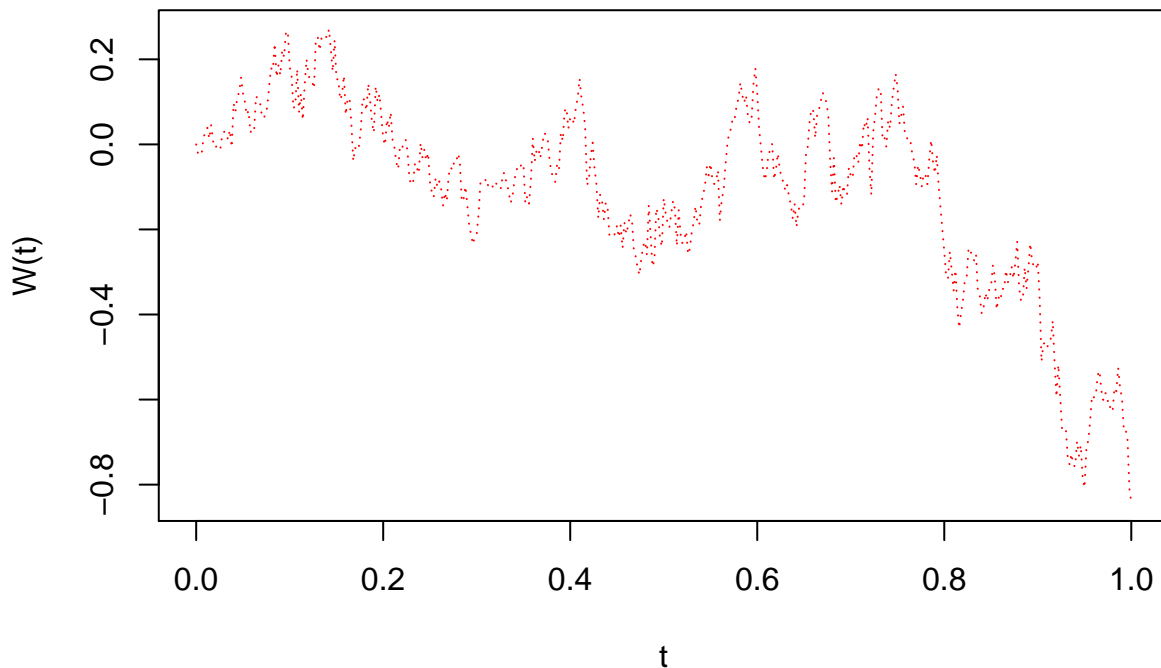


SDE simulation from Higham D.J. (2000)

Joel S Steele, PhD

01/29/2016

```
set.seed(100)
Tau=1;N=500;dt=Tau/N;
dW = rep(0,N)           # preallocate arrays ...
W = rep(0,N)            # for efficiency
dW[1] = sqrt(dt)*rnorm(1); # first approximation outside the loop ...
W[1] = dW[1];           # since W(0)=0 is not allowed
for (j in c(2:N)){
  dW[j] = sqrt(dt)*rnorm(1); # general increment
  W[j] = W[j-1] + dW[j];
}
t=seq(0,Tau,by=dt)
plot(t,c(0,W),type='l',
     col='red',lty='dotted',
     xlab='t', ylab='W(t)')
```



```
#BPATH2 Brownian path simulation: vectorized
set.seed(100)
Tau=1;N=500;dt=Tau/N;
dW = sqrt(dt)*rnorm(N); # increments
W = cumsum(dW);         # cumulative sum
t=seq(0,Tau,by=dt)
plot(t,c(0,W),type='l',
     col='red',lty='dotted',
     xlab='t', ylab='W(t)')
```

