

The hardest sudokus (new thread)

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Re: The hardest sudokus (new thread)

Day champagne • Tue Oct 26, 2011 5:36 am



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

dobrichev wrote:  
I can't decompress today's version of the zip file. Please check if it is damaged.

I rerun the zip compression and the load.  
seems to be ok now

thanks a lot

champagne

Re: The hardest sudokus (new thread)

Day champagne • Sun Nov 06, 2011 9:30 am



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

coloin wrote:  
...comment...  
anyway my main point is on the diagonal pattern analysis.  
Based on the assumption that there will be probably be higher rated puzzles from patterns which actually have more puzzles in them.....  
..... it might be possible to look at all the patterns which can be derived from the 27-clue puzzles with only diagonal patterns [here](#)  
if a pattern can be shown to be originatable from more of the 15 [that I found only] ED 27-clue diagonal patterns than others - then this pattern might have more puzzles. I posted a puzzle which was derivable from the only pattern of the 15 which isn't symmetric - and as this pattern had at least x2 puzzles than others [because of the lack of symmetry] - the 24 clue pattern did give good results - ie it had high ratable puzzles might have been game 125 - not sure though].  
Many of the puzzles in the patterns game are purely derivable from diagonal clues.

C

Hi coloin,

At the end, I found this place more in line with the comment I wanted to make.

Surely, diagonal patterns are producing generally hard puzzles.

Nevertheless, if I am right, most of the puzzles of the "hardest" family are not that close of the diagonal pattern.

We have now a good collection of 23 clues and I have already in my data base a reasonable amount of 24 clues "potential hardest"

It would be interesting to have stats on how close these puzzles are from a diagonal pattern.

I don't have the tools for that, but I red that something exists in gsf's program.

Regarding the pattern game, the problematic is quite different.

A good pattern for the game should

- ..surely produce plenty of puzzles
- ..produces high ED's
- ..have High ratings
- ..not produce to fast the diamonds

As the pattern must on top have a symmetry (isn't it the first rule to discard) it's not so easy to have a puzzle offering all the qualities.

regards

champagne

Re: The hardest sudokus (new thread)

Day coloin • Mon Nov 07, 2011 2:05 pm



coloin

2017 Supporter

Posts: 2225

Joined: 05 May 2005

Location: Devon

I agree with what you say.  
Many of the puzzles which we have found have clues which arnt in a "diagonal" representative.  
The lack of symmetry automatically gives you x2 or more more ED puzzles per pattern - so more likely to find a top puzzle.

A good pattern giving a good game is one where there are rare diamonds - indeed.

It might be interesting to run a patterns game on a non-symmetrical pattern - just to show that the big puzzles are out there with that pattern.

I will comment on the 27 clue patterns in the relevant thread.

C

Re: The hardest sudokus (new thread)

Day champagne • Wed Nov 16, 2011 5:17 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

I updated again the data base of potential hardest.  
The link is unchanged

[here](#)

The data base has mainly been extended in the 23 clues field  
but the database contains now about 4 000 "24 clues" puzzles  
The data base has now 27 700 puzzles  
Analysis of specific properties has been done for the first 18 000

we are very close now to switch to skfr ratings instead of SE ratings

champagne

Re: The hardest sudokus (new thread)

Day ronk • Wed Nov 16, 2011 6:09 pm



ronk

2012 Supporter

Posts: 4764

Joined: 02 November 2005

Location: Southeastern USA

champagne wrote:  
we are very close now to switch to skfr ratings instead of SE ratings

- A few points and questions:
- 1) What is the target date for an skfr executable on Windows?
  - 2) Despite the slowness of SE, it would run on any machine with a JRE (Java Runtime Environment). Are there plans to release an skfr executable on anything other than Windows?
  - 3) Has g.r.emlin even hinted that skfr might be applied to the Patterns Game?
  - 4) Let's not discard the SE ratings that have already been done. Instead of that, let's have both ratings in the database for the foreseeable future.

Re: The hardest sudokus (new thread)

Day champagne • Wed Nov 16, 2011 6:40 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

ronk wrote:  
champagne wrote:  
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- A few points and questions:
- 1) What is the target date for an skfr executable on Windows?
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  - 4) Let's not discard the SE ratings that have already been done. Instead of that, let's have both ratings in the database for the foreseeable future.

point 1)  
As I wrote in another place, release 1.2.0 is available on the google site and gives pretty good results in the area covered by the pattern game  
Next release should only add level 4 potential, never used so far in the pattern game

point 2)  
skfr is a C++ application. my friends in the team are pushing to have a DLL version and a thread safe program, but nothing is foreseen to work in a Java environment.  
The last improvements in performances (mainly done by mladen dobrichev) push the overall project. if I am right, far far away of what can be done in JAVA

point 3)  
It would be for sure a simplification, and also would change completely the pattern game.

One key condition would be to achieve the same rating for all morphs, but Patrice gave a very simple answer to that: just rate the canonical form of the puzzle. Which is a great response.

- point 4)  
Fully in line with that. The SE rating represents months (if not years) or runs. Discarding that old reference would be a pity.  
Reversely, at the speed I find to-day new "potential hardest" SE rating is a true drawback and adsorbs more than 50% of the overall power.  
IMO we have to-day enough SE references to just skip directly to skfr. But I need more tests to validate the level 4 simulation of serate.

champagne

Re: The hardest sudokus (new thread)

Day ronk • Wed Nov 16, 2011 7:35 pm



ronk

2012 Supporter

Posts: 4764

Joined: 02 November 2005

Location: Southeastern USA

champagne wrote:  
ronk wrote:  
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I was not asking about skfr for Java, but rather for anything other than Windows. Even the DLL you mention is still for Windows, is it not?

Re: The hardest sudokus (new thread)

Day champagne • Wed Nov 16, 2011 7:42 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

ronk wrote:  
champagne wrote:  
ronk wrote:  
2) Despite the slowness of SE, it would run on any machine with a JRE (Java Runtime Environment). Are there plans to release an skfr executable on anything other than Windows?

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The last improvements in performances (mainly done by mladen dobrichev) push the overall project. if I am right, far far away of what can be done in JAVA

I was not asking about skfr for Java, but rather for anything other than Windows. Even the DLL you mention is still for Windows, is it not?

skfr is not a window application.  
AFAIK mladen is using a UNIX platform, but I am not a specialist in that field.  
I'll ask mladen and Patrice to answer in the appropriate thread  
I use microsoft VC2010 IDE just because I have a PC.

champagne

Re: The hardest sudokus (new thread)

Day Patrice • Wed Nov 16, 2011 9:57 pm



Patrice

2017 Supporter

Posts: 1344

Joined: 07 November 2010

Location: Paris France

I was not asking about skfr for Java, but rather for anything other than Windows. Even the DLL you mention is still for Windows, is it not?

SKFR is written in C++ and doesn't use any specific API from Windows.  
We intend to deliver :  
- a rating engine that can be used in the form of a static library (any system) or a DLL (windows 32bits only) and that is thread safe  
- batch program that rates a file of puzzle using the above rating engine (static library in the case of UNIX)  
So you can recompile these C++ program on any environment like UNIX flavors (LINUX RED HAT, UBUNTU) and on any machine based on x86 processors- I guess that some optimization introduced by Mladen uses 128 bits Intel registers and/or SSE1 opcode (compatible with AMD processors) ...  
there is no GUI for SKFR. But when it will be released, anyone can create a GUI that uses the rating engine.  
Hope that is enough clear ...  
Best regards  
Patrice

Re: The hardest sudokus (new thread)

Day champagne • Tue Dec 27, 2011 3:59 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

I made a new update of my data base of potential hardest.  
The link is unchanged

[here](#)

The data base has mainly been extended in the 23 and 24 clues field.  
Many puzzles assumed to be rated in the range 10.6 - 11.4 by SE are in standby  
They will enter the data base when the validation tests on skfr will be closed.

This is the last update till likely end of march. I'll have no tool to continue the search during the next 2 months.

The data base has now more than 30 000 puzzles  
Analysis of specific properties has been done for the first 18 000  
Nothing new here, that analysis will be done for the next update.

Happy new year to all

champagne

Re: The hardest sudokus (new thread)

Day ronk • Fri Mar 23, 2012 12:38 pm



champagne

2017 Supporter

Posts: 4764

Joined: 02 November 2005

Location: Southeastern USA

champagne wrote:  
with 20 clues, it's clear that the constraints to have a valid puzzle prevent to pass ED=3.4.

Interesting, but what were the sample sizes of the 20, 21, etc. clue patterns?

Re: The hardest sudokus (new thread)

Day champagne • Fri Mar 23, 2012 12:56 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

ronk wrote:  
champagne wrote:  
with 20 clues, it's clear that the constraints to have a valid puzzle prevent to pass ED=3.4.

this is the count per clue of the "potential hardest" data base .  
the last public update of the file is slightly below (about 350 puzzles less)  
The cut off to be eligible in that file, so far based on serate ratings is

ER >= 11.0 or  
EP >= 10.8 or  
ED >= 10.5

CODE: SELECT ALL  
20 3.48 2.68 1.58 1.28  
21 11.38 11.28 11.18 11.08 10.88  
22 11.88 11.68 11.58 11.48 11.38 11.28 11.18 11.08 11.08  
23 11.68 11.58 11.48 11.38 11.28 11.18 11.08 10.98  
24 11.48 11.38 11.28 11.18 11.08 10.98 10.88

with 20 clues, it's clear that the constraints to have a valid puzzle prevent to pass ED=3.4.  
(we can assume that the 20 clues field is nearly covered for "potential hardest")

with 21 clues, we jump to very high ED, but the maximum so far is for 22 clues.  
Although 23 and 24 clues fields are far from being covered, it seems that the peak is somewhere in the 22-23 clues field.

champagne

Re: The hardest sudokus (new thread)

Day ronk • Fri Mar 23, 2012 12:38 pm



ronk

2012 Supporter

Posts: 4764

Joined: 02 November 2005

Location: Southeastern USA

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champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

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The cut off to be eligible in that file, so far based on serate ratings is

ER >= 11.0 or  
EP >= 10.8 or  
ED >= 10.5

CODE: SELECT ALL  
20 29  
21 2866  
22 7821  
23 16169  
24 5996  
25 7  
26 9  
27 38  
28 24  
29 1

Re: The hardest sudokus (new thread)

Day dobrichev • Fri Mar 23, 2012 4:50 pm



dobrichev

2016 Supporter

Posts: 1831

Joined: 24 May 2010

Hi,

Digging in the largest UA sets I found once more that they are statistically related to the hard puzzles.

From 10015528 puzzles generated directly from UA of size 60+ I got 15 puzzles with skfr rating of 11+, 6 of them are already included in champagne's collection and are 9 new (for me). Since skfr frequently rates the puzzles at about -0.1 compared to SE, the amount of SE=11+ is probably larger.

The skfr 10+ directly generated puzzles are 1083.

Next, I started crunching them and after 7-8 generations my list of skfr=10+ grew up to 28887 puzzles, incl. 104 11+.

At 4-th or 5-th generation the gotchi reinvented the #11 puzzle in champagne's hardest

CODE: SELECT ALL  
.....1.....234...13...52.....6...7...89.....4...3...2...68.....3...1...59...7.... skfr=11.8/11.8/11.7 (11.88;11.88;11.88;tarekdb;tarx0075;9;22)

(for Champagne - an example where SE finds simpler path for ED, 11.5 instead of your 11.7).

At the weekend I am planning to see how the next generations are going, and after that I'll filter-out the known puzzles and send it to Champagne. SE rating process is still a big problem to me and it could break the exercise.

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Re: The hardest sudokus (new thread)

Day champagne • Fri Mar 23, 2012 8:50 pm



champagne

2017 Supporter

Posts: 7269

Joined: 02 August 2007

Location: France Britany

dobrichev wrote:  
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At the weekend I am planning to see how the next generations are going, and after that I'll filter-out the known puzzles and send it to Champagne. SE rating process is still a big problem to me and it could break the exercise.

lack of time to be everywhere, I am not at all familiar with UAs, so I follow you far far away.

what is for sure is that any puzzle eligible to the "potential hardest" base should be entered as soon as possible.  
It's not that much a question of ownership than a trial to diversify the source of new entries.

(to day, I am only rating skfr EP>= 10.1 and skfr ER>10.2 but the rule to be eligible is not changed)

champagne

ps: I don't want to fight for peanuts, but I am convinced the base of "potential hardest" is not severely biased.

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