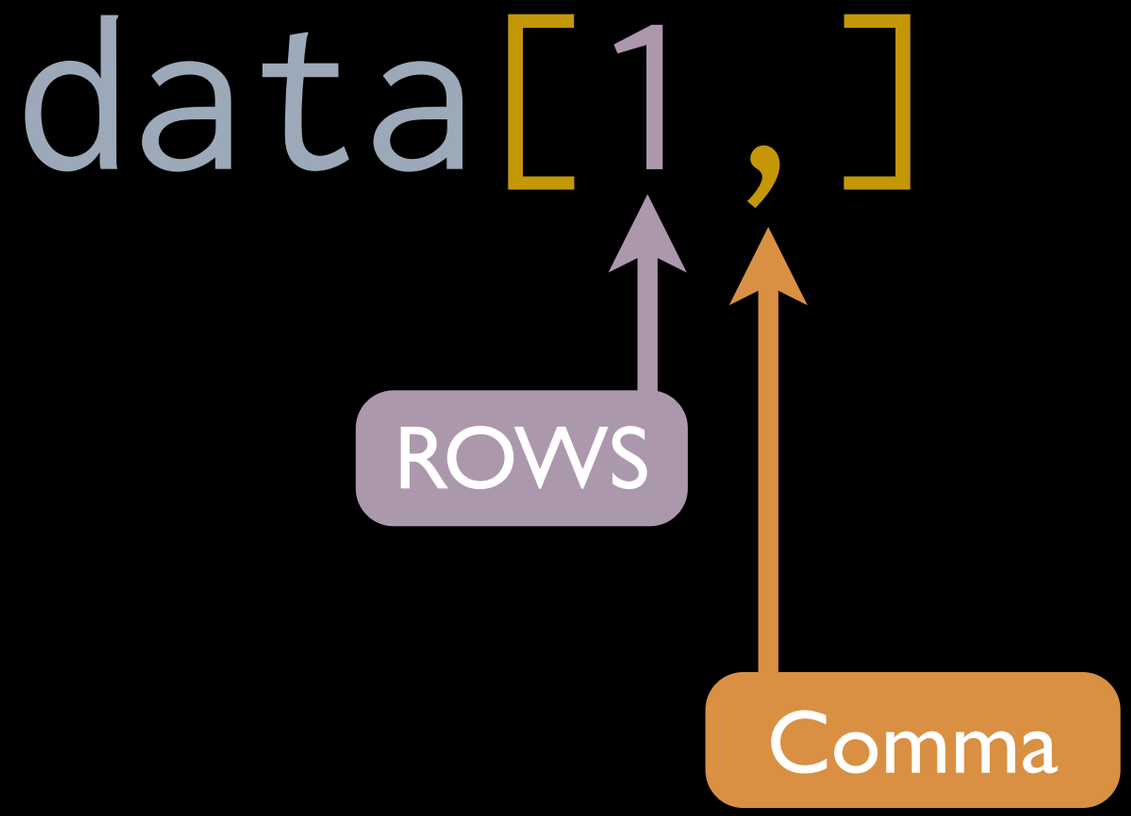
```
data[1,]
```

Data Frames

```
data[1,]
```

ROWS

Data Frames



Data Frames

Give me the values stored in row 1 of ‘data’ (all columns)

```
data[1,]
```

ROWS

Comma

Data Frames

```
data[,3]
```

Data Frames

```
data[,3]
```

COLUMNS

Data Frames

```
data[,3]
```

COLUMNS

Comma

Data Frames

Give me the values stored in column 3 of ‘data’ (all rows)

```
data[,3]
```

COLUMNS

Comma

Data Frames

```
data[1:3,1:4]
```

Data Frames

```
data[1:3,1:4]
```

ROWS

COLUMNS

Data Frames

Give me the values stored in rows 1 - 3, columns 1 - 4 of ‘data’

```
data[1:3,1:4]
```

ROWS

COLUMNS

Data Frames

```
data[,"gene"]
```

Data Frames

```
data[,"gene"]
```

ROWS

COLUMNS

Data Frames

Give me the values stored in the column named "gene" of 'data' (all rows)

```
data[,"gene"]
```

ROWS

COLUMNS

Data Frames

```
data$gene
```

Data Frames

```
data$gene
```

Variable Name

Data Frames

```
data$gene
```

Variable Name

dollar sign

Data Frames

```
data$gene
```

Variable Name

dollar sign

Column Name

Data Frames

Give me the values stored in the column named "gene" of 'data' (all rows)

```
data$gene
```

Variable Name

dollar sign

Column Name

Index Vectors

Index Vectors

```
iv <- data$relationship == "overlapping"
```

Index Vectors

```
iv <- data$relationship == "overlapping"
```

Which rows have their ‘relationship’ column equal to the string “overlapping”

Index Vectors

```
iv <- data$relationship == "overlapping"
```

```
[FALSE,
 FALSE,
  TRUE,
 FALSE,
  TRUE,
   ...]
```

Which rows have their ‘relationship’ column equal to the string “overlapping”

Index Vectors

```
iv <- data$relationship == "overlapping"
```

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

ROWS

COLUMNS

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

Give me the rows where the column ‘relationship’ is equal to the string ‘overlapping’ (all columns)

ROWS

COLUMNS

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

```
------ Combined ------
```

Index Vectors

```r
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

----- Combined -----

```r
sub <- data[data$relationship == "overlapping",]
```

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

```
----- Combined -----
```

```
sub <- data[data$relationship == "overlapping",]
```

Give me the rows where the column ‘relationship’ is equal to the string ‘overlapping’ (all columns)

Index Vectors

```
iv <- data$relationship == "overlapping"
sub <- data[iv,]
```

```
----- Combined -----
```

```
sub <- data[data$relationship == "overlapping",]
```

Give me the rows where the column ‘relationship’ is equal to the string ‘overlapping’ (all columns)