Explanation of .Machine

Yuance He

09/13/2018

".Machine$double.xmax" is the largest finite floating-point number, which equals to 1.797693e+308. Using the 64-bit double precision floating point arithmetic, it is defined as

```
+2^1023*(1+(1-2^-52))
```

```
## [1] 1.797693e+308
```

".Machine$double.xmin" is the smallest non-zero normalized floating-point number, which equals to 2.225074e-308. Using the 64-bit double precision floating point arithmetic, it is defined as

```
+2^(-1022)*1
```

```
## [1] 2.225074e-308
```

".Machine$double.eps" is the smallest positive floating-point number x such that 1 + x!= 1, which equals to 2.220446e-16. Using the 64-bit double precision floating point arithmetic, it is defined as

```
2^(-52)
```

```
## [1] 2.220446e-16
```

".Machine$double.neg.eps" is a small positive floating-point number x such that 1 - x!= 1 which equals to 1.110223e-16. Using the 64-bit double precision floating point arithmetic, it is defined as

```
2^(-53)
```

```
## [1] 1.110223e-16
```