

[Home](#) * [Engines](#) * [Symbolic](#)



[Viktor Vasnetsov](#): Sirin and Alkonost ^[2]

Symbolic,

a chess playing program by [Steven Edwards](#) with the whiff of a real [artificial intelligence](#) inference engine incorporating [pattern recognition](#), [planning](#) and an [iterative search](#), able to explain move selection process live in natural language. The underlying Symbolic Toolkit is an advanced OO-approach, using a [ChessLisp](#) interpreter and [C++](#) for low level stuff. [Moves](#), [positions](#), and many other types are organized in [lists](#) instead of fixed length [arrays](#) ^[1].

Table of Contents

[Tournament Play](#)

[Selected Games](#)

[Iterative Search](#)

[Perft](#)

[See also](#)

[Forum Posts](#)

[2003](#)

[2004](#)

[2005](#)

[2013](#)

[2015](#)

[External Links](#)

[References](#)

[What links here?](#)

Tournament Play

Symbolic played various [CCT Tournaments](#), [ACCA Americas' Computer Chess Championships](#) and [ACCA World Computer Rapid Chess Championships](#).

Selected Games

[WCRCC 2008](#), round 2, [Buzz](#) - [Symbolic](#) ^[3]

```
[Event "WCRCC 2008"]
[Site "Internet Chess Club"]
[Date "2008.06.21"]
[Round "2"]
[White "Buzz"]
[Black "Symbolic"]
[Result "0-1"]
```

```
1.d4 d5 2.c4 c6 3.Nc3 e6 4.Nf3 Nf6 5.e3 Nbd7 6.Bd3 dxc4 7.Bxc4 b5 8.Bd
3 Bb7
9.e4 b4 10.Na4 c5 11.e5 Nd5 12.Nxc5 Nxc5 13.dxc5 Bxc5 14.Qa4+ Kf8 15.O-
O h6
16.Bd2 Kg8 17.Qb5 Qb6 18.Rac1 Qxb5 19.Bxb5 Rc8 20.Rfe1 g5 21.Rc4 a6 22
.Rec1
Nc3 23.Bd7 Bxf2+ 24.Kxf2 Rxc4 25.bxc3 Bxf3 26.Kxf3 Kg7 27.cxb4 Rd4 28.
Rc7
Rxd2 29.Bxe6 Rf8 30.Bb3 Kg6 31.Rc6+ Kf5 32.Rxa6 g4+ 33.Ke3 Rxd2 34.Rxh
6 Kxe5
35.b5 f6 36.Kd3 f5 37.b6 f4 38.Rh5+ Kf6 39.Bd5 f3 40.b7 Rb2 41.a4 f2 4
2.Bg2
Rxb7 43.Rb5 Re7 44.h3 Rd8+ 45.Kc4 Rc7+ 46.Kb4 Rd4+ 47.Ka5 Ra7+ 48.Kb6
Raxa4
49.hxg4 Rxg4 50.Bh3 Rab4 51.Rxb4 Rxb4+ 52.Kc5 Rb1 53.Kd4 Re1 54.Kd3 Kg
5
55.Bf1 Rxf1 56.Ke2 Rd1 57.Kxf2 Kf4 58.Ke2 Rd7 59.Kf2 Rd2+ 60.Ke1 Ke3 6
1.Kf1
Ra2 62.Kg1 Kf3 63.Kh1 Kg3 64.Kg1 Ra1# 0-1
```

Iterative Search

[Steven Edwards](#) on using [goto](#) and performing an [Iterative Search](#) ^[4]

Symbolic's search has no [recursion](#). There is the one routine Node() which has a big switch statement with each case being a different phase. The routine's main loop hits the switch each time through until the current phase is PhaseExit. At the top of the loop is a single check of a volatile boolean which, if triggered, sets the phase to PhaseExit. There is no unwinding as there is nothing to unwind. There is nothing hidden on the stack to deconstruct as there is no recursion. The search can be paused, and it can also be stopped and restarted at any phase at any depth.

A lot of chess programmers still use a recursive search because they've copied it out of a textbook or from someone else's program. If they would take the time to learn about the alternative of no recursion, then they just might have a more elegant -- and possibly faster -- program.

Perft

Movepath enumerations ([perft](#)) generated by [Symbolic](#) for the [Initial Position](#) ^[5].

- [Perft\(10\) 20 draft 9 Positions](#)
- [Perft\(10\) 400 draft 8 Positions](#)
- [Perft\(11\) 20 draft 10 Positions](#)
- [Perft\(11\) 400 draft 9 Positions](#)
- [Perft\(12\) 20 draft 11 Positions](#)
- [Perft\(12\) 400 draft 10 Positions](#)
- [Perft\(13\) 20 draft 12 Positions](#)
- [Perft\(13\) 400 draft 11 Positions](#)
- [Initial Position Summary](#)

See also

- [CookieCat](#)
- [Paradise](#)
- [Pattern Recognition](#)
- [Planner](#)
- [Planning](#)
- [Spector](#)

Forum Posts

2003

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2004

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- [Symbolic: Status report 2004.05.19](#) by [Steven Edwards](#), [CCC](#), May 19, 2004
- [Symbolic: Status report 2004.06.03](#) by [Steven Edwards](#), [CCC](#), June 03, 2004
- [Symbolic: Status report 2004.06.14](#) by [Steven Edwards](#), [CCC](#), June 14, 2004
- [Symbolic: Status report 2004.06.24](#) by [Steven Edwards](#), [CCC](#), June 24, 2004
- [Symbolic: Status report 2004.07.14](#) by [Steven Edwards](#), [CCC](#), July 14, 2004
- [Symbolic: Status report 2004.07.20](#) by [Steven Edwards](#), [CCC](#), July 20, 2004
- [Symbolic: Status report 2004.07.22](#) by [Steven Edwards](#), [CCC](#), July 22, 2004
- [Symbolic: Status report 2004.07.26](#) by [Steven Edwards](#), [CCC](#), July 26, 2004
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- [Symbolic: Status report 2004.08.05](#) by [Steven Edwards](#), [CCC](#), August 05, 2004
- [Symbolic: Status report 2004.08.09](#) by [Steven Edwards](#), [CCC](#), August 09, 2004
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- [Symbolic: Status report 2004.08.19](#) by [Steven Edwards](#), [CCC](#), August 19, 2004
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2005

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- [Symbolic: sample ChessLisp source: Tracker.lsp](#) by [Steven Edwards](#), [CCC](#), March 03, 2005
- [Symbolic: Status report 2005.03.08](#) by [Steven Edwards](#), [CCC](#), March 08, 2005
- [Symbolic: Status report 2005.03.14](#) by [Steven Edwards](#), [CCC](#), March 14, 2005
- [Symbolic: Status report 2005.03.17](#) by [Steven Edwards](#), [CCC](#), March 17, 2005
- [Symbolic: Status report 2005.03.31](#) by [Steven Edwards](#), [CCC](#), March 31, 2005
- [Symbolic: Status report 2005.04.04](#) by [Steven Edwards](#), [CCC](#), April 04, 2005
- [Symbolic: Status report 2005.04.10](#) by [Steven Edwards](#), [CCC](#), April 10, 2005
- [Symbolic: Status report 2005.04.12](#) by [Steven Edwards](#), [CCC](#), April 12, 2005
- [Symbolic: Status report 2005.04.17](#) by [Steven Edwards](#), [CCC](#), April 17, 2005
- [Symbolic: Status report 2005.04.23](#) by [Steven Edwards](#), [CCC](#), April 23, 2005
- [Symbolic: Status report 2005.04.25](#) by [Steven Edwards](#), [CCC](#), April 25, 2005
- [Symbolic: Status report 2005.04.27](#) by [Steven Edwards](#), [CCC](#), April 27, 2005
- [Symbolic: Status report 2005.04.29](#) by [Steven Edwards](#), [CCC](#), April 29, 2005
- [Symbolic: Status report 2005.05.02](#) by [Steven Edwards](#), [CCC](#), May 02, 2005
- [Symbolic: Status report 2005.05.16](#) by [Steven Edwards](#), [CCC](#), May 16, 2005
- [Symbolic: Status report 2005.05.28](#) by [Steven Edwards](#), [CCC](#), May 28, 2005
- [Symbolic: Status report 2005.06.02](#) by [Steven Edwards](#), [CCC](#), June 02, 2005
- [Symbolic: Status report 2005.06.12](#) by [Steven Edwards](#), [CCC](#), June 12, 2005
- [Symbolic: Status report 2005.06.23](#) by [Steven Edwards](#), [CCC](#), June 23, 2005
- [Symbolic: Light at the end of the tunnel](#) by [Steven Edwards](#), [CCC](#), July 01, 2005
- [Symbolic: Status report 2005.07.13](#) by [Steven Edwards](#), [CCC](#), July 13, 2005

- [Symbolic: Status report 2005.08.13](#) by [Steven Edwards](#), [CCC](#), August 13, 2005
- [Symbolic: Status report 2005.08.22](#) by [Steven Edwards](#), [CCC](#), August 22, 2005
- [Symbolic: Status report 2005.08.25](#) by [Steven Edwards](#), [CCC](#), August 25, 2005

2013

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- [Symbol \(programming\) from Wikipedia](#)
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- [Religious symbolism from Wikipedia](#)
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References

1. [^ Symbolic](#) by [Steven Edwards](#), [CCC](#), December 02, 2003
2. [^ Sirin](#) (left) and [Alkonost](#) (right) – Birds of Joy and Sorrow by [Viktor Vasnetsov](#), 1896, [Russian Museum](#), [Saint Petersburg](#), [Symbolism \(arts\) from Wikipedia](#)
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What links here?

Page	Date Edited
ACCA 2006	Jul 14, 2014
ACCA 2007	Jul 14, 2014
ACCA 2008	Jul 14, 2014
ACCA 2011	Jul 14, 2014
Bitboards	Nov 14, 2017
C	Feb 19, 2018
CAPS	Dec 23, 2017
CCT10	May 5, 2013
CCT11	Feb 17, 2015
CCT14	Aug 23, 2012
CCT9	Aug 25, 2013
CookieCat	Nov 15, 2016
Engines	Mar 10, 2018
Initial Position	Apr 14, 2018
Initial Position Summary	Nov 21, 2012
Iterative Search	Oct 20, 2016
KBNK Endgame	Nov 26, 2016
Knight Pattern	Feb 23, 2015
Languages	Nov 26, 2017
Late Move Reductions	Sep 25, 2017
Logging	Jan 20, 2018
Opening Book	Feb 26, 2018
Paradise	Nov 19, 2014
Pattern Recognition	Sep 8, 2017
Perft Results	Feb 10, 2018
Perft(10) 20 draft 9 Positions	Nov 21, 2012
Perft(10) 400 draft 8 Positions	Nov 21, 2012
Perft(11) 20 draft 10 Positions	Nov 21, 2012
Perft(11) 400 draft 9 Positions	Nov 21, 2012
Perft(12) 20 draft 11 Positions	Nov 21, 2012
Perft(12) 400 draft 10 Positions	Nov 21, 2012
Perft(13) 20 draft 12 Positions	Nov 21, 2012
Perft(13) 400 draft 11 Positions	Nov 21, 2012
Planning	Feb 12, 2018
Reductions	Nov 1, 2017

Page	Date Edited
Spector	Nov 11, 2016
Steven Edwards	Aug 26, 2017
Symbolic	May 8, 2017
Thread	Apr 22, 2018
TSCP	Feb 5, 2016
WCRCC 2007	Nov 21, 2016
WCRCC 2008	Nov 21, 2016

[Up one level](#)