

Benchmarks

#	Bash/Dash	simpsh
1	cat a0.txt sort tr [:lower:] [:upper:] grep 'howdy' wc > bar.txt; times	--profile --creat --wronly err.txt --creat --rdonly a0.txt --pipe --pipe --pipe --pipe --pipe --command 0 3 0 touch err.txt --command 1 5 0 cat a0.txt --command 4 7 0 sort --command 6 9 0 tr [:lower:] [:upper:] --command 8 11 0 grep 'howdy' --creat --rdwr bar.txt --command 10 12 0 wc --close 2 --close 3 --close 4 --close 5 --close 6 --close 7 --close 8 --close 9 --close 10 --close 11 --close 12 --wait
2	ls sed '/potato/d' grep '^a' echo "hello" > bar.txt cat bar.txt >> end.txt; times	--profile --creat --wronly err.txt --rdonly foo.txt --pipe --pipe --pipe --command 1 3 0 ls --command 2 5 0 sed '/potato/d' --command 4 7 0 grep '^a' --creat --wronly bar.txt --command 6 8 0 echo "hello" --creat --append --rdwr end.txt --command 8 9 0 cat --close 2 --close 3 --close 4 --close 5 --close 6 --close 7 --wait
3	ps tr ':' 'x' grep 'banana' sort wc > bar.txt; times	--profile --creat --wronly err.txt --wronly bar.txt --pipe --pipe --pipe --pipe --command 2 3 0 ps --command 2 5 0 tr ':' 'x' --command 4 7 0 grep 'banana' --command 6 9 0 sort --creat --rdwr bar.txt --command 8 10 0 wc --close 2 --close 3 --close 4 --close 5 --close 6 --close 7 --close 8 --close 9 --wait

Observations

These were the times I received after running each benchmark on Bash, Dash, and simpsh. I averaged the results over five trials. My trial results are formatted as follows:

```
[user CPU time]    |    [system CPU time]
[children user CPU time] |    [children system CPU time]
```

	Bash	Dash	simpsh
#1	0.002000s 0.003000s 1.241600s 0.389200s	0.000000s 0.000000s 1.230000s 0.416667s	0.003372s 0.001149s 1.287598s 0.312209s
#2	0.002400s 0.002800s 0.001600s 0.005600s	0.000000s 0.000000s 0.000000s 0.000000s	0.000369s 0.001624s 0.000885s 0.020622s
#3	0.001667s 0.004000s 0.007000s 0.017000s	0.000000s 0.000000s 0.000000s 0.010000s	0.000602s 0.001439s 0.001120s 0.004599s

Analysis

For benchmark #1, Dash had the smallest user CPU time, system CPU time, and children user CPU time. However, simpsh had the smallest children system CPU time. Moreover, simpsh had smaller system CPU time and children system CPU time than Bash.

For benchmark #2, Dash had the smallest times for all four categories. In fact, the command “times” actually reported that Dash had 0.000000s for all four categories. Simpsh had a smaller user CPU time, system CPU time, and children user time than Bash, while Bash had a smaller children system CPU time than simpsh.

For benchmark #3, Dash was again the fastest shell with the smallest times in all four categories. Simpsh was faster than Bash in all four categories, making Bash the slowest shell for this benchmark.

Conclusion

Dash was the fastest shell by far for benchmarks #2 and #3. Dash was slower than both simpsh and Bash for the children system CPU time for benchmark #1, but was faster in the other three categories. Thus, overall, Dash is the fastest shell.

Simpsh performed quite well, and though it was only faster than Bash for half of the categories for benchmark #1, it ended up being faster than Bash for three categories for benchmark #2 and all categories for benchmark #3. Therefore, taking into account all three benchmarks, simpsh is the second fastest shell.

Bash was the slowest shell overall for all three benchmarks. In benchmark #1, Bash tied simpsh by being faster in half the categories, but it was only faster than simpsh for one category in benchmark #2 and was not faster at all for benchmark #3. Ergo, Bash is the slowest shell with respect to the three benchmarks tested.