Sudoku Players' Forums

Abominable TRIAL-and-ERROR and lovely BRAIDS

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Author	Message
denis_berthier Joined: 19 Jun 2007 Posts: 1162 Location: Paris, France	Posted: Fri Jan 15, 2010 10:48 am Post subject: quote edit **PIsaacson wrote:** > [edit] I forgot to state that my pseudo-braids are composed of potentially multiple strands where each strand is a branch in the tree with the z-target as the topmost (0) level. The size of an [NxM] braid is the M part which is the total combined unique parts from each participating strand. The N indicates the length of the current or supporting strand(s). You can see that some strands contain common elements - these are only counted one time since they are "shared" - hence the uniqueness to qualify length. I think this is the correct way to determine the overall length/size of a multi-strand braid. Correct: length shouldn't count the same thing twice. **PIsaacson wrote:** > Each strand is exactly linear, but there are cross-connections and shared runs that are difficult to express without making it impossible to read. I'm still working on presentation, so let me know if you have any ideas on how to improve legibility. I think that, with a little more effort, you could linearise each braid, exactly as I do. This may imply splitting some strands into 2, based on the presence of t candidates. But this shouldn't be too hard, as most braids have few strands. This could also be useful when you compute the total length.
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denis_berthier Joined: 19 Jun 2007 Posts: 1162	Posted: Fri Jan 15, 2010 12:24 pm Post subject: quote edit On closer examination, I detect a few minor notational bugs: - in rc cells, the inside of the {} is {d1 d2} instead of {n1 n2} as when n

Location: Paris, France   appears outside the {} ; probably the rest of a previous notation.

- the final cell of each braid is written {nrc .} instead of 2D-space{x .}; I'm sure you have all the braid information to write it in the same format as the other cells and make it more readable.

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| **PIsaacson** | Posted: Fri Jan 15, 2010 12:24 pm   Post subject: | [quote] |

Denis,

Joined: 02 Jul 2008
Posts: 360
Location: Campbell, CA

Thanks for the insights/suggestions, but it will be awhile before I restore my entire development environment and can change/recompile any code. Meanwhile, I can cross-check my last compiled braids against your 10k pB-NRCZT rated collection and I'll try to do that tomorrow.

Before my PC died and I lost everything, I was still working on my speculation that z-target presentation and the ordering of children within each parent row of the adjacency matrix sometimes produces a +/- 1 scoring delta. When I get my new PC and recover/restore everything, I'll regenerate those tests. I'd like to be able to state with certainty that I'm in the 1/1000... arena as compared to SudoRules for p-NRCZT and pB-NRCZT scoring.

Cheers,
Paul

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| **Allan Barker** | Posted: Fri Jan 15, 2010 2:35 pm   Post subject: | [quote] |

> **PIsaacson wrote:**
> It took my latest alpha 0.8 engine about 1.4 seconds with a pb-NRCZT score of 25.0. It's unoptimized code ....

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

Paul,

That seems really fast. Nice.

Even with my nrczt solver it takes a minute or two. Do you think the speed difference is because of something specific to the nrczt-braids algorithm?

Did you try a whips solution?

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| **PIsaacson** | Posted: Sat Jan 16, 2010 1:30 am   Post subject: | [quote] |

Allan,

Joined: 02 Jul 2008
Posts: 360
Location: Campbell, CA

My braids algorithm is not "according to Hoyle" true braids, so I refer to them as pseudo-braids. I generate a tree using BFS or DFS (depends upon run-time

options) from the z-target. For each branch, the main difference between braids and non-braids is the set of zt truths used for promotion and detection of conflicts. For non-braids, the zt set is limited to all prior level rh candidates within the defining chain plus the z-target. For braids, the zt set is all the prior level rh candidates from any branch (strand) plus the z-target. To "linearize" the strands, I perform what I call "weaving" which finds the minimal spanning set of strands and truths necessary to support the strand that encountered the conflict. Due to cross dependencies and shared run lengths, weaving is (according to profiling) one of the low-hanging fruits ripe for optimization along with my zt promotion code.

Since braids can usually find a shallow multi-strand braid to support an elimination, it runs much faster than standard nrczt chains/whips, expecially when there are extremely deep chains that must be explored. I can't even execute non-braids scoring against this puzzle. BFS runs out of memory and DFS cannot find a solution. Do you have a pure nrczt scoring solution that you can post?

Cheers,
Paul

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Allan Barker	Posted: Sat Jan 16, 2010 6:16 am Post subject: quote

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

> **PIsaacson wrote:**
> Do you have a pure nrczt scoring solution that you can post?

The nrczt solver that I developed in Red Ed's nrczt algorithms thread does not find a solution of any length, until, I turn on group-links, then is finds a chain of length 17. This was surprising. I could post the solution if it is useful but it would be in notation-of-the-day format. Ribbons give a best length of 16.

Allan

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denis_berthier	Posted: Sat Jan 16, 2010 7:46 am Post subject: quote edit

Joined: 19 Jun 2007
Posts: 1162
Location: Paris, France

> **Allan Barker wrote:**
> The nrczt solver that I developed in Red Ed's nrczt algorithms thread does not find a solution of any length, until, I turn on group-links, then is finds a chain of length 17.

There's no doubt that this puzzle has a pure nrczt-braids solution:
- via the T&E vs braids theorem: it is in T&E(NS+HS); groups, i.e. braids(Subsets), are not needed;
- I didn't check all the details of Mauricio's solution above, but I'm almost certain it is correct.
Your braids solver is therefore not correct.

Mauricio, you sent me a PM yesterday. It suddenly disappeared from my mailbox (it may be because it was full) but I just had time to see that there was a solution in nrc notation.
Could you modify your solution to the above puzzle and put it in nrc notation?

Paul, I hadn't noticed, but there is an obvious problem with your first and third whips (and probably others): one cell missing. I don't understand: your algorithm for whips was correct. Could an obvious bug explain the 25/26 discrepancy with Mauricio?

> **PIsaacson wrote:**
>
> I can't even execute non-braids scoring against this puzzle.

Unless I'm misunderstanding your description of "non-braids", they are whips. If so, it is normal that you don't find a whips solution, there is none.

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Allan Barker	Posted: Sat Jan 16, 2010 8:10 am Post subject: quote

> **denis_berthier wrote:**
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> > **Allan Barker wrote:**
> >
> > The nrczt solver that I developed in Red Ed's nrczt algorithms thread does not find a solution of any length, until, I turn on group-links, then is finds a chain of length 17.
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> There's no doubt that this puzzle has a pure nrczt-braids solution:
> - via the T&E vs braids theorem: it is in T&E(NS+HS); groups, i.e. braids(Subsets), are not needed;
> - I didn't check all the details of Mauricio's solution above, but I'm almost certain it is correct.
> Your braids solver is therefore not correct.

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

I do not have an nrczt-braids solver, thus it's unlikely to be incorrect.

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denis_berthier	Posted: Sat Jan 16, 2010 8:15 am Post subject: quote edit

> **Allan Barker wrote:**
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> > **denis_berthier wrote:**
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> > > **Allan Barker wrote:**
> > >
> > > The nrczt solver that I developed in Red Ed's nrczt algorithms thread does not find a solution of any length, until, I turn on group-links, then is finds a chain of length 17.

Joined: 19 Jun 2007
Posts: 1162
Location: Paris, France

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> - via the T&E vs braids theorem: it is in T&E(NS+HS); groups, i.e. braids(Subsets), are not needed;
> - I didn't check all the details of Mauricio's solution above, but I'm almost certain it is correct.
> Your braids solver is therefore not correct.

I do not have an nrczt-braids solver, thus it's unlikely to be incorrect.

I thought that is what you meant by nrczt solver. If not, what do you mean?

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Allan Barker   Posted: Sat Jan 16, 2010 8:18 am   Post subject: [quote]

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

> **denis_berthier wrote:**
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>> **Allan Barker wrote:**
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>>> **denis_berthier wrote:**
>>>
>>>> **Allan Barker wrote:**
>>>>
>>>>> The nrczt solver that I developed in Red Ed's nrczt algorithms thread does not find a solution of any length, until, I turn on group-links, then is finds a chain of length 17.
>>>>
>>>> There's no doubt that this puzzle has a pure nrczt-braids solution:
>>>> - via the T&E vs braids theorem: it is in T&E(NS+HS); groups, i.e. braids(Subsets), are not needed;
>>>> - I didn't check all the details of Mauricio's solution above, but I'm almost certain it is correct.
>>>> Your braids solver is therefore not correct.
>>>
>>> I do not have an nrczt-braids solver, thus it's unlikely to be incorrect.
>>
>> I thought that is what you meant by nrczt solver. If not, what do you mean?

I used the nrczt-whip solver developed in REd Ed's thread. Without group-links there was no solution (expected). Turning on group links I got a solution of length 17. (unexpected)
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denis_berthier   Posted: Sat Jan 16, 2010 8:21 am   Post subject: [quote] [edit]

Joined: 19 Jun 2007
Posts: 1162
Location: Paris, France

> **Allan Barker wrote:**
>
> > I used the nrczt-whip solver
>
> Then OK, there's no whip solution.
>
> I guess you mean Paul's solver?

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Allan Barker   Posted: Sat Jan 16, 2010 8:28 am   Post subject: [quote]

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

> **denis_berthier wrote:**
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> > **Allan Barker wrote:**
> >
> > > I used the nrczt-whip solver
> >
> > Then OK, there's no whip solution.
> >
> > I guess you mean Paul's solver?
>
> No, mine.
> .

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denis_berthier   Posted: Sat Jan 16, 2010 8:32 am   Post subject: [quote] [edit]

Joined: 19 Jun 2007
Posts: 1162
Location: Paris, France

> **Allan Barker wrote:**
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> > **denis_berthier wrote:**
> >
> > > **Allan Barker wrote:**
> > >
> > > > I used the nrczt-whip solver
> > >
> > > Then OK, there's no whip solution.
> > > I guess you mean Paul's solver?
> >
> > No, mine.
>
> Not sure I understand.
> Do you mean you have an nrczt-whips solver and that it is also a zt-whip(Subsets) solver?
> And, considering the previous posts, that you don't have the braids versions?

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Allan Barker   Posted: Sat Jan 16, 2010 8:41 am   Post subject: [quote]

> **denis_berthier wrote:**

Joined: 21 Feb 2008

Joined: 21 Feb 2008
Posts: 500
Location: Bangkok

> **Allan Barker wrote:**
>
> > **denis_berthier wrote:**
> >
> > > **Allan Barker wrote:**
> > >
> > > > I used the nrczt-whip solver
> > >
> > > Then OK, there's no whip solution.
> > > I guess you mean Paul's solver?
> >
> > No, mine.
>
> Not sure I understand.
> Do you mean you have an nrczt-whips solver and that it is also a zt-whip(Subsets) solver?
> And, considering the previous posts, that you don't have the braids versions?

I have the nrczt whip/chain solver that I developed in Red Ed's nrczt algorithms thread. It does not do subsets, it does not do braids. It does have a option switch to allow group-links to be processed as ordinary links. I believe Paul has the same option in his solver.

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denis_berthier   Posted: Sat Jan 16, 2010 8:47 am   Post subject: quote   edit

Joined: 19 Jun 2007
Posts: 1162
Location: Paris, France

> **Allan Barker wrote:**
>
> I have the nrczt whip/chain solver that I developed in Red Ed's nrczt algorithms thread. It does not do subsets, it does not do braids. It does have a option switch to allow group-links to be processed as ordinary links. I believe Paul has the same option in his solver.

Maybe a matter of vocabulary.
Whips with group links? Does it mean you have whip[BI] (i.e. an rlc can be a segment)?

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