Why BLB is fast

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```r
n <- 100000
b <- 100
N <- rnorm(n)
B <- sample(N,b)

mean1 <- function(B,n){
X <- sample(B, n, replace = TRUE)
return(mean(X))
}

mean2 <- function(B,n,b){
  X <- as.numeric( rmultinom(1,n,rep(1/b,b)) )
  return(mean(X*B)/b)
}

mean1(B,n)
```

```
## [1] -0.004898975
```

```r
mean2(B,n,b)
```

```
## [1] -0.05661704
```

```r
microbenchmark::microbenchmark(mean1(B,n), mean2(B,n,b))
```

```
## Unit: microseconds
##            expr       min        lq       mean   median        uq        max
##     mean1(B, n) 1851.916 1991.8090 3056.46606 2350.831 2843.516 34070.143
##  mean2(B, n, b)   19.800   22.7495   33.48917   29.491   43.282     65.844
##  neval
##    100
##    100
```