MyPack Template Vignette

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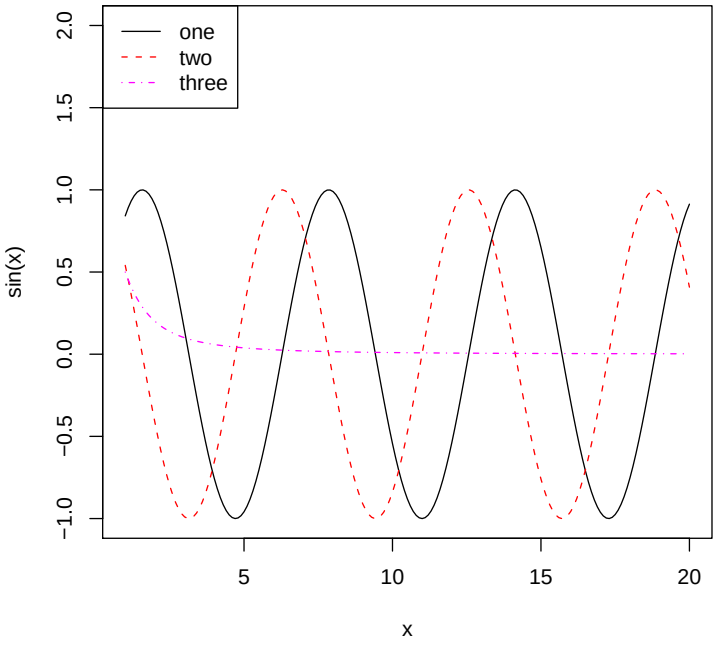
1 Introduction

Introduction with citation: [IG96].
Another citation: [Lei02].

2 An R code chunk

```
> x <- seq(1,20,.1)
> plot(x,sin(x),type='l',lty=1,col=1, ylim=c(-1,2))
> lines(x,cos(x),type='l',lty=2,col=2)
> lines(x,1/(1+x^2),type='l',lty=4,col=6)
> legend("topleft",c('one','two','three'), lty=c(1,2,4), col=c(1,2,6))
```



3 Using `srcinclude`

An R code chunk that uses a package C++ function:

```
#include <cxxPack.hpp>

RcppExport SEXP My_Test(SEXP x_, SEXP df_) {
    SEXP ret = R_NilValue;
    BEGIN_RCPP

    double x = Rcpp::as<double>(x_);

    // Construct DataFrame object in two ways.
    // Both depend on DataFrame constructor:
    cxxPack::DataFrame df1 = Rcpp::as<cxxPack::DataFrame>(df_);
    cxxPack::DataFrame df2(df_);

    // Build return list.
    Rcpp::List rl;
    rl["x"] = Rcpp::wrap(x);
```

```
    rl["sqrtx"] = Rcpp::wrap(sqrt(x));
    rl["df1"] = Rcpp::wrap(df1);
    rl["df2"] = Rcpp::wrap(df2);
    ret = rl;
    END_RCPP
    return ret;
}
```

```
> library(MyPack)
> compile=TRUE
> quiet=TRUE
> x <- 2.0
> df <- data.frame(a=c(1,2,3,4), b=as.Date('2010-04-15') + 1:4)
> MyTest(x, df)
x =  2
sqrtx =  1.414214

df1:
  a          b
1 1 2010-04-16
2 2 2010-04-17
3 3 2010-04-18
4 4 2010-04-19

df2:
  a          b
1 1 2010-04-16
2 2 2010-04-17
3 3 2010-04-18
4 4 2010-04-19
```

4 Using cppinclude

```
#include <cxxPack.hpp>
RcppExport SEXP testDotproduct(SEXP x, SEXP y) {
    SEXP ret = R_NilValue;
    BEGIN_RCPP
    Rcpp::NumericVector nv1(x), nv2(y);
    double sum=0;
    for(int i=0; i < nv1.size(); ++i)
        sum += nv1(i)*nv2(i);
    ret = Rcpp::wrap(sum);
    END_RCPP
    return ret;
}
```

```
> library(MyPack)
> compile=TRUE
> quiet=TRUE
> loadcppchunk('testDotproduct',compile=compile,quiet=quiet)
> x <- 1:5
> y <- 1:5
> sum(x*y)

[1] 55

> .Call('testDotproduct',x,y)

[1] 55

> unloadcppchunk('testDotproduct')
```

5 Conclusion

Concluding remarks.

References

[IG96] Ross Ihaka and Robert Gentleman. R: A language for data analysis and graphics. *Journal of Computational and Graphical Statistics*, 5(3):299–314, 1996.

[Lei02] Friedrich Leisch. Sweave: Dynamic generation of statistical reports using literate data analysis. In Wolfgang Härdle and Bernd Rönz, editors, *Compstat 2002 — Proceedings in Computational Statistics*, pages 575–580. Physica Verlag, Heidelberg, 2002. ISBN 3-7908-1517-9.