Libpll sequential benchmarks

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1 Benchmark description

The following benchmarks compare several libpll implementations with different modes. They measure the execution time of a full likelihood computation on a fixed tree. To avoid measuring the initialization part, we repeat several times `pll_update_partials` and `pll_compute_edge_likelihood` on the same partitions and tree.

- xflouris means that the implentation used is this one: https://github.com/xflouris/libpll.
- bmorel means that the implementation used is this one: https://github.com/BenoitMorel/libpll. It supports sites repeats, and the data structure used is a bit different than xflouris (even without sites repeats). CLVs are not supposed to be sorted by sites, and an additional lookup table is used to access them in the core functions.
- default mode means that the option `PLL_ATTRIB_PATTERN_TIP` and `PLL_ATTRIB_SITES_REPEATS` are unset.
- tip pattern means that the option `PLL_ATTRIB_PATTERN_TIP` is set.
- sites repeats means that the option `PLL_ATTRIB_SITES_REPEATS` is set.
- M is the size of the buffer allocated to compute the sites repeats class identifiers. When it increases, more nodes can benefit from sites repeats.

2 Benchmark

CPU architecture, 50 iterations

	seq59	seq128	seq404
xflouris default mode	934.084 ms	12497.6 ms	17038.5 ms
xflouris tip pattern	621.373 ms	8227.56 ms	10988.8 ms
bmorel tip pattern	639.158 ms	8817.67 ms	11361.9 ms
bmorel sites repeats M=1000	602.555 ms	5063.78 ms	7242.65 ms
bmorel sites repeats M=10000	384.63 ms	4079.56 ms	5148.81 ms
bmorel sites repeats M=100000	299.023 ms	3506.27 ms	3353.61 ms
bmorel sites repeats M=1000000	329.09 ms	2996.46 ms	2602.07 ms

SSE architecture, 50 iterations

	seq59	seq128	seq404
xflouris default mode	401.707 ms	5708.98 ms	7005.65 ms
xflouris tip pattern	355.472 ms	4140.62 ms	5248.11 ms
bmorel tip pattern	298.213 ms	4091.11 ms	4916.4 ms
bmorel sites repeats M=1000	211.38 ms	2587.95 ms	3464.32 ms
bmorel sites repeats M=10000	229.851 ms	2370.55 ms	2587.2 ms
bmorel sites repeats M=100000	199.482 ms	2094.69 ms	2023.17 ms
bmorel sites repeats M=1000000	181.25 ms	1821.9 ms	1818.32 ms

AVX architecture, 50 iterations

	seq59	seq128	seq404
xflouris default mode	379.103 ms	5051.76 ms	5991.69 ms
xflouris tip pattern	297.8 ms	4559.76 ms	4372.05 ms
bmorel tip pattern	276.603 ms	4299.74 ms	4584.08 ms
bmorel sites repeats M=1000	237.324 ms	2489.76 ms	3327.64 ms
bmorel sites repeats M=10000	183.977 ms	2164.13 ms	2472.02 ms
bmorel sites repeats M=100000	188.655 ms	1885.73 ms	1905.62 ms
bmorel sites repeats M=1000000	194.859 ms	1805.67 ms	1609.32 ms