bench

A new take on benchmarking

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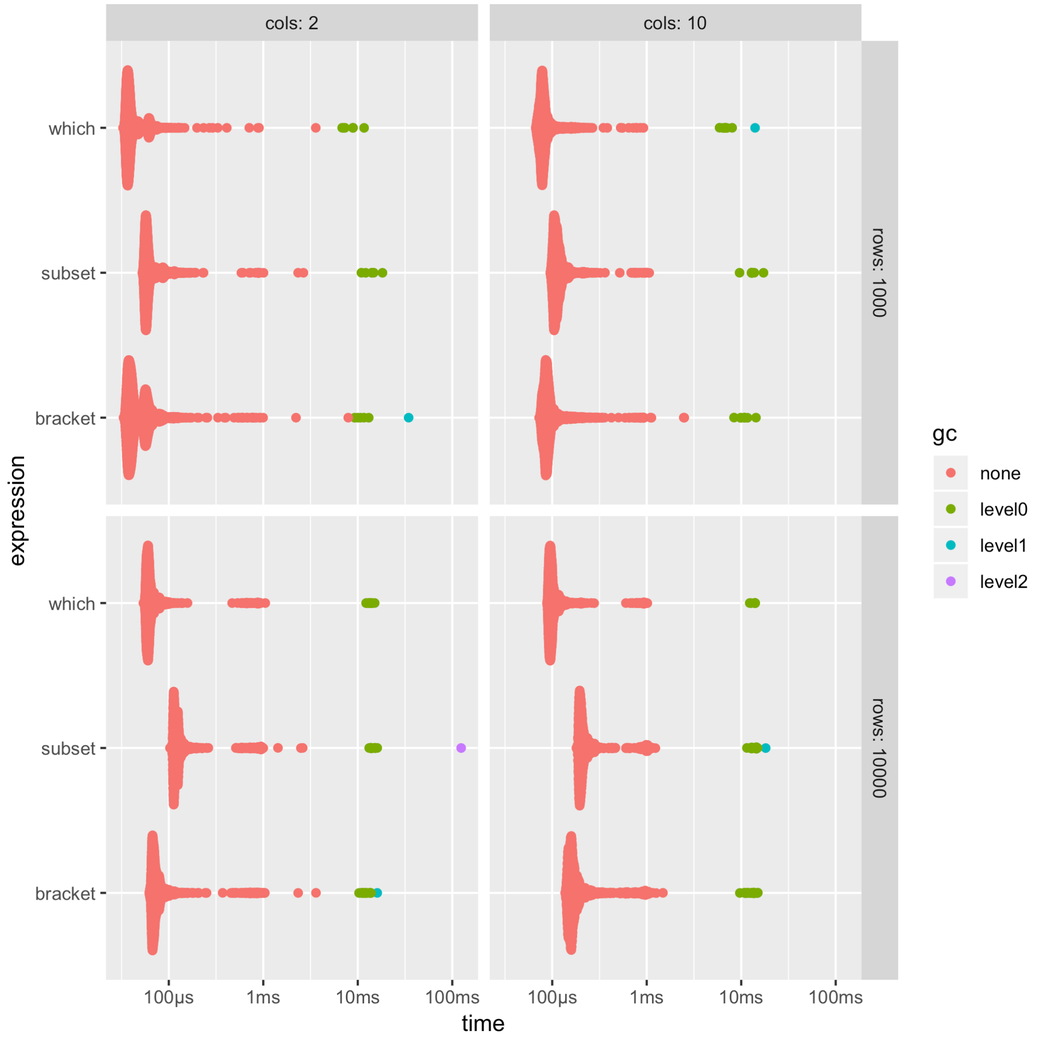
RStudio®



Why benchmark?

"premature optimization is the root of all evil."

- Donald Knuth

"A good programmer… will be wise to look carefully at the critical code; but only after that code has been identified."

- Donald Knuth

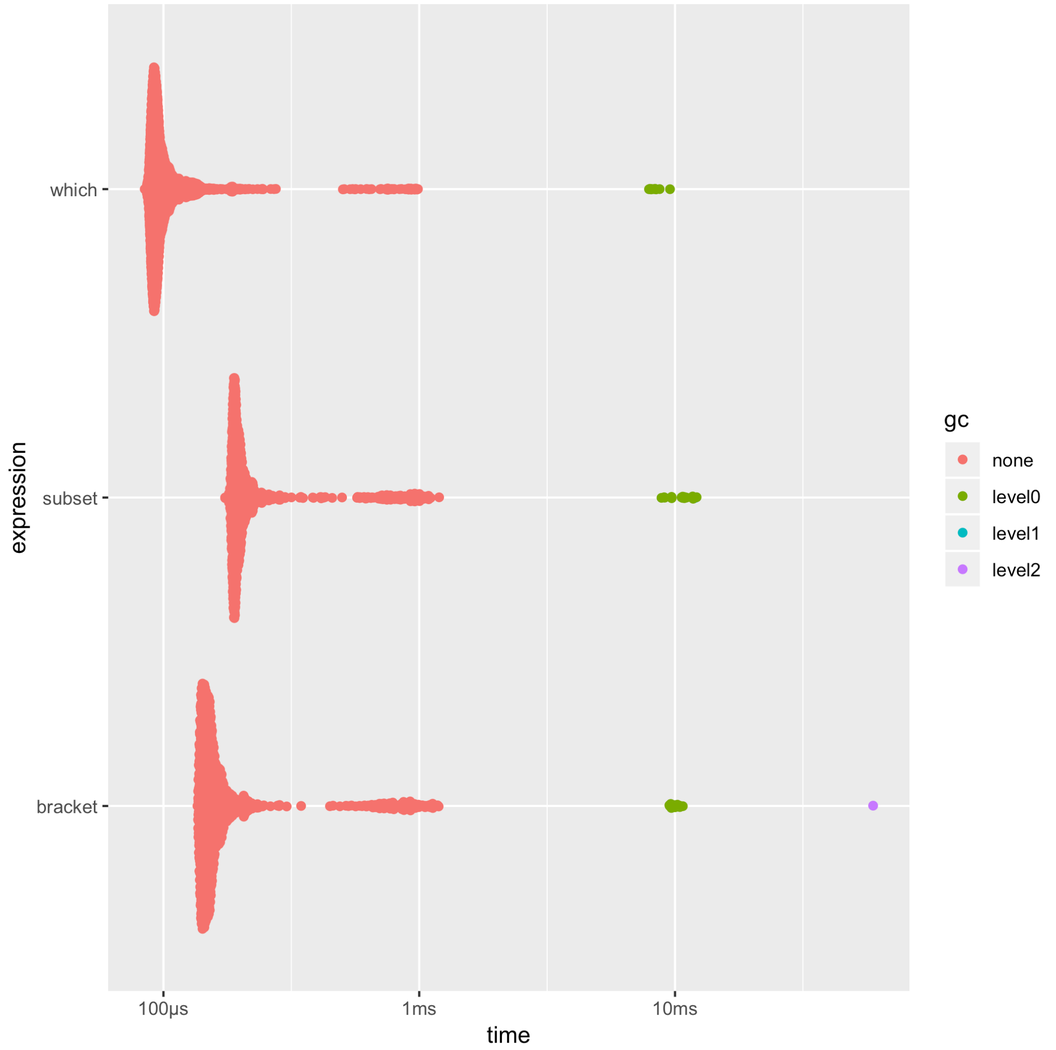
"All (tools) should be designed to provide (us) with feedback indicating what parts of (our) programs are costing the most"

- Donald Knuth

bench::mark()

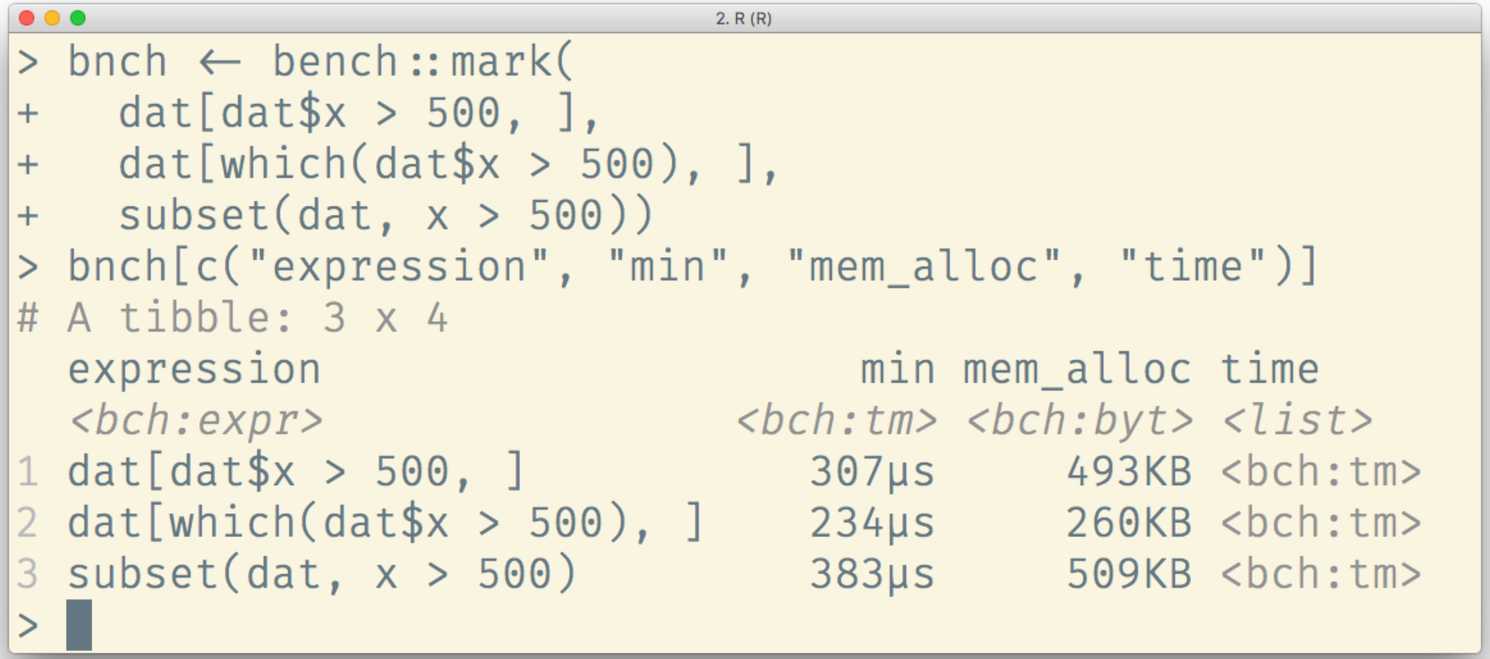
bench::mark()

1. High precision timers (ns)
2. Memory allocations
3. Number and type of R garbage collections
4. Result equality
5. Adaptive stopping
6. Statistics filter GC effects



bench::mark()

1. Human readable times
2. Human readable memory sizes
3. Full results / timings / GCs in list-cols



bench::press()

bench::press()

2. R (R)

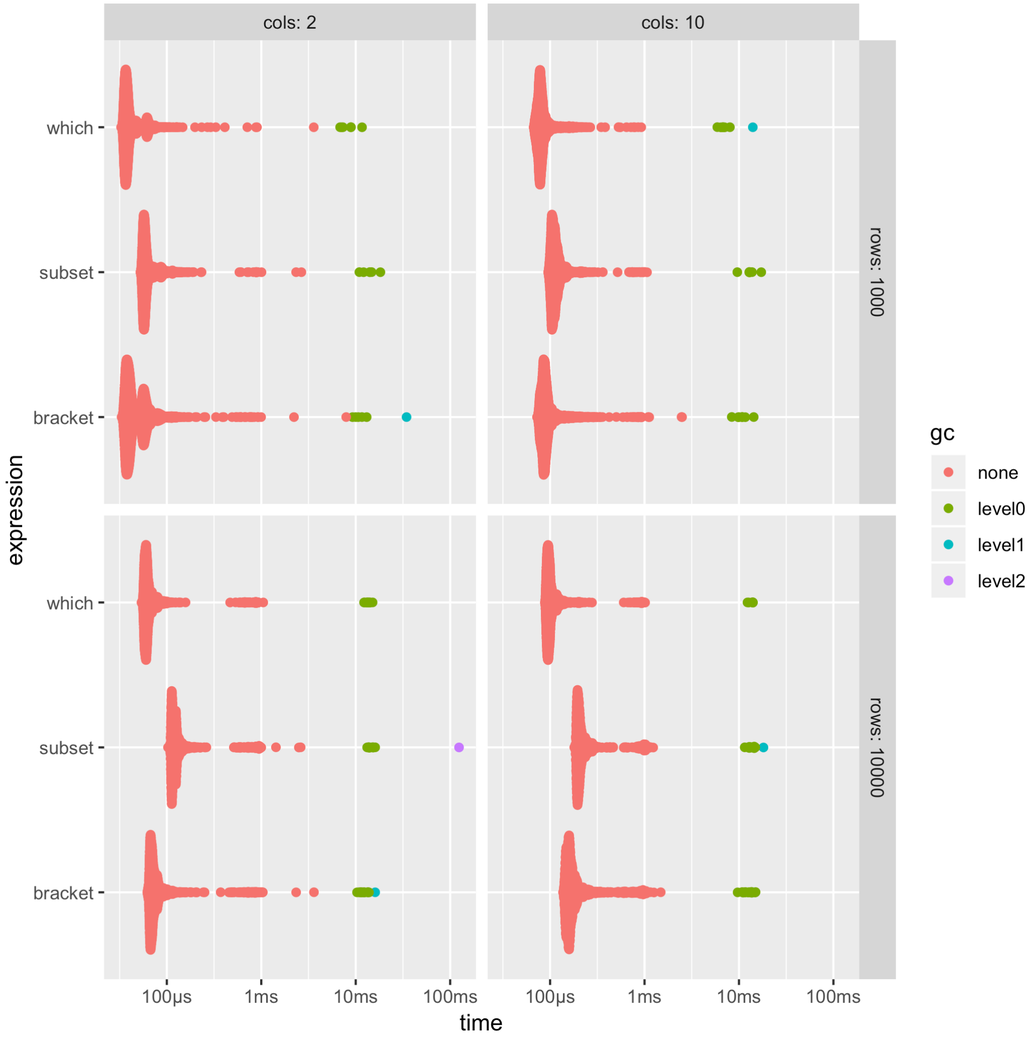
```
> results ← bench::press(
+   rows = c(1000, 10000),
+   cols = c(2, 10),
+   {
+     dat ← create_df(rows, cols)
+     bench::mark(
+       bracket = dat[dat$x > 500, ],
+       which = dat[which(dat$x > 500), ],
+       subset = subset(dat, x > 500)
+     )
+   }
+ )
Running with:
   rows  cols
1  1000     2
2 10000     2
3  1000    10
4 10000    10
>
```

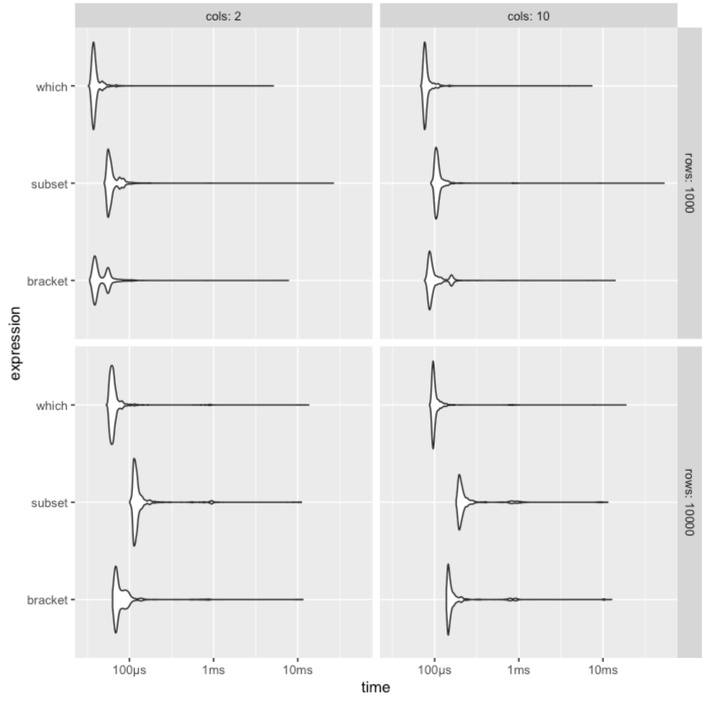
2. R (R)

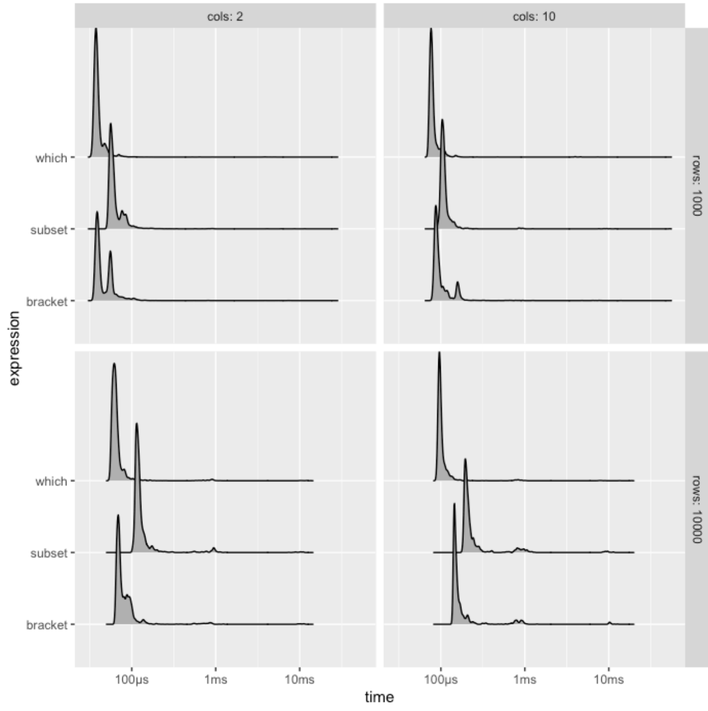
```
*> results[c(1:4, 8, 9)]
# A tibble: 12 x 6
   expression  rows  cols      min `itr/sec` mem_alloc
   <bch:expr> <dbl> <dbl> <bch:tm>     <dbl> <bch:byt>
 1 bracket     1000     2   32.5µs    24059.   15.84KB
 2 which       1000     2   32.4µs    25233.    7.91KB
 3 subset      1000     2   49.8µs    15361.    27.7KB
 4 bracket    10000     2     62µs    10851.  156.46KB
 5 which      10000     2   52.9µs    13041.   78.23KB
 6 subset     10000     2  101.5µs     6262.  273.79KB
 7 bracket     1000    10   68.8µs    10572.   47.52KB
 8 which       1000    10   64.9µs    12023.    7.91KB
 9 subset      1000    10     90µs     8580.   59.38KB
10 bracket    10000    10  136.9µs     4587.   469.4KB
11 which      10000    10   85.3µs     8631.   78.23KB
12 subset     10000    10  178.1µs     3603.  586.73KB
>
```

bench::plot()

ggplot2::autoplot(results)

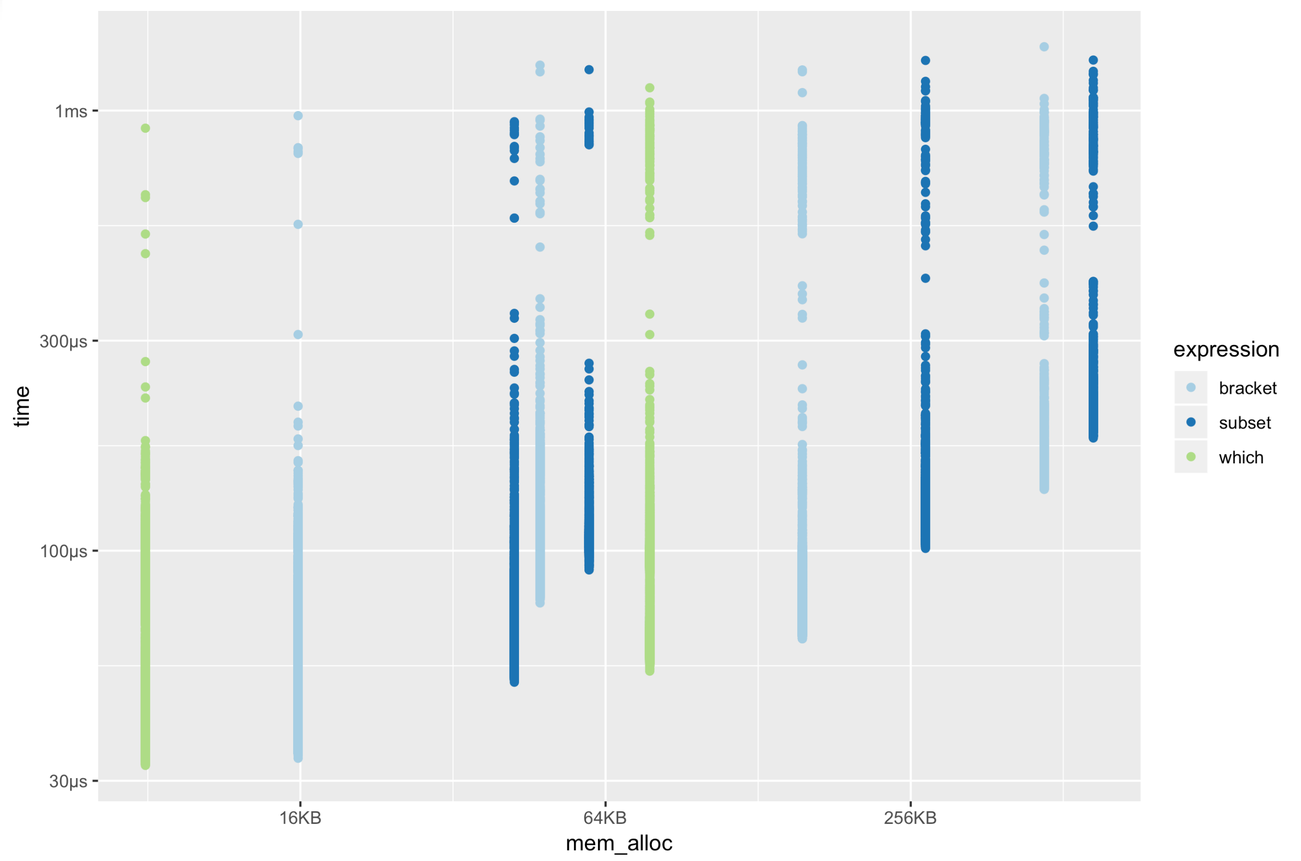






2. R (R)

```
> results %>%
+   unnest() %>%
+   filter(gc == "none") %>%
+   ggplot(aes(x = mem_alloc, y = time, color = expression)) +
+     geom_point() +
+     scale_color_bench_expr(brewer_pal(type = "qual", palette = 3))
> 
```



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install.packages("bench")

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