The New Sudoku Players' Forum Search... Sponsored by Enjoy Sudoku The hardest sudokus (new thread) POSTREPLY ∠ 9. Search this topic... 1330 posts • Page 73 of 89 • 1 ... 70 71 72 73 74 75 76 ... 89 "QUOTE Re: The hardest sudokus (new thread) by **mith** » Wed Mar 02, 2022 7:26 pm Posts: 862 Joined: 14 July 2020 denis berthier wrote: **44** mith wrote: There is then the question of what to do about puzzles which are the same after \*basics\* but not after just singles. I don't have any stats on how frequently this is the case among the hard puzzles, but when we're talking about 11.x puzzles a cutoff at basics makes as much sense as a cutoff at singles to me Statistically, it will not make much difference. But sorry, definitely no; "basics" doesn't make any sense. "Basics" are not even closed under rule isomorphisms (they include Pairs but not X-Wings). FWIW, basics for me would include fish (since fish are just subsets in another dimension). Maybe we need a better term for this, since basics probably means something different to most people. You're correct that applying non-singles subsets would produce a sukaku, but I don't think this ultimately matters. The important thing is what digits can be determined by applying these rules - if the resulting digit grids are isomorphic, they sukaku obtained by continuing eliminations will also be isomorphic; and if the digit grids aren't isomorphic, no amount of subset/whip eliminations will make the sukaku isomorphic if no new digits are placed. All that said, for now I will just apply singles for the comparison. QUOTE Re: The hardest sudokus (new thread) □ by **mith** » Wed Mar 02, 2022 7:28 pm Posts: 862 Joined: 14 July 2020 And before I do that comparison, here are the newly found puzzles since my last update, with another big batch of 11.8s (92, 27c-29c): CODE: SELECT ALL .....1.23..4.2.56...7.43....832....714.7.8.....813..7..21..4...73.8.2... ED=11.8/1.2/1.2 .....1.23...45.6.1..7.6.....861.57..54.78.....15.4....4.8..6..776.81.... ED=11.8/1.2/1.2 .....1.....23......4.56..2.43..5.7352..8.54.7.8....8......3.4.87..272.35.... ED=11.8/1.2/1.2 .....1....23.....4.56..2.43..5.735...8.54.7.8.2..8..2...3.4.87...72.35.... ED=11.8/1.2/1.2 .....1.23...45.6.1..7.6.....861.47..54.78.....15.....4.85.6..776.81.... ED=11.8/1.2/1.2 ......1.23...45.6.1..7.64....861..7..54.78.....15.....4.85.6..776.81.... ED=11.8/1.2/1.2 ......1....123...4....56..1.54....6...7.8.7.586.....16..8...54..76..88.741.... ED=11.8/1.2/1.2 .....1.23..4.2.56...7.13....8324...714.7.8.....8.3..7..21..4...73.8.2... ED=11.8/1.2/1.2 ..................1.23...4.2.56....7.3...8...21...4....83.7.2......8.43....7321...814.8.7... ......1.23...45.6.1..7.65....861.47..54.78.....15.....4.8..6..776.81.... ED=11.8/1.2/1.2 ......1.....23......4.56..7.......8235....43..78..2.548.....27..43..53.852..7. ED=11.8/1.2/1.2 ......1....23......4.56..7..2....8235....43..78....548...2.27...43..53.85...7. ED=11.8/1.2/1.2 .....1....23.....4.56..7.4.....8253....43.7.8..2.54.8....27...3..53.825..7. ED=11.8/1.2/1.2 .....1....23.....4.56..7.42....8253....43.7.8....54.8..2.27...3..53.8.5..7. ED=11.8/1.2/1.2 .....1....23.....4.56..2..3..5.7325..8.54..78....8..4....3.48.7..272.53.... ED=11.8/1.2/1.2
.....1....23.....4.56..2..3..5.73.5..8.54..78.2..8..42...3.48.7...72.53... ED=11.8/1.2/1.2 ......1.23...45.6.1..7.64....861.57..54.78.....15.....4.8..6..776.81.... ED=11.8/1.2/1.2 .....1....123...4....56..1.54....7586....64...7.8..5..76...8.8741....1.6..8... ED=11.8/1.2/1.2 .....1....23.....14.56..71.6....8645...741..78....54......1.86...7.76..85... ED=11.8/1.2/1.2 ......1.....23.....14.56..71.6....86.5...741..78....54......1.864..7.76..85... ED=11.8/1.2/1.2 ......1.....23......4.56..7......8235....43..78....548...2..7..43..53.852..7. ED=11.8/1.2/1.2 .....1....23.....4.56..7..3..5.45.8..2.38.25..7..2853.....7..4....4.37.8... ED=11.8/1.2/1.2 ..1.23...45.6.1..617..5..41..8...57..46..8.67.1.8...8.6... .....1....23.....14.56..7..6....8645...741..78.....86...7..54..1...76..85... ED=11.8/1.2/1.2 .....1.23.14...5.6..1.64....7685....5....7..8..5..8....8741....46..758.. ED=11.8/1.2/1.2 ......1.23.14...5.6..1.64....7685....5....7..8.6..758...8741....4.5..8... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814....16.8.57...865.....54...8..77.16.4... ED=11.8/1.2/1.2 .....1.23...45.6.1..1.4.....7681...584...6..7.5478....6.81..7..7...6.... ED=11.8/1.2/1.2 .....1....123...4....56..714.....16..8...5..7.6..8.815.4...46...7.8.7.56..... ED=11.8/1.2/1.2 .....1.23...45.6.1..617.....41..8...57..46..8.67.158...8.6.....4.57..... ED=11.8/1.2/1.2 .....1.23...45.6.1..617.....415.8...57...6..8.67.1.8...8.6.4...4.57..... ED=11.8/1.2/1.2 .....1....23.....4.56..2.43..5.735...8.54.7.8...8..2...3.4.87..27..35.... ED=11.8/1.2/1.2 .....1....23....14.56...6.75....458.....17.64..8...67.5...8.8.1.6...4.1..7... ED=11.8/1.2/1.2 .....1.23...45.6.1..617.....41..8...57..46..8.67.1.8...8.6.5...4.57..... ED=11.8/1.2/1.2  $\dots \dots 1 \dots 123 \dots 4 \dots 56 \dots 54 \dots 6.1.7.8.7.586 \dots 16 \dots 8 \dots 54 \dots 76 \dots 88.74 \dots \quad \text{ED=11.8/1.2/1.2}$ .....1.23..4.2.56...7.3..8..21.84....3.7.2.....8.43....7321...814...7... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814.....6.8.57...865...1.54..18..77..6.4... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814....6.8.57...865....154..18..77..6.4... ED=11.8/1.2/1.2 .....1.23...45.6.1..617.....41..8...57...6..8.67.158...8.6.4...4.57..... ED=11.8/1.2/1.2 .....1....23.....4.56..7..2....8.35....43..78..2.548.....27..43..53.85...7. ED=11.8/1.2/1.2 .....1....23.....4.56..7.42....8.53....43.7.8..2.54.8....27...3..53.8.5..7. ED=11.8/1.2/1.2 .....1.....23......4.56..2..3..5.73.5..8.54..78....8..42...3.48.7..27..53.... ED=11.8/1.2/1.2 .....1.23...45.6.1..617.....41..8...57...6..8.67.148...8.6.5...4.57.... ED=11.8/1.2/1.2 .....1....123...4....56....54....7586....64.1.7.8..5..76...8.874.....1.6..8... ED=11.8/1.2/1.2 .....1....123...4....56..714....16..8...54.7.6..8.6...7.8..815.4...7.56.... ED=11.8/1.2/1.2
.....1....23....14.56..6.75...458....17.6...8..6745...8.8.1.6...4.1..7... ED=11.8/1.2/1.2 .....1.23..4.2.56...7.43....1...8...8.321...7.48.3..7.2.1.74...3..8.2... ED=11.8/1.2/1.2 .....1.23..4.2.56...7.43....1...8...8.32....7.4813..7.2.1.74...3..8.2... ED=11.8/1.2/1.2 .....1.23.14...5.6..714....16.7.58..4.5..8....765.....5...17..88..6.4... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814....16.8.57...865.....54..18..77..6.4... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814.....6.8.57...865...4.54...8..77.16..... ED=11.8/1.2/1.2 ......1.23.14...5.6..5..7....814....6.8.57...865....45...8..77.16.4... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814.....6.8.57...865....454...8..77.16..... ED=11.8/1.2/1.2 .....1.23.14...5.6..5..7.....814....46.8.57...865....5...8..77.16.4... ED=11.8/1.2/1.2 .....1.23.14...5.6..714....6.7.58..4.5..8....765....5...7..88.16.4... ED=11.8/1.2/1.2 .....1.23...45.6.1..1.47.....681...548...6..7.681...7...7..6....5.4.8.... ED=11.8/1.2/1.2 .....1....123...4....56...7.4.....16...8...54.7.6...8.6..17.8...8.5.4...7.56..... ED=11.8/1.2/1.2 **Hidden Text: Show Hidden Text: Show** I expect we will get some more 30c soon, as the adder script is working its way up the clue count. Maybe we'll even see a 31c after that. QUOTE Re: The hardest sudokus (new thread) 2017 Supporter □ by **JPF** » Wed Mar 02, 2022 7:51 pm Posts: 5947 Joined: 06 December 2005 Location: Paris France Out of the 146 11.8s given here only 17 puzzles are not equivalent after singles. For example the 64 puzzles 1 to 32 and 50 to 81 are equivalent after singles: **CODE: SELECT ALL** Puzzles .....1....2....34.5..3.6...7.7624.8..28.3.....48...7.6.247....73.8.6.4. .....1.....2.....34.5..3.6.2...7...8....8624.7...47.3..8.6.24.....83.7.6.4. .....1.....2.....34.5..3.6...7..624.8..28.3.7....48....7.6.24.....73.8.6.4. Minlex puzzles 1-32 and 50-81 after singles: **CODE: SELECT ALL** .....1.....2.....34.5.26.37..434.8.62.78.742.6...73.68.4.28.74....6.43...7. JPF Re: The hardest sudokus (new thread) QUOTE by mith » Wed Mar 02, 2022 8:27 pm Posts: 862 Joined: 14 July 2020 Yeah, running the whole set of 11.8+ puzzles, there are currently 348 unique minimals from 126 unique expanded forms. That batch of 64 is the largest, from a 34c expansion. Here's the whole list, in as readable a form I can manage via text - I'll get this up in a spreadsheet and/or csv sometime soon: CODE: SELECT ALL (not expanded) 98.7.....7.....6....6.5.....4...5.3...79..5.....2...1..85..9.....1...4.....3.2. ED=11.9/11.9/11.8 22c GP/champagne dry 98.7....6....87...7....5.4..3.5....65...9.....2..1..86...5.....1.3......4..2 ED=11.9/11.9/11.6 23c GP/kz0 ......39.....1..5..3.5.8....8.9...6.7...2...1..4......9.8..5..2....6..4..7..... ED=11.9/11.9/11.3 21c tarek/-pearly6000-1812Golden\_Nugget 12..3....4....1.2...52..1..5..4..2......6..7.....3..8.5....9....9.7..3.....8..6 ED=11.9/11.9/11.3 23c elev/second flush 12.3....4....3...3.5.....42..5.....8...9.6...5.7...15..2......9..6.....7..8 ED=11.9/11.9/ 9.9 22c eleven/Kolk .....1...23.45..51..2....25...1..6...27..8...9......42....7.3...6...9...8... ED=11.9/11.9/ 9.9 23c dob/12\_12\_03 12.3.....4.5...6...7....2.6..1..3....453.......8...9...45.1......8....2..7 ED=11.9/11.9/ 2.6 22c eleven/Patience ......12.....345..3..46....2..1.3..7..6....8..9.......5..2..4.6..8....9..7.... ED=11.8/11.8/11.7 22c dob/12\_12\_03 1.....9..67...2..8....4......75.3...5..2....6.3.....9....8..6...4...1..25...6. ED=11.8/11.8/11.6 22c eleven/puzzles22c-7 ......6..5..18...9...8.7....8.2.....3.1.2..4..5.3....6....9...83..1..7......4 ED=11.8/11.8/11.5 22c tarek/-pearly6000-3091tarx0075 98.76....54........7..59..4....75....3...2.....1...6.9...87....4....1....2....3 ED=11.8/11.8/11.5 23c GP/kz1a 98.7....6...5.....4..93..5.....6..7..8....9..24...1....4...9.1....1.32 ED=11.8/11.8/11.4 22c GP/H1 2.....6.5..8..1...4...9..7.3.1....82.....7.5.3...9..4...8.1..5.6.....2 ED=11.8/11.8/11.4 22c tarek/-ultra0203pearly6000-1225 1......2..94...5..6....7.....89..4....3.6.....8.4.....2....1..7......6..5.8..3. ED=11.8/11.8/11.2 21c gsf/gsf-2007-05-24-0032 6.....2.9.4...5...1...7...5..84......2.....3.5.4.2.....6...3...9.8...7.....1 ED=11.8/11.8/11.1 21c coloin/coloin-04-10 1......2.9.4...5...6...7...5.3.4......6......58.4...2...6...3...9.8.7......1 ED=11.8/11.8/10.8 21c coloin/coloin-04-10 ..1....2.3...4.5.6...2.7......5.....8.7.1...9.3......7.6...8.4.....9.8....2. ED=11.8/11.8/10.7 21c SSX/2019\_3\_5 12.3.....4...5.....6..17..5..2.....3..1..4...1..68....9....7....1..9......9.68 ED=11.8/11.8/10.7 23c eleven/First\_Peak 98.7....7...6.9....5....4..9.3..8....2.....1.....4.5..3..7.6.....8...7.....1..2 ED=11.8/11.8/10.6 22c PAQ/2019\_03\_18 .....1....2.3...4.5.6...7.8....1.....96..4..7....85.....59...3.2.7...6.5. ED=11.8/11.8/10.5 22c dob/12 12 03 ......94....92.....7..45..1.3....7.6..9..8....7..2.3.7..8....6.1....9....5.2. ED=11.8/11.8/10.5 23c eleven/puzzles23c-6 1......2.3.4...5...6...7...5.9.4......23.....8...9...2...6...9...8.4.7......1 ED=11.8/11.8/10.4 21c champagne/h54autres\_1 1......2.3.4...5...6...7...5.8.4.......29.....3...9...7.....1.9...8.4.2.....6.. ED=11.8/11.8/10.4 21c champagne/h54autres\_4 .2...1.....6...3...9.8...7..5....78.3.....6.8...4.5....4.9.7...1.2.....9......5 ED=11.8/11.8/10.0 22c col/2015\_08 ...4...8...7..92.....3...526...1.....19......7....1..5......4..1.8....3..6..29.. ED=11.8/11.8/ 9.9 22c eleven/puzzles22c-15 .2.4..7....6.....17...3.....5....6..4.2..9......5...8..1..8....9..7......92.3.. ED=11.8/11.8/ 9.8 21c elev/10 .....12....3..4..2.4.5....4.5..2..6....7..8..9..4....7.1...5.3...8...9..6.... ED=11.8/11.8/ 9.4 22c dob/12\_12\_03 .....1....2.3...4.5.6.....1.2....3.7..8.6..9.7...598......76..5...4...7.5.. ED=11.8/11.8/ 8.3 23c dob/12\_12\_17s 1......9.5...2...87...4.2...3.....48.5....8.6...7...6..4.5.......1....9.3.. ED=11.8/11.8/ 7.9 21c elev/11 5.....9.2.1...7...8...3...4.6......5.....2.7.1...3...8...6...4.2.9......5 ED=11.8/11.8/ 3.4 20c m\_b\_metcalf/puzzles20c-1 ..3.8....7..2.....6...9.1.....3.....596..9.....54.1...45..8...3.....27..... ED=11.8/11.8/ 3.4 21c tax/tarek071223170000-1......6.5.7...8...3...4.....5.8.9....3....8.92....6....3...7...5.2...4.....1 ED=11.8/11.8/ 3.4 21c col/H1 .....1.2.3.4.4.5.6....1.5....6...78....4.3..8...9.2.2.37....9...2... ED=11.8/11.8/ 3.4 22c dob/12\_12\_03 98.76....75....9....6.....8...4..3..2.....1..95..8....86..5.....3...4.....1.2. ED=11.8/11.8/ 3.4 23c GP/KZ1C 1.....8.....92....6.3...52....8.....5.7.....6.5....4..47..........91..3..6...7 ED=11.8/11.8/ 2.6 21c elev/14 98.7....6..89.....5..4...7...3.9....6...7....2....41.6..8.3......1..5......2. ED=11.8/11.8/ 2.6 22c GP/H2 98.7....6..89.....1..4...7...3.9....6...7....2....51.6..8.3.......5.4.......2 ED=11.8/11.8/ 2.6 22c col/2012\_11\_10 98.7....6..89.....5..4...7...3.9....6...7....2....51.6...8.3......1.4.......2 ED=11.8/11.8/ 2.6 22c GP/H3 .....1....234..34...2.....1.5....3.6...15...7.68..4...7...9....9...5...3 ED=11.8/11.8/ 2.6 22c mith/puzzles22c-1443414 98.7....7...9...2.95...47.....3.4..7...6...1...84.3.....6..2....2..1 ED=11.8/11.8/ 2.6 22c col/2015\_08 ......1....23.....45...2...3..5.6..6...1..78.6....9..6.5.....1.4....89.....7.. ED=11.8/11.8/ 2.6 22c mith/puzzles22c-1416396 ..34...8......1.37......2...9.....5..8...6...7.4...51....8.7...5...9...62.5. ED=11.8/11.8/ 2.6 22c eleven/puzzles22c-22 .....1....23.4.....452....1.3....3...4...6..7....8..6.....9.5.....62.7.9...1.. ED=11.8/11.8/ 2.6 22c mith/puzzles22c-500218 .....1....2.3...4.5.6....748.....3...1...84.85......4....7...9.....237...6.8.. ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3901278 ......1....2.34....3.56...2.46....7.8......8.9....6..4....5.71......98.....1.7 ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3055268 ......1....2.34....3.56...2.46....7.8.....8.9....6..5....4.71......98.....1.7 ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3055179 .....1....2.34....3.56...2.46....7.8....8..9....6..4....5.18......77.....1.9 ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3055269 ......1.....2.34....3.56...2.46....7.8....8..9....6..5....4..8....1.771......9 ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3055127 ......1.....2.34....3.56...2.64....7.8.....8..9....6..5....4..8...1.771......9 ED=11.8/11.8/ 2.6 23c mith/puzzles23c-3055042 98.7.....76..8.....5.....8..9..4....3....2.....1..5...46.7.....9.6.2....2.34 ED=11.8/11.8/ 2.6 23c PAQ/2019\_05\_01 ......1..2..3.4..5..6.7......71.6.1...58.44.....9...32.....8..76...9..3..... 23c 5.6...7...1.3....8...5.9....1...2....8.6.7....2.4.7...9...6.3...42....5..... ED=11.9/ 1.2/ 1.2 22c OW/2015\_08  $\dots$  12....13..4..12..5....46....5.7....6..86..9.....64...5..9...7...3...8.... 23c ..3..6.8....1..2.....7...4..9..8.6..3..4...1.7.2....3....5.....5....5...6..98.....5. ED=11.9/ 1.2/ 1.2 22c eleven/Imam\_bayildi 57....9......8.1.......168..4.....28.9..2.9416....2....6.9.82.4...41.6.. ED=11.9/ 1.2/ 1.2 26c mith/Loki ......1....2.....3..45..1.23....267.81..73.61.8...17.6.....8......2.3.87..6 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691076 ......1.....2...3..45.....6...7..5..8....9.3..4...39..58...8.9.....2..81..7. 22c .....9.....8..7..6.5....4...3..5..2....1....76..71..5.2..2....1.....98....3 ED=11.8/ 1.2/ 1.2 21c mith/puzzles21c-119784 .....1....2.3....14.5....2....6..3......78..9..4...68..7...4..81....9...5.8.. 22c .....6..94...8.2....7...1.2.9...8....4.3.9...6.....5.3.8.4......5....7...1... ED=11.8/ 1.2/ 1.2 21c elev/4 1....6......8.2...9.7....5.7.3...5......16....4....73..59....48...2....3...... ED=11.8/ 1.2/ 1.2 21c elev/L1 ......1..2..3.4..5..6.7......1.8....4....32...9.6....9.2.5..56.8.....72....... 22c ..3..6.8....1.....9..7...4...8..6..3...4...2.....5.1...2.9...37.......94....5.. ED=11.8/ 1.2/ 1.2 21c elev/6 .....12...13.4..14..5...2....5.3..6...7...8....41...5..6..3.9..8....7... 22c ......12.....3..4..2.4.5....1....5..3.6.....7....8.....4.2...5.6.3..9..8....7... ED=11.8/ 1.2/ 1.2 21c dob/12\_12\_03  $\dots \dots 1 \dots 2 \dots 3 \dots 4 \dots \dots 5 \dots 6 \dots \dots 1 \dots 2 \dots \dots 7 \dots \dots 89 \dots 4 \dots 3 \dots 98 \dots \dots 73 \dots 9 \dots 5 \dots 6 \dots 9 \dots 22c$ ......1.....2.3....45.6....3....7..4..6....5..8..9....7..1..2.8.6..5..9...4.... ED=11.8/ 1.2/ 1.2 21c mith/puzzles21c-570833 .2....78.4......6.9..7..1....5....3.....1......9.12..7..1.8..5....4.....67.3... ED=11.8/ 1.2/ 1.2 22c elev/7 ......1....2.3....45.6...1.7...2.8.6..7..67......3..9...4..5..8..85.7..... ED=11.8/ 1.2/ 1.2 22c dob/12\_12\_17s .....1....2.3...4.5.6...16....27.4....8..8...6.9...7...3...4.58.....6..59.....23c 68.7....3..89.....1..4...7...3.9....6...7....2....51.6..8.3.......5.4.......2 ED=11.8/ 1.5/ 1.5 22c col/2012\_11\_10 .....1....2.3...4.5.6...16...72.4....8..8...6.9...7...3...4.58.....6..59....23c
68.7....3..89.....5..4...7...3.9...6...7...2....51.6...8.3.....1.4.......2 ED=11.8/ 1.5/ 1.5 22c col/2012\_11\_10 ......1....2.3...4.5.6...3...1...4.78.....6..54.....4...7...9.....127...6.8.. ED=11.8/ 1.5/ 1.5 22c mith/puzzles22c-134784 .....1....2.3...4.5.6...37....82.4....7..6..7..9...8...1...4.56.....7..59.... 23c ......1....2.3...4.5.6...3.....72.4....8..6..8..9...7...1...4.56.....8..59.... ED=11.8/ 1.2/ 1.2 22c dob/12\_12\_03 .....1...12...134...5....6...2.7....53..8.5..4...378....1....9...94....7...23c ......1....12.....34...5....6...2.7....53...8.5...4...378.....1....9...94....7.. ED=11.8/ 1.2/ 1.2 22c mith/puzzles22c-1688447 .....1....23.....45...6...5..17...7.8...5.9....5..3.56....7...894.....2.......9 23c ......1....23.....45...6...5..17...7.8...5.9....5..3.56....7...8.4.....2......9 ED=11.8/ 1.2/ 1.2 22c mith/puzzles22c-1931999 .....1..2..3.4..4..5.6.....36...5.3.1..7..2....8.3...9.3...7.2...4.9.8.........23c .....1..2..3.4..3..5.6.....6...7..8..2.3..7.1..5....9.2...3.8...9...4......9. ED=11.8/ 1.2/ 1.2 22c dob/12\_12\_03 ......1..2..3.4..4.15.......6.15..5.7..48.8......9..3..2....7..1.6..9.......8 23c 98.7....6...5.8....4....3.7..9..5....3....4.....2..1.6...1..2..9.......89.6.. ED=11.8/ 1.2/ 1.2 22c monh/puzzles22c-1374322 .....1..2..3.4..5..6.7.....1.3....4....85...7.2....5.2.9...29.....8.76.9..... 23c .....1..2..3.4..5..6.7.....1.3....4....85...7.2....5.2.9...9....8.76.9..... ED=11.8/ 1.2/ 1.2 22c DOB/13\_01 ......12....3..4..4.2.5....2.6...5.7....6..86.9......6.1..5..9...8...3..7.6... 23c .....12....3..4..4.2.5...2.6...5.7....6..8..9.....6.1..5..9...8...3..7.6... ED=11.8/ 1.2/ 1.2 22c dob/12\_12\_03  $\dots \dots 12 \dots 13 \dots 4 \dots 14 \dots 5 \dots 26 \dots 5 \dots 7 \dots 6 \dots 8 \dots 9 \dots 4 \dots 41 \dots 5 \dots 3 \dots 8 \dots 9 \dots 7 \dots 23c$ .....12....3..4..1.4.5....2.6..5..7....6..8..9..4....4.1...5.3.8.....9....7... ED=11.8/ 1.2/ 1.2 22c dob/12\_12\_03  $\dots \dots 12 \dots 13.45 \dots 14 \dots 6 \dots 45 \dots 1.7 \dots 2 \dots 8 \dots 9 \dots 61 \dots 2 \dots 9 \dots 8 \dots 3 \dots 7 \dots 23c$ .....6.8....1..2...9..7...5..5.4...734...8...97.......9...6..7...3...4...2...1. ED=11.8/ 1.2/ 1.2 22c elev/5 .....1..2....2..3...24..5....1..46...7.....38.....9...6.4....3.6....79..5...86 23c .....1..2..2....3..4..5.6......7.16.8..6....6..5..9....3..5..7.5.8.....9...4.5.. 23c 9..8..7...8..6.....5....4.6...9.....3.7..9......2..5.9..3.8....4.....1.2. ED=11.8/ 1.2/ 1.2 21c GP/2012\_04 5.6...7...1.3.....7...5.8....1...2....7.6.8....214.8...9...6.3...4....5..... ED=11.8/ 1.2/ 1.2 22c OW/Lightsaber ......1....2.3..34.5..2.....35..6.652...4.7...46......5..8...52..4.6.9........24c 98.7..6....5.96......4.9.87..6.9...3......8....246...87.....7.4......1. ED=11.8/ 1.2/ 1.2 23c PAQ/2018\_11\_28 ......1..1..2.3..4..5.2......6....37...2686....9....6..7..2.5.4..6..9...6..8. 24c 98.7..6....5.4..........9.8..9...6..4..5...9..9..32..1.........7.1...8...8..2..3 ED=11.8/ 1.2/ 1.2 23c GP/12\_05 98.7.....6.5.4......9.3..9..2...7..8...9..9..5.4.2..5....3..1.6..5.....1... ED=11.8/ 1.2/ 1.2 23c GP/12\_07 ......12..1..3.4..4..1.5....6..7....2..4...58..3.......7.98....9..3..5.3..6..9.. 24c .2.4..7...5...9.3.6...7.....5..8.9.7...2.....4.6..3......1..85.....1...1...9.3 ED=11.8/ 1.2/ 1.2 23c eleven/puzzles23c-11 .....1....2....3.4..5.....3.5.4..5...67.3.3.....6..87.64.3.3.6.5..4.9..8.3... 26c 98.76.5..7..4..6....3..8...5..6..4.....2........1.4...7...9.5....7....5...64 ED=11.8/ 1.2/ 1.2 23c PAQ/2019\_04\_28 98.76.5..7.54..6....3..8...5..6..4.....2.........1.4...7..59...5...64.....7.. ED=11.8/ 1.2/ 1.2 24c PAQ/2019\_04\_28 ......1.....23......4..5...26.....23.784..86.4.3....786.....34.8.2...6.2.47.8. 28c ......1.....23.....4..5...26.....23.784..86...3....7.6.....34.8.2...6.2.47.8. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-3412155 .....1.23...45.6.1..1.47....7681...584...6..7.5478....6.81..7..7...6.... 29c ......1.23...45.6.1..1.47.....681...548...6..7.681...7...7..6....5.4.8.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721522 .....1.23...45.6.1..1.47....7681..5.84...6..7.5478....6.81..7..7...6.... 29c ......1.23...45.6.1..1.47.....681..5.48...6..7.681..7...7..6....5.4.8.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721521 .....1.....23......4..5...26.....23.784..86.4.3....7863....34.8.2...6.2.47.8. 29c ......1.....23.....4..5...26.....23.784..86.4.3....7.63....34.8.2...6.2..7.8. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-3023057 .....1.....23......4.56....43..5.3752..8.5.47.8.2...84.....34..87...7.235..... 29c ......1.....23.....4.56....43..5.3752..8.5.47.8.2...8.....34..87...7.235.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3581915 ......1.....23......4.56.....3..5.3725..8.5.4.78.2...8.4....34.8.7...7.253.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3582029 .....1....23.....14.56..7..6....86.5...741..78.....864..7..547.1...76..85....29c ......1.....23.....14.56..6.75....458.1....7.64..8..67.5...8.8...6...4.1..7... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4709995 ......1....23.....14.56..7..6....86.5...741..78.....864..7..54..1...76..85... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3581992 .....1.....2.....3..4.25.367..3.782.5..68.7.52...63.57...27.38....5.86.....30c .....1....2....3..4..325.6...57.8.2..6..3.78...825.....37.6.8...5.6.7... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888647 ......1.....2....3..4..2.356...3.72.8...576.82...26.7....3.5.86...78.5..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4699131 .....1.....2.....3..4.25.367..3.87.52..67.82.5...63.57...2.738....58.6..... 30c ......1......2....3..4..5..67...38.7.2...6.28.5...2783....6.35.7...85..6.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888707 .....1.....2.....3..4..5.367...387..2...6.82.5...27.8....6.3.57...85.6..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888709 ......1......2.....3..4..2..56...5.27.8..73..682...87.5....3.58.6...62.73.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4699224 ......1.....2....3..4..2.356...5.72.8..73.6.82...875.....3.5.86...62..7.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4699226 ......1.....2.....3..4.25.367..37.82.5..6.87.52...63.57...2.738....58.6..... 30c ......1......2.....3..4..325.6...57.8.2...6.3.78...825.....5.6.7....73.6.8... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892993 ......1.....2....3..4..2.356...3.72.8..75.6.82...875.....3.5.86...62..7.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4705138 ......1.....2.....3..4.25.367..38.7.52..6.782.5...63.57...27.38....5.86..... 30c .....1.....2....3..4..5.367...6.82.5..83.7..2...586.....6.3.57...72..8.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884045 ......1....2....3..4..5..67...6.28.5..83..7.2...58.6....6.35.7...72.83.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884095 ......1......2.....3..4..2.356...376.82...5.72.8...26.7....3.5.86...78.5..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691021 ......1.....2....3..4..2..56...37.682...5.27.8...2673....3.58.6...78..5.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691049 ......1......23....24.....564.7...847.2...67..85....4625....5.74.8.6.82..67... 30c 98.76.5..7.5.94.....6..8...8.4................43.........2.6.9.5....47.8.9....5.6....7 ED=11.8/ 1.2/ 1.2 26c monh/forum-20220207-1 98.76.5..7.48......56..9...5..9.7....9..5..8..6748.......6.4.......4.3.......2 ED=11.8/ 1.2/ 1.2 26c monh/forum-20220207-2 .....1....2.34.35......62.....7.3.25..885...67...7853....32..68...5.62.7.8. 30c .....1....2.34..2.3156.....5.....4...6...78..6......651..1..2.43..4..3...25 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888040 ......1.....2.34..2.3156.....5.....4...6...78..6.......65.4.1...2.43...4...31...25 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4698373 .....1....234.....56.7...65.87...25.17...87.62.....682....72.7.6....51.87.....30c .....1....23.....2.4.....2567...271.8....56.8....61.7...25...86...7.85..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888766 ......1....23....24....567....62.48...87.2.5...46...7.52.....867.8.5.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888870 ......1......23.....24....567.....62.48...87...5....46.2..7.52.....867.8.5.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888871 ......1....234.....56.7...65.87...25.17...8..62.....68.....72.7......51.8..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888872 ......1.23...45.6.1..617...5.415.8....7..46..8.67.1.8...8.6.....4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595725 ......1.23...45.6.1..7.6.....861..7..54.78.....15.47...4.85.6..776.81..4. 31c ......1.23...45.6.1..617..5..415.8....7..46..8.67.1.8...8.6.....4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595724 ......1.23.14...5.6..5..7....6..857...7841.....8675...154.1.8..77.1.64... 31c ......1.23.14...5.6..5..7.....814.....6.8.57...865....154...8..77.16.4... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595958 1.23.14...5.6..5..7....814....6.8.57...865...454...8..77.16.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721391 .....1.23.14...5.6..5..7....814....6.8.57...865...45...8..77.16.4.. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721406 ......1.23.14...5.6..1.6.....7685...454...7..8..5..8....6..758...8741.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595957 ......1.23.14...5.6..5..7.....814.....6.8.57...865...1.54...8..77.16.4... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595980 .....1.23.14...5.6..5..7.....814.....6.8.57...865...4.5....8..77.16.4... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721405 ......1.23.14...5.6..1.6.....7685..4.54...7..8..5..8...6..758...8741.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595956 ......1......2.....3..4.25.367.83.782.5..68.7.52...63.57...27.38....5.86..... 31c ......1.....2....3..4..325.6....7.8.2...6.3.78.5.56.7....73.6.8...8.25..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888714 ......1......2.....3..4..2.356.7.3.72.8...5.6.82...26.7....3.5.86...78.5..... 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ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4705136 ......1.....2.....3..4.25.367.838.7.52..6.782.5...63.57...27.38....5.86..... 31c .....1.....2.....3..4..3.5.2....627.8...8.3.65.7.78.6....5.27.....63.8.5... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884048 ......1.....2....3..4..3.5.2....627.8...8...65.7.78.6....5.273....63.8.5... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884096 .....1.....2.....3..4..2.356.7.3.6.82...5.72.8...26.7....3.5.86...78.5..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691023 ......1.....2....3..4..2..56.7.3..682...5.27.8...2673....3.58.6...78..5.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691051 ......1.....23......4.56..7.4.....8253....43.7.8....54.87.2.27.4.3..53.825..7. 31c ......1.....23......4.56..7......8235....43..78....548...2..7..43..53.852..7. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595614 ......1.....23.....4.56..7..3..5.45.8..2.38.25..7..2853.....7..4....4.37.8... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595770  $\dots \dots 1 \dots 23 \dots 14.56 \dots 71.6 \dots 8645 \dots 741 \dots 78 \dots 864 \dots 7.547.1 \dots 76 \dots 85 \dots$ ......1.....23.....14.56..6.75....458.1....7.6...8..6745...8.8...6...4.1..7... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721250 ......1.....23.....14.56..7..6....8645...741..78.....86...7..54..1...76..85... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595763 ......1.....23.....2.4...215.6....7.8.....6.2.785..815.....27.6.8...5...7.... ED=11.8/ 1.2/ 1.2 25c mith/puzzles25c-4029383 ......1......23.....24....5.6.....47....8.62...8.57..67......72.45...58.2.6... ED=11.8/ 1.2/ 1.2 25c mith/puzzles25c-4029386 ......1......23.....24....5.6.....47.2..8.62...8.57..67......72.45...58...6... ED=11.8/ 1.2/ 1.2 25c mith/puzzles25c-4029391 ......1.....234.....56.7...18......86..5..727........52.17....6...87..8..62.... ED=11.8/ 1.2/ 1.2 25c mith/puzzles25c-4029399 ......1.23...45.6.1..617.....41..8...57..46..8.67.1.8...8.6.5...4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596034 ......1.23...45.6.1..617.....41..8...57...6..8.67.148...8.6.5...4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596207 ......1.23...45.6.1..7.64....861..7..54.78.....15......4.85.6..776.81.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366640  $\dots$   $1.23\dots45.6.1\dots7.65\dots861.47\dots54.78\dots15.47\dots4.85.6\dots776.81\dots32c$ ......1.23...45.6.1..617.....415.8...57...6..8.67.1.8...8.6.4...4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596080 ......1.23...45.6.1..617.....41..8...57..46..8.67.158...8.6.....4.57..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596139 ......1.23...45.6.1..7.6.....861.47..54.78.....15......4.85.6..776.81.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366641 ......1.23..4.2.56...7..3....8324...714...8.....813..7..21.74....3.8.2... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596032 ......1.23..4.2.56...7.13....8324...714...8.....8.3..7..21.74....3.8.2... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596193 ......1.23..4.2.56...7..3....8324...714.7.8.....813..7..21..4...73.8.2... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366526 ......1.23..4.2.56...7.43....832....714...8.....813..7..21.74....3.8.2... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596029 ......1.23..4.2.56...7.3..8..21.84....3.7.2.....8.43....7321...814...7... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596192 ......1.23..4.2.56...7.43....832....714.7.8.....813..7..21..4...73.8.2... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366524 ......1.23.14...5.6.7658....54..17..88.16.4....8714....1.5..8...46.7.58...32c ......1.23.14...5.6..5..7.....814....46.8.57...865.....5...8..77.16.4... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721404 ......1.23.14...5.6..1.64....7685....5....7..8..5..8...8741....46..758.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3595966 ......1.23.14...5.6..714....6.7.58..1.5..8....765.....54...7..88.16.4... 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ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4890473 ......1.....2....3..4..356.7....8.275...5.3.8..6.256.....38.7.....6.7.8...2 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4890474 ......1.....2....3..4..5.2.6...2367.8...8.3.5..7.78.5....2.67.....53.8.2... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4890475 .....1.....2.....3..4..5.2.6...2367.8...8.3.5..7..67......78.5...253.8.2... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4890476 ......1......2.....3..4..356.7....8.275...5.3.82.6.256.....38.7.2...6.7.8.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4701113 ......1.....2.....3..4..5.267...2378.6..7..3.5..8.86.5....2.78.....53.6.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4701115 ......1.....2.....3..4..5.267...2378.6..7..3.5..8..78......86.5...253.6.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4701116 .1.....2....3..4.2356.7..5.82.76..76..382.5.578....22.635....38..72... 32c ......1......2.....3..4..356.7....8.2.5...7.3.8..6.256.....6.7.8...283.7..... ED=11.8/ 1.2/ 1.2 25c mith/puzzles25c-4030946 ......1.....2....3..4..356.7....8.2.5...7.3.82.6.256.....6.7.8....83.7.2... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892157 ......1.....2....3..4..356.7....8.275...5.3.8..6.67.8...22.56.....38.7..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892158 ......1.....2....3..4..5.2.6...2367.8..8..3.5..7..67.....78.5...235.8.2... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892159 .....1.....2.....3..4..5.2.6...2367.8..8..3.5..7.78.5....2.67.....35.8.2... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892160 ......1.....2.....3..4..356.7....8.275...5.3.82.6.67.8....2.56.....38.7.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4703994 ......1.....2.....3..4..5.267...2378.6...7.3.5..8..78......86.5...235.6.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4703999 ......1.....2....3..4..5.267...2378.6...7.3.5..8.86.5....2.78.....35.6.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704000 .1.....2....3..4.25.36...37.8.52.66.872.5...63.58.7.28.67....5.73...6. 32c .....1.....2.....3..4..5....6..72.8....36..57.8..837..2..5...36...7.682.5.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888042 ......1.....2....3..4..5....6..72.8....36..57.8..837....652..36...7..82.5.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888049 ......1.....2....3..4..5....6..72.8....36..57.8..837..2.65...36...7..82.5.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888050 ......1.....2.....3..4..3.56.7..5.....8.62.87.....8672.5..2.5.3....73.6....8 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888052 ......1.....2....3..4..3.56.7..5.....8.62.87......5.38....8672.5..73.6..2.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888053 ......1.....2.....3..4..3.56.7..5.....8.62.87......5.3.....8672.5..73.6..2.8 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888054 ......1.....2....3..4..5.3..6..728.....36.5.7.8..83.7...652...6...7.28.5.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888057 ......1.....2....3..4..3.56.7..5.3...8.62.87....8672.5..2.5.....73.6....8 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888062 ......1.....2.....3..4..3.56.7..5.3...8.62.87......5..8...8672.5..73.6..2.. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888063 ......1.....2....3..4..3.56.7..5.3...8.62.87......5......8672.5..73.6..2.8 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888064 .....1....2.....3..4.25.367.83.782.5..68.7.52...63.57.8.27.38....5.86..... 32c .....1....2....3..4..325.6...57.8.2..6..3.78....6.7....825.....37.6.8.5. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888316 .....1....2....3..4..2.356...3.72.8...576.82...26.7....8.5....3.5.86.7. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4698760 .....1.....2....3..4.25.367.83.87.52..67.82.5...63.57.8.2.738....58.6..... 32c ......1.....2....3..4..5.367...387..2...6.82.5...27.8....5.6....6.3.57.8. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888328 ......1......2.....3..4..5..67...38.7.2...6.28.5...2783.....5..6....6.35.7.8. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4888706 ......1.....2....3..4..2.356...5.72.8..73.6.82...8.5....3.5.86.7.62..7.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4698808 ......1.....2....3..4..2..56...5.27.8..73..682...8..5....3.58.6.7.62.73.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4699223 .....1....2.....3..4.25.367.837.82.5..6.87.52...63.57.8.2.738....58.6..... 32c ......1......2.....3..4..325.6...57.8.2...6.3.78....6.7.....825.....73.6.8.5. ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4896751 ......1.....2....3..4..2.356...3.72.8..75.6.82...8.5.....3.5.86.7.62..7.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4710896 ......1.....2.....3..4.25.367.838.7.52..6.782.5...63.57.8.27.38....5.86..... 32c .....1.....2.....3..4..5.367...6.82.5..83.7..2...5.6.....6.3.57.8.72..8.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884041 .....1.....2.....3..4..5..67...6.28.5..83..7.2...5..6....6.35.7.8.72.83.... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4884091 ......1.....2....3..4..2.356...376.82...5.72.8...26.7....8.5....3.5.86.7. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691018 ......1.....2....3..4..2..56...37.682...5.27.8...2673.....8..5....3.58.6.7. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4691045 ......1.....2....13.45...3.56...3716.5..6.5.78....785.1...3.1.86.5.56.73...8 32c ......1......2.....13.45...3.56....5.78....3716.....6.73...8.785.1...3.1.86.5. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-2621271 ......1.....2.....13.45...3.56...371.....6.5.78....6.73...8.785.1...3.1.86.5. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-2621272 ......1.....2....13.45...3.56....5.78....3716.5...785.1...3.1.86...56.73...8 ED=11.8/ 1.2/ 1.2 30c mith/puzzles30c-2265477 ......1.....2.....13.45...3.56...371..5..6.5.78....785.1...3.1.86...56.73...8 ED=11.8/ 1.2/ 1.2 30c mith/puzzles30c-2265478 .....1.....2.....3..4.2356.7..5.82.76.367..382.5.578....22.635....83..72... 33c ......1......2.....3..4..356.7....8.2.5.3.7...8..6.67.8...22.563....83.7..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892996 ......1.....2....3..4..356.7....8.2.5.3.7...82.6.67.8....2.563....83.7.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4707440 ......1......2.....3..4..356.7....8.275.3.5...8..6.2563....38.7.....6.7.8...2 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4707441 .....1.....2.....3..4..5..6..7.3278.5...6.2..8.3.576.....28.37....6.3.52... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4707442 ......1......2.....3..4..5..6..7.3278.5...6.2..8.3.576....2.8.37....6.3.52... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4707443 ......1.....2.....3..4..356.7....8.275.3.5...82.6.2563....38.7.2...6.7.8.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3579690 ......1......2.....3..4..5..6..7.6..285.323.57.8...5273....3.68.2...78..6.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3579691 ......1.....2.....3..4..5..6..7.6..285.323.57.8...5.73....3.68.2...78..6...2 ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3579692 .....1.....2....3..4.2356.7..5.82.76.376..382.5.578....22.635....38..72... 33c ......1.....2....3..4..256.7...7...8..58..2..6.3.38.72...62.35....7.58..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892475 ......1.....2....3..4..256.7...7..38..58..2..6.3.38.72...62..5....7.58..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892491 ......1......2.....3..4..256.7...7...8..58..2..6.3.38.7....62.35....7.58....2 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892572 ......1.....2.....3..4..256.7...7...8..58..2..6.3.38.72...6..35....7.58....2 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892573 ......1.....2.....3..4..256.7...7..38..58..2..6.3.38.7....62..5....7.58....2 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892574 ......1.....2....3..4..256.7...7..38..58..2..6.3.38.72...6...5....7.58....2 ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892575 .....1.....2.....3..4..356.7....8.2.5.3.7...8..6.2563....6.7.8...283.7..... ED=11.8/ 1.2/ 1.2 26c mith/puzzles26c-4892577 ......1.....2.....3..4..256.7....5..8..6.8..275.3.76.8....25.63....3.87.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704572 .....1.....2.....3..4..256.7....53.8..6.8..275.3.76.8....25.6.....3.87.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704591 ......1.....2.....3..4..256.7....5..8..6.8..275.3.76.8...225.63....3.87..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704629 ......1.....2....3..4..256.7....5..8..6.8..275.3.5.63.....76.8...23.87.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704631 ......1.....2.....3..4..256.7....53.8..6.8..275.3.76.8...225.6.....3.87..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704635 ......1......2.....3..4..256.7....53.8..6.8..275.3.5.6......76.8...23.87.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704636 ......1.....2.....3..4..356.7....8.275.3.5...8..6.67.8...22.563....38.7..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704639 ......1.....2....3..4..356.7...8.2.5.3.7...82.6.2563....6.7.8...83.7.2... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4704641 ......1.....2....3..4..356.7....8.275.3.5...82.6.67.8...2.563....38.7.2... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3576838 .....1.....23.....4.56..7.42....8253....43.7.8..2.54.87.2.27.4.3..53.825..7. 33c ......1.....23.....4.56..2.43..5.735...8.54.7.8....8...2...3.4.87..27..35.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596048 ......1.....23.....4.56..2..3..5.73.5..8.54..78....8..42...3.48.7..27..53.... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596211 ......1.....23......4.56..7.42....8.53....43.7.8..2.54.8....27...3..53.8.5..7. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596213 ......1.....23......4.56..7..2....8.35....43..78..2.548.....27..43..53.85...7. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596214 ......1.....23......4.56..2.43..5.735...8.54.7.8.2..8...2...3.4.87...72.35.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366604 .......1.....23.....4.56..2.43..5.7352..8.54.7.8....8......3.4.87..272.35.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366613 ......1.....23......4.56..2..3..5.73.5..8.54..78.2..8..42...3.48.7...72.53.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366694 ......1.....23......4.56..2..3..5.7325..8.54..78....8..4....3.48.7..272.53.... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366695 ......1.....23......4.56..7.42....8253....43.7.8....54.8..2.27...3..53.8.5..7. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366696 ......1.....23......4.56..7.4.....8253....43.7.8..2.54.8....27...3..53.825..7. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366697 ......1.....23......4.56..7..2....8235....43..78....548...2.27..43..53.85...7. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366698 .....1.....23......4.56..7......8235....43..78..2.548.....27..43..53.852..7. ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366699 .....1....2.34..2...56..23.78.5.5.82.6...67.53..8..5736....8..25...2.68.7..5 33c ......123...4....56..7.4.....16..8...5..7.6..8.8.5.4...46..17.8.7.56..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721519 ......123...4....56..7.4.....16..8...54.7.6..8.6..17.8..8.5.4...7.56..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4721520 ......1.....23.....14.56..6.75....458.....17.64..8..67.5...8.8.1.6...4.1..7... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596038 ......1.....123...4....56..714.....16..8...5..7.6..8.815.4...46...7.8.7.56..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596053 ......1.....23.....14.56..6.75....458.....17.6...8..6745...8.8.1.6...4.1..7... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596201 ......1.....123...4....56..714.....16..8...54.7.6..8.6...7.8..815.4...7.56..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596202 ......1.....123...4....56....54....7586....64.1.7.8..5..76..8.874.....1.6..8... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596203 ......123...4....56....54....6.1.7.8.7.586.....16..8...54...76..88.74..... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3596204 ......1.....23.....14.56..71.6....86.5...741..78....54......1.864..7.76..85... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366689 ......1....23.....14.56..71.6....8645...741..78....54......1.86...7.76..85... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366690 ......1.....123...4....56..1.54....7586....64...7.8..5..76..8.8741....1.6..8... ED=11.8/ 1.2/ 1.2 29c mith/puzzles29c-3366691 .....1.....2.....34.5.26.37..434.8.62.78.742.6...73.68.4.28.74....6.43...7. 34c ......1.....2.....34.5..6....7..82.4....37..68.4...842.6...438....762..37... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702802 ......1.....2.....34.5..6....7..82.4....37..68.....842.6...438....762..37..4 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702905 .....1......2.....34.5..6....7..82.4....37..68.....842.6...438..2.76...37..4 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702906 ......1......2......34.5..2.36..4.347.8..6.7.42.8...27.4.....8.....6.3.6.87... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702907 ......1......2.....34.5..6....7..82.4....37..68....438..2..6...37..47.842.6.. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702908 ......1.....2.....34.5..6....7..82.4....37..68.4...842.6...438..2.76...37... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702909 .....1.....2.....34.5..2.36....347.8..6.7.42.8...27.4.....8.....6.3.6.87.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702911 ......1......2......34.5..6....7..82.4....37..68.4..438..2..6...37...7.842.6.. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702912 ......1.....2.....34.5..6.3..7..824.....37.6.8.....824.6...43.8...762...7..4 ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702916 .....1.....2.....34.5..6..7..4.8.24.6..43..8.2.7.6..3..7.7.36.8...82.4..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702919 2......34.5..2..6..4.34.78..6.7.24.8...274......8..3..6.3.68.7... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702921 1.....2.....34.5..6..7..4.8724.6..43..8.2...6..3..7.7.36.8...82.4..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702922 .1......2.....34.5..6.3..7..824.....37.6.8.4...824.6...43.8...762...7... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702923 .....1.....2.....34.5..6..7....8.24.6..43..8.2.7.6..3..7.7.36.8.4.82.4..... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702925 .....1.....2.....34.5..2..6....34.78..6.7.24.8...274......8..3..6.3.68.7.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702926 .1......2.....34.5..6..7....8724.6..43..8.2...6..3..7.7.36.8.4.82.4.... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702928 1.....2....34.5..3.6...7..624.8..28.3.7..4.48....7.6.24.....73.8.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702932 1......2.....34.5..3.6.2.7..624.8...8.3.7..4.48....7.6.24......73.8.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702933 1......2.....34.5..2.36..4.3.7.8..6.7.42.8...27.4....3.6.87...48.....6. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702934 1......2.....34.5..3.6.2...7.3.8..4.8624.7...47....8.6.24......83.7.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702935 .1......2.....34.5..3.6...7..624.8..28.3.7....48....7.6.24.....73.8.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702936 1.....2.....34.5..3.6.2.7..624.8...8.3.7....48....7.6.24.....73.8.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702937 1.....2.....34.5..2.36....3.7.8..6.7.42.8...27.4....3.6.87.4.48.....6. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702938 .1......2.....34.5..3.6.2...7.3.8....8624.7...47....8.6.24.....83.7.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702939 .1......2.....34.5..3.6...7..624.8..28...7..4.48.3..7.6.24.....73.8.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702941 1.....2....34.5..3.6.2.7..624.8...8...7..4.48.3..7.6.24.....73.8.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702942 1......2.....34.5..2..6..4.3..78..6.7.24.8...274.....3.68.7...48..3..6. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702944 1.....2.....34.5..3.6.2...7...8..4.8624.7...47.3..8.6.24.....83.7.6... ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702945 ......1.....2.....34.5..3.6...7...624.8..28...7....48.3..7.6.24.....73.8.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702947 .1......2.....34.5..3.6.2.7..624.8...8...7....48.3...7.6.24......73.8.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702948 .1.....2.....34.5..2..6...3..78..6.7.24.8...274.....3.68.7.4.48..3..6. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702950 1......2.....34.5..3.6.2...7...8....8624.7...47.3..8.6.24......83.7.6.4. ED=11.8/ 1.2/ 1.2 27c mith/puzzles27c-4702951 .....1.....2.....34.5..2.36..4.347.82..67.42.8...27.4.....8.....6.3.6.87... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575800 .1......2.....34.5..2.36....347.82..67.42.8...27.4.....8.....6.3.6.87.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575801 .....1.....2.....34.5..6....7..8247....37.6.8....43.8...762.3....47.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575802 .1......2.....34.5..6....7..8247....37.6.8....43.8.2.76..3....47.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575803 1......2.....34.5..2.3...4.346.7..886.42.7...2684.....7.....8.3.8.76... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575804 .1......2......34.5..6....7..8247....37.6.8.4..43.8...762.3.....7.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575805 .1......2.....34.5..6....7..8247....37.6.8.4..43.8.2.76..3.....7.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575806 1......2.....34.5..2.3.....346.7..886.42.7...2684.....7.....8.3.8.76.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575807 .1......2......34.5..2..6..4.34.782..67.24.8...274......8..3..6.3.68.7... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575808 .1......2.....34.5..2..6....34.782..67.24.8...274......8..3..6.3.68.7.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575809 .1......2.....34.5..6.3..7..8247....37.6.8....43.8...762......47.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575810 .1......2.....34.5..6.....4.7824.6..43..7.2.8.6..3..8.72.48....8.36.7... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575811 .1......2......34.5..2.....4.34.67..886.24.7...2648.....7..3..8.3.87.6... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575812 1......2.....34.5..6.3..7..8247....37.6.8.4..43.8...762......7.824.6.. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575813 1.....2....34.5..6.....7824.6..43..7.2.8.6..3..8.72.48....8.36.7.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575814 .1......2......34.5..2.......34.67..886.24.7...2648.....7..3..8.3.87.6.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575815 .1......2.....34.5..2.36..4.3.7.82..67.42.8...27.4....3.6.87...48.....6. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575816 .1......2.....34.5..2.36....3.7.82..67.42.8...27.4....3.6.87.4.48.....6. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575817 1......2.....34.5..3.6...7.7624.8..28.3....4.48....7.6.247.....73.8.6... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575818 1.....2.....34.5..3.6.2.7.7624.8...8.3....4.48....7.6.247....73.8.6... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575819 .1......2.....34.5..2.3...4.3.6.7..886.42.7...2684....3.8.76...47.....8. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575820 .1......2.....34.5..3.6...7.7624.8..28.3......48....7.6.247....73.8.6.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575821 .1.....2.....34.5..3.6.2.7.7624.8...8.3......48....7.6.247....73.8.6.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575822 1......2.....34.5..2.3.....3.6.7..886.42.7...2684....3.8.76.4.47.....8. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575823 .1......2......34.5..2..6..4.3..782..67.24.8...274.....3.68.7....48..3..6. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575824 .....1.....2.....34.5..2..6...3..782..67.24.8...274.....3.68.7.4.48..3..6. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575825 .1......2.....34.5..3.6...7.7624.8..28......4.48.3..7.6.247.....73.8.6... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575826 .1......2.....34.5..3.6.2.7.7624.8...8.....4.48.3..7.6.247....73.8.6... ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575827 .....1.....2......34.5..2.....4.3..67..886.24.7...2648....3.87.6...47..3..8. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575828 ......1.....2.....34.5..3.6...7.7624.8..28.......48.3..7.6.247....73.8.6.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575829 ......1.....2.....34.5..3.6.2.7.7624.8...8.......48.3..7.6.247....73.8.6.4. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575830 ......1.....2......34.5..2......3..67..886.24.7...2648....3.87.6.4.47..3..8. ED=11.8/ 1.2/ 1.2 28c mith/puzzles28c-3575831 Re: The hardest sudokus (new thread) "QUOTE by **mith** » Wed Mar 02, 2022 10:02 pm Posts: 862 Joined: 14 July 2020 Ran the same check on 11.7; 2236 minimals from 520 expansions. (No overlap with the 11.8+ list - Loki and friends remain the only confirmed morph-dependent ratings this high. We can't rule out the existence of others, of course.) QUOTE Re: The hardest sudokus (new thread) by **mith** » Wed Mar 02, 2022 10:27 pm Posts: 862 Joined: 14 July 2020 For 11.6, there are 4175 minimals from 944 **new** expansions + 298 minimals from expansions that have higher rated minimals. Altogether, that's 7057 11.6+ minimals from 1590 unique singles-expansions. The ph2010 edition of the database had 601 11.6+ minimals (I don't have a clear separation between the two datasets at the moment, so I can't say exactly how many unique expansions). I'm now considering a big overhaul of my scripts to take this into account and search more efficiently. "QUOTE Re: The hardest sudokus (new thread) denis\_berthier 2010 Supporter by denis berthier » Thu Mar 03, 2022 5:55 am Joined: 19 June 2007 Location: Paris First of all, thanks for all your work on this topic and congrats for your great findings. Your last, grouped presentation of the 11.8+ is much more usable. 1) Unless I miss something, there's currently no way to know (besides re-doing all the computations) that the following two puzzles have the same minlex expanded form: ......1....2.....3..45..6.....71.8....23..67..8.827..1..6...23...7.381.6. ED=11.9/1.2/1.2 98.76.5..7.4.5.....6.....5.8..7.4..79.45.6..6.98......8..........9.3.2.....4.. ED=11.8/1.2/1.2 2) the first puzzle of each group (the minlex expanded form, common to the whole group) should have its own name, SER rating, nb-clues, in the same format as the other puzzles (this is important for me, as I'm only marginally interested in the variants: all my ratings/classifications will be the same for all the puzzles in a group. I don't mean the variants should be discarded; on the contrary, it's interesting to see them and how they can have different SERs; I just mean I have no use of them in my own analyses.) 3) as for the creators, there are names I can associate to known people (some mith, you know him?) but month??? Is that a typo for mith? 4) as for the puzzle names, I think they should be as short and informative as possible; the "puzzle" part doesn't seem very useful; nobody is excepting to find a birthday cake in the collection. Similarly, the number of clues doesn't have to be embedded inside the name, as it is already an independent field; 5) currently, creator and puzzle name are a single field, e.g. eleven/Patience; I think they should be separated: eleven Patience; especially in view of the next point 6) turning the whole collection into an excel sheet or svn... would make it much easier to use; 7) we'll probably need additional fields in order to easily select what's new from one version to the next (that is currently the worst point in champagne's collection). 8) and also a field allowing to select only the minlex expanded forms. [Edit]: 9) plus a field for the number of candidates after Singles QUOTE Re: The hardest sudokus (new thread) hendrik monard by hendrik monard » Thu Mar 03, 2022 7:58 am Posts: 50 Joined: 19 April 2021 Location: Leuven (Louvain) Belgium **66** denis berthier wrote: 3) as for the creators, there are names I can associate to known people (some mith, you know him?) but month??? Is that a typo for mith? Hi Denis, In one of my previous posts I suggested to mith that he could use 'monh' instead of my full name for the database. BTW I share your opinion that mith has made a real breakthrough with his recent findings. "QUOTE Re: The hardest sudokus (new thread) denis berthier 2010 Supporter by denis berthier » Thu Mar 03, 2022 8:31 am Posts: 3334 Joined: 19 June 2007 **66** hendrik\_monard wrote: Location: Paris In one of my previous posts I suggested to mith that he could use 'monh' instead of my full name for the database. OK, I see. I don't know why I read month instead of monh!!! In-brain automatic typo correction 💛 **66** hendrik monard wrote: BTW I share your opinion that mith has made a real breakthrough with his recent findings. With all your 11.8s, you're also part to the breakthrough. BTW, do you think my idea of searching directly for puzzles not in T&E(2), now that we now they exist, is computationally tractable? QUOTE Re: The hardest sudokus (new thread) hendrik monard by hendrik\_monard » Thu Mar 03, 2022 11:22 am Joined: 19 April 2021 Hi Denis, Location: Leuven (Louvain) Belgium I'm afraid that my contribution (if any) to this breakthrough was rather marginal. I must also admit that my limited theoretical knowledge about the sudoku object doesn't allow me to give a meaningful and well funded answer to your question regarding computational tractability of puzzles not in T&E(2). When mith published his 11.9, I tested it in my logical solver described earlier in this thread. From the report generated by this solver, it appeared that this was one of the few puzzles that needed the last 'stage' (IV) of my solver. In the hidden text hereafter, you can see the report generated by the solver. It contains a.o. the list of candidates removed at each stage. Of course the number and the sequence of the removals at the last stage depend on the isomorph. At the previous stages, only the sequence of removals depends on the isomorph. **Hidden Text: Show** QUOTE Re: The hardest sudokus (new thread) champagne 2017 Supporter by champagne » Thu Mar 03, 2022 2:00 pm Posts: 7269 Hi Mith, Joined: 02 August 2007 **Location**: France Brittany some comments about the data base (existing and future). In my data base, I faced many of the problems described in former posts. To enter the data base, a sudoku must be minimal and ED different of any other puzzle. So, I keep for each ED new sudoku the original form and the canonical form. Each puzzle receives an internal sequence number, a kind of unique name. In fact, new puzzles have higher internal sequence numbers than the old ones. The rating is the rating of the morph supplied by the creator The problem of ED minimal having equivalent status later in not knew. AFAIR, the first one entered in the database is tarx004/tarx005, equivalent after one single. In fact, the equivalence can appear at any moment before the "harder step" giving the rating. The next point is "what is the purpose of the data base", and this can change the criteria to enter the data base. I have separate data bases for the seeds because I used a cutoff at ER 10.0 and this gave to many puzzles for an Access data base. If the data base is there to explore the TExx (whatever in in this concept), a cutoff over 11.0 is likely enough. My data base was supposed to contain the "hardest puzzle" (unknown definition); IMO, the hardest is an animal that must be solved in a boring sequence step by step, with no known quick logic. So, I could not exclude lower ratings Just keep in mind that "Al escargot" claimed by Arto Inpala as being the "hardest sudoku" has a relatively low rating but is clearly not easy to solve. My data base was also supposed to help in finding new exotic patterns. Here, the process is reverse, a new exotic pattern has been found, extraordinarily hard to beat with the Sudoku Explainer tool and it is used to produce new puzzles, usually heavily downgraded applying the Thor' hammer. As such puzzles have nearly no chance to be "the hardest puzzle" (in the definition given above), a cutoff over 11.0 should be enough (in terms of complexity, the length in the area ER 11\_12 is more or less exponential if you consider the number of candidates involved in the chains). "QUOTE Re: The hardest sudokus (new thread) denis berthier 2010 Supporter by denis\_berthier » Thu Mar 03, 2022 3:24 pm Posts: 3334 Hi Hendrik, Joined: 19 June 2007 Location: Paris **66** hendrik\_monard wrote: When mith published his 11.9, I tested it in my logical solver described earlier in this thread. From the report generated by this solver, it appeared that this was one of the few puzzles that needed the last 'stage' (IV) of my solver. As far as I can remember, we had concluded that your solver is equivalent to: - T&E(S4, 0) = S at stage 1 - T&E(S4, 1) at stage 2 - T&E(S4, 2) at stage 3 - T&E(S4, 3) at stage 4 What you're saying now is, this 11.9 puzzle requires stage 4 and is therefore not in T&E(S4, 2), but it is in T&E(S4, 3). I had mentioned it was neither in T&E(Singles, 2) nor in T&E(Subsets[2], 2). Because I found it was in T&E(W2, 2), I hadn't thought of trying with Subsets larger than 2 before. But I just checked that it is indeed not in T&E(S4, 2). This is stronger than my previous results involving Subsets. [Edit] Indeed, the PM after T&E(S4, 2) is the same as after T&E(Singles, 2). Subsets are of no help at all in advancing to the solution.[/edit] What you could check on your side is: if you de-activate all the Subsets and intersections, is it solvable at stage 4 (the equivalent of my T&E(Singles, 3)). Normally, if the above equivalences are correct, it should, because T&E(W2, 2) is included in T&E(Singles, 3). I have also checked directly that it is in T&E(Singles, 3). Anyway, whichever way we approach this puzzle, the complexity gap with any previous one is huge. Finally, this part is surprising: "this was one of the few puzzles that needed the last 'stage' (IV) of my solver". For me, it is the first puzzle that requires more than T&E(2) Last edited by denis berthier on Thu Mar 03, 2022 4:47 pm, edited 1 time in total. "QUOTE Re: The hardest sudokus (new thread) mith by **mith** » Thu Mar 03, 2022 4:17 pm Posts: 862 Joined: 14 July 2020 At the moment, most of my choices in the database are to facilitate generating new puzzles efficiently. The list presented above is formatted for readability moreso than as a proposed long-term format for the project; the actual database is in SQLite, and it's simple enough to adjust the output. Regarding the points raised by Denis: 1. My database has two separate fields, 'db puzzle' and 'minlex puzzle'. The former is the morph of the puzzle that was in ph 2010 or posted on the forums; the later is what I use as a canonical form (not true minlex, but consistent, using gsf's minlex form). I don't currently have a tool set up for generating the maxlex canonical form, but may add that in the future. (For puzzles I have generated, 'db puzzle' is usually empty, so when posted here they are in 'minlex puzzle' form. Occasionally I will morph a puzzle into a nicer form, as with Loki, at which point I will add this form to the database in 'db puzzle'.) 2. I think long-term I will generate the expanded form for all the puzzles (or at least all the puzzles with sufficiently high rating) and store this form in a separate database (along with adding the expanded form or an index to it in a new column in the minlex database). This is going to take a while, however - currently there are over 32 million puzzles in my local database (not all would be included in an update, as most are only rated by skfr ER). 3. Already resolved. 4. I agree on the puzzle part - puzzlesXXc is just the name of the database/table (there is a separate database per count, and the rowid used as a unique identifier is therefore specific to the database for that count). I do think the count is worth keeping, even if it is available in a separate field - not that just a ton of people are going to be using this thing, but it's easy to imagine someone referring to a puzzle only by the 'name' field and not specifying a count. 5. Separate fields in the database, I just combined them for display purposes here. (Likewise for the ratings; I have separate fields for ER, EP, ED, as well as skfr ER etc.) 6. A csv is easily imported into excel; the problem with publishing as an excel sheet is the size. It would be fine for only 11.6+ puzzles, say, but even an 11.0+ cutoff (counting skfr ER for puzzles not yet rated by SER) is closing in on 4 million entries at this point. 7. I have a field that is used for this purpose - basically a time stamp for when a large update is posted. For a full updated, I will likely populate this field as ph2010 for all puzzles in that database, and as ph22XX for puzzles in the new update (it would be possible to go back to older ph updates and give a more complete history, as well). Additionally, I intend to carry over the internal sequence number champagne used. 8. As mentioned in 2, likely I will just create a separate database for this. Fields would included 'minlex expanded', ER/EP/ED, # of clues, # of minimals, max/min # clues in minimals... other fields which might be useful on my end but less so for a published update would be max/min ER for minimals, whether all minimals are in the minimal databases, things like that. Would need to figure out how best to credit 'creator' and how to name them, as well - could do this based on the oldest minimal in the database, perhaps, though that won't always be clear for puzzles after ph2010. 9. This would be reasonable to calculate alongside generating the expanded forms. QUOTE Re: The hardest sudokus (new thread) yzfwsf by **yzfwsf** » Thu Mar 03, 2022 6:31 pm Posts: 592 Joined: 16 April 2019 Are the following backdoor of size 2 combinations considered T&E (Single, 2)? **CODE: SELECT ALL** 57....9......8.1.......168..4.....28.9..2.9416.....2.....6.9.82.4...41.6.. Loki r1c9=1, r6c4=5 r1c9=1, r8c5=7 r1c9=1, r9c1=7 r2c7=5, r8c1=3 r2c8=7, r4c2=5 r2c8=7, r4c6=7 r2c8=7, r6c2=3 r2c8=7, r6c4=5 r2c8=7, r8c1=3 r2c8=7, r8c5=7 r2c8=7, r9c1=7 r2c8=7, r9c6=5 r3c4=7, r7c9=5 r3c4=7, r8c1=3 r3c4=7, r9c1=7 r3c5=5, r4c2=5 r3c5=5, r4c6=7 r3c5=5, r6c4=5 r3c5=5, r7c4=3 r3c5=5, r7c9=5 r3c5=5, r8c1=3 r3c5=5, r9c6=5 r4c2=5, r7c9=5 r4c2=5, r8c1=3 r4c6=7, r8c1=3 r4c7=3, r7c9=5 r5c3=7, r8c1=3 r5c5=3, r7c9=5 r5c8=5, r8c1=3 r6c2=3, r7c9=5 r6c4=5, r7c1=1 r6c4=5, r7c9=5 r6c4=5, r8c1=3 r6c4=5, r8c8=1 r6c9=7, r7c9=5 r6c9=7, r8c1=3 r7c1=1, r8c5=7 r7c1=1, r9c1=7 r7c4=3, r7c9=5 r7c7=7, r7c9=5 r7c7=7, r8c1=3 r7c9=5, r8c1=3 r7c9=5, r8c5=7 r7c9=5, r9c1=7 r7c9=5, r9c9=3 r8c1=3, r8c3=5 r8c1=3, r8c5=7 r8c1=3, r9c1=7 r8c1=3, r9c6=5 r8c5=7, r8c8=1 r8c8=1, r9c1=7 QUOTE Re: The hardest sudokus (new thread) mith by mith » Thu Mar 03, 2022 6:32 pm Posts: 862 Joined: 14 July 2020 Some more new minimals, with an improvement for highest 32c: **CODE: SELECT ALL** ......12.34..13..56...7..4....84.3...721..78.....84...7..3...1...74..832.. ED=11.8/1.2/1.2  $\dots \dots 12.34.13..56\dots 7..4\dots 84.3\dots 721\dots 78\dots 84\dots 7..3\dots 1\dots 74\dots 83.2. \quad \mathsf{ED=} 11.8/1.2/1.2$  $\dots \dots 12.34.13..56\dots 7..4\dots 84.3\dots 721\dots 8\dots 84\dots 7..3.7.1\dots 4..832\dots \quad \text{ED=11.8/1.2/1.2}$ ......12.34..13..56...7..4....84.3...721...8.....84...7..3.7.1....4..83.2. ED=11.8/1.2/1.2 ......1....23......145.....6....17.18...92.97.2..6.8.69.....1.7.6..8982....76. ED=11.7/1.2/1.2 32c **CODE: SELECT ALL** ......1.....234.....2.56.15.27...2.859.1..97.1.85...2987....7.1..9...85.2.1... ED=11.6/1.2/1.2 **Hidden Text: Show** 0 Display posts from previous: All posts ✓ Sort by Post time ✓ Ascending ✓ Go Previous Next : 1330 posts • Page 73 of 89 • 1 ... 70 71 72 73 74 75 76 ... 89 POSTREPLY & Return to General Jump to: General **✓** Go Powered by phpBB® Forum Software © phpBB Group PHPBB SEO.COM