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newtopic)	Sudoku Players' Forums Forum Index -> Advanced solving techniques	
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Author	Message	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
denis_berthier	D Posted: Mon Jul 06, 2009 1:15 am Post subject:	(a quote
	Red Ed wrote:	
Joined: 19 Jun 2007 Posts: 651	denis_berthier wrote:	
Location: Paris, France	I've always thouht that suexg has two phases: 1) build a <i>complete</i> valid grid.	
	2) delete clues one by one until a (locally) minimal puzzle is reached.	
	Yes, that's what it does.	
	Red Ed wrote: I keep seeing "locally" and "absolutely" minimal bandied about. Just to be sure we're talking about the same thing here: I read your "(locally) minimal" to mean "no clue is redundant /]
Back to top denis_berthier	That's what I meant. But a few people add "locally".	(⁽²⁾ quote
	Allan Barker wrote:	
Joined: 19 Jun 2007 Posts: 651	I have yet another generator (YAG) which at least is intended to use only random steps, as described just below the first table.	
····	RAB Generator 1M puzzles of 1M grids	
	1. Random placement of 81 clues	
	2. Random Monte-Carlo pairswap convergence to valid solution Puzzles	
	 Random single clue removal to 55 givens. Random single clue removal and test for single solution 	
	5. Random 1 pass removal of extra clues, to local minimum	
	It is really great to have a new generator based on different principles.	
	Allan Barker wrote:	
	If anyone is interested, I can place the IM puzzles on my website in a zip file.	
	I'm interested. I'm not sure I'll be able to analyse the complete collection in detail in the near future other computations running) but I'd certainly like to compare its NRCZT classification with sudoger Just to be avoid ambiguities in future talks about it, can you baptise it?	ıre (I have n0_1M.

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coloin	D Posted: Mon Jul 06, 2009 1:30 am Post subject:
Joined: 05 May 2005 Posts: 1006 Location: Oxford	I also believe denis is correct. Removing clues from a full grid to minimality gave a mean of \sim 24.3. gsf's program and others give this result too.
	However an alternative program [not suexg] employing a method similar to mbm gave a reduced mean [23.88]
	Almost certainly they are both biased because the "real" mean puzzle size is >25 clues.
	Elegant data from Allan Barker.
	Last edited by coloin on Mon Jul 06, 2009 1:36 am; edited 1 time in total
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denis_berthier	D Posted: Mon Jul 06, 2009 1:36 am Post subject:
	coloin wrote:
Joined: 19 Jun 2007 Posts: 651	the "real" mean puzzle size is >25 clues.
Location: Paris, France	You keep repeating this, but do you have any concrete data to support such claims? (and I suppose you mean "mean <i>minimal</i> puzzle size")
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m_b_metcalf	Deposted: Mon Jul 06, 2009 2:07 am Post subject:
	Red Ed wrote:
Joined: 15 May 2006 Posts: 2167 Location: Berlin	For me, "absolutely minimal" means "17 clues".
	Yes, from a full grid, but with a non-minimal puzzle with, say, 10 individually redundant clues, there are often different minima achievable depending on the order of removal. The minimum of these is what I understand by 'absolute' minimum. This is a situation that has to be considered when building a puzzle from 'below'.
	Regards,
	Mike Metcalf
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denis_berthier	D Posted: Mon Jul 06, 2009 2:09 am Post subject:
	About a possible trend: SER vs #clues
Joined: 19 Jun 2007 Posts: 651 Location: Paris, France	I've just computed the SER for the 36628 puzzles in Gordon Royle's list of 17s. E(SER) = 2.55 SD(SER) = 1.60 Max(SER) = 9.0 As was already known, this collection is much easier than most of the random collections.
	Of course this collection was not generated randomly and it is very likely to be biased within the set of all existing 17s. Nevertheless, it may be interesting to notice that its E(SER) is smaller than the E(SER) in sudogen0_1M for any fixed number of clues (remember that all these puzzles have between 20 and 30 clues). Let me recall the sudogen0_1M results:
	Code:
	#Clues #Puzzles E(SER) s(SER) 20 44 2.75 1.70 (not meaningful: too few puzzles) 21 2428 3.03 2.0



Joined: 10 Feb 2008 Posts: 317	Can anyone (proficient in C) have a look at the suexg C code (more specifically, the version I've been using to generate sudogen0_1M (here: http://www.carva.org/denis.berthier/HLS/Results-Classif/sudoku_gen.c) and check whether t program really works this way. (A more detailed natural language description of the 2 phases would be welcome too).	he
	Ah, thats the problem ! You are using a different version than the "official" <u>http://magictour.free.fr/suexg.exe</u> (see the source code at the end of the suexg.exe file), which doe bottom up generation. Your version indeed first creates a full grid.	es make
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denis_berthier	Dested: Mon Jul 06, 2009 2:22 am Post subject:	te
	coloin wrote:	
Joined: 19 Jun 2007 Posts: 651 Location: Paris, France	Well take this 40 clue sub grid [or non-minimal puzzle] Code:	
	43.7.9.2.715.6.345.88.197.97.2.5.8446.191.347.46896.8	3.315
	 The first minimal puzzle that you produce from a reduced grid will tend to be smaller than the mea minimal puzzle size in that reduced grid.	an
	Interesting example. But how general is this? In order to draw general conclusions, you'd need to have the same kind of bias in at least hundreds grids.	s of initial
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denis_berthier	D Posted: Mon Jul 06, 2009 2:30 am Post subject:	(aquote)
Joined: 19 Jun 2007 Posts: 651 Location: Paris, France	eleven wrote: You are using a different version than the "official" <u>http://magictour.free.fr/suexg.exe</u> (see th source code at the end of the suexg.exe file), which does make bottom up generation. Your version indeed first creates a full grid.	le
	Perfect. It is thus really different from Mike's "top down" generator. With Allan's forthcoming collection, we'll have 3 large random collections of puzzles generated with different methods and we can hope that the results common to all 3 will suffer from very little bias.	very
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coloin	Dested: Mon Jul 06, 2009 2:42 am Post subject:	(Q) quote
Joined: 05 May 2005 Posts: 1006	denis_berthier wrote: But how general is this?	
Location: Oxford		
Location: Oxford	if you think of a clue removal as a step, and each step happens at random until minimality.	
Location: Oxford	if you think of a clue removal as a step, and each step happens at random until minimality. take a specific 20 clue puzzle and a 30 clue puzzle - both in this sub-grid from the 40 clues	
Location: Oxford	if you think of a clue removal as a step, and each step happens at random until minimality. take a specific 20 clue puzzle and a 30 clue puzzle - both in this sub-grid from the 40 clues 20! ways to reach this 20 clue puzzle 10! ways to reach this 30 clue puzzle	
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Location: Oxford Back to top	<pre>if you think of a clue removal as a step, and each step happens at random until minimality. take a specific 20 clue puzzle and a 30 clue puzzle - both in this sub-grid from the 40 clues 20! ways to reach this 20 clue puzzle 10! ways to reach this 30 clue puzzle C</pre>	

	coloin wrote:	
Joined: 19 Jun 2007		
Location: Paris, France	take a specific 20 clue puzzle and a 30 clue puzzle - both in this sub-grid from the 40 clues	
· ·	20! ways to reach this 20 clue puzzle	
	10! ways to reach this 30 clue puzzle	
	Yes, but how many more different minimal puzzles shall we find in the second case?	
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Allan Parker		
	Dested: Mon Jul 06, 2009 2:56 am Post subject:	a quote
	denis_berthier wrote:	
Joined: 20 Feb 2008 Posts: 281	Allan Barker wrote:	
Location: Bangkok	If anyone is interested, I can place the 1M puzzles on my website in a zip file.	
	I'm interacted. I'm not sure I'll be able to analyse the complete collection in detail in the nea	r
	future (I have other computations running) but I'd certainly like to compare its NRCZT	I
	classification with sudogen0_1M.	
	• • • • • • • • • • • • • • • • • • •	
	Its here http://www.sudokuone.com/xsudol/rab1mran.zip	
	denis_berthier wrote:	
	Just to be avoid ambiguities in future talks about it, can you baptise it?	
	xsudogen ?	
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m_b_metcalf	D Posted: Mon Jul 06, 2009 3:20 am Post subject:	(aquote)
	m_b_metcalf wrote:	
Joined: 15 May 2006	Given a puzzle with m non-redundant clues and n individually redundant clues, surely the	
Location: Berlin	optimal puzzle is that from which the largest possible number of the <i>n</i> clues can be deleted.	This ets
	with the minimum number of clues. This is what I'll try to do next week	
	Abandoned In the event 'bottom-un' yields many non-minimal nuzzles with say $m=10$ and $n=2^{\circ}$	making
	any such search infeasible.	, making
	Regards,	
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denis_berthier	Dested: Mon Jul 06, 2009 3:27 am Post subject:	(Q) quote
	eleven wrote:	
Joined: 19 Jun 2007	the "official" http://magictour.free.fr/suexg.exe (see the source code at the end of the	
Posts: 651 Location: Paris, France	suexg.exe file)	
	I've downloaded this file and cleaned all the executable code at the beginning. First line and last 2	lines are '
	char G[9999]="	
	m9:return solutions; }	
	spanish question mark	
	But acc doesn't compile it on my Mac (maybe I failed to put some necessary compilation options).	
	But gcc doesn't compile it on my Mac (maybe I failed to put some necessary compilation options): Code:	

