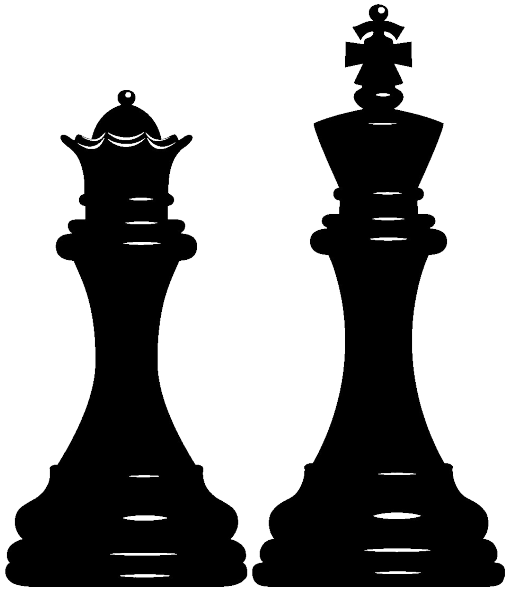
D3:
A Weak Opening but a Strong Visualization Tool

https://dsavg.github.io/Chess_Visualization_Project/



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Initial Sketches

Image 1: Zoomed-Out View

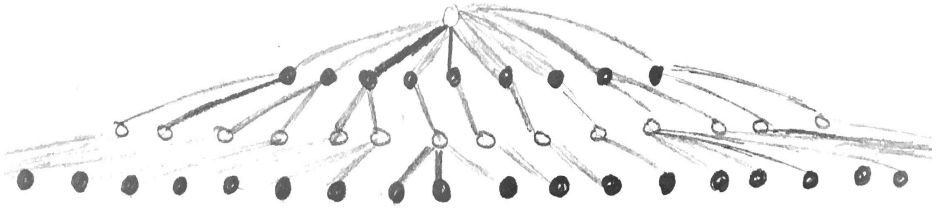


Image 2: Zoomed-In View

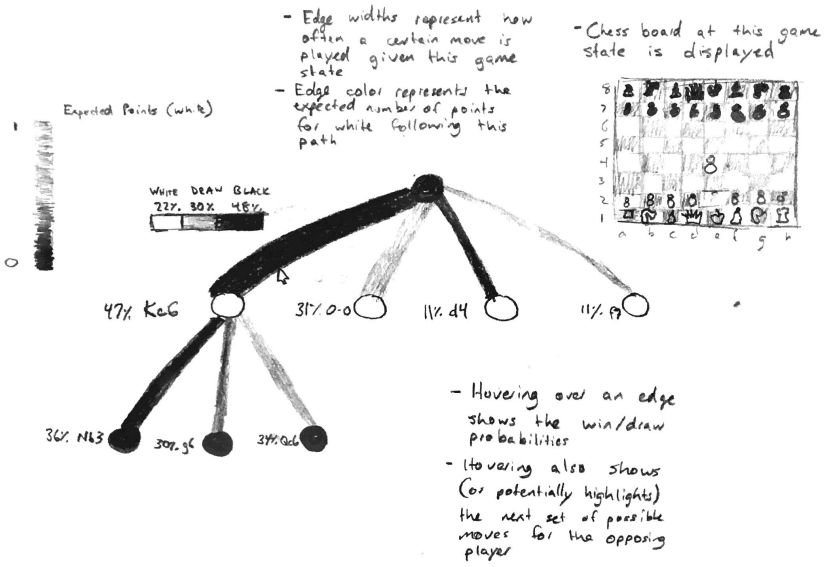
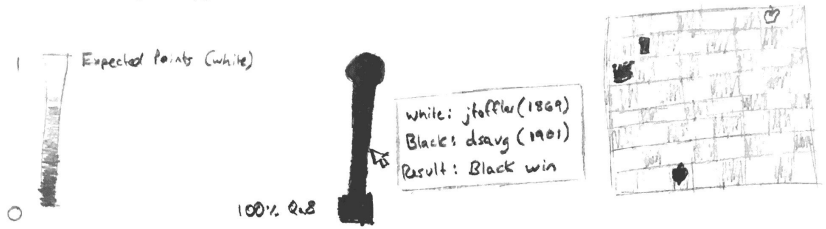


Image 3: Leaf node and filters

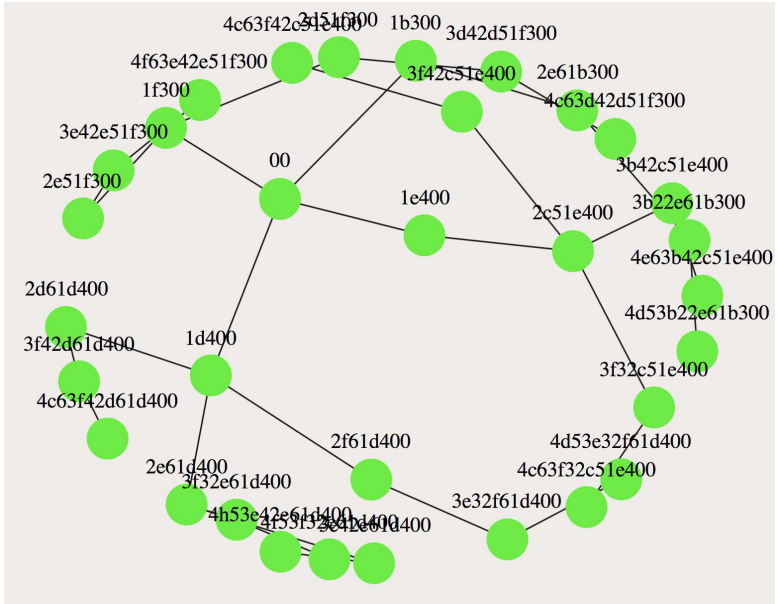


Filters

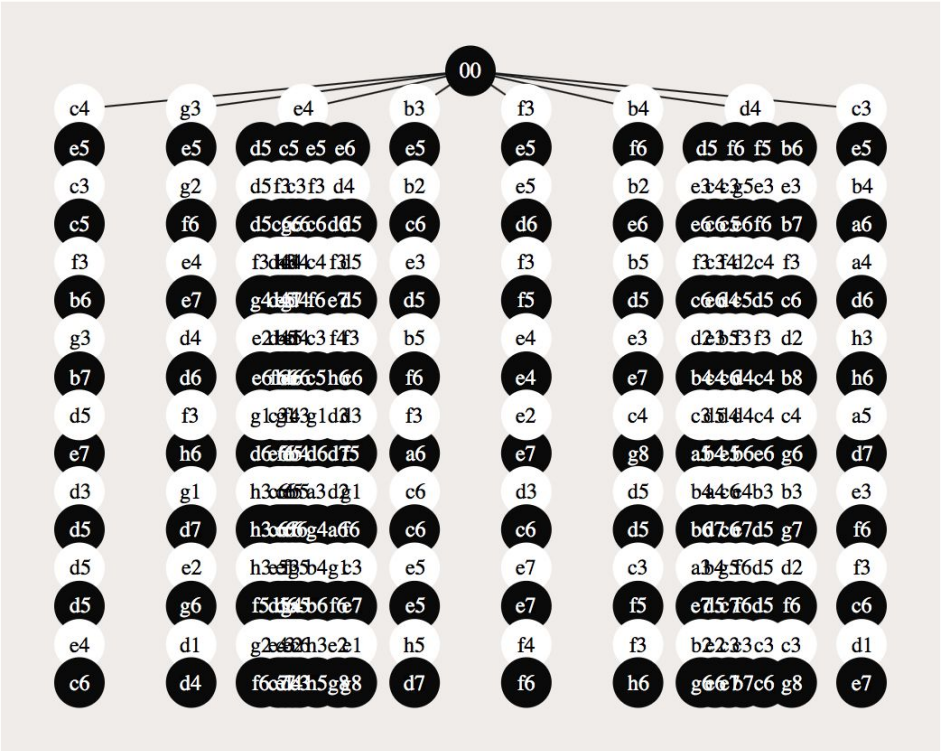
White Rating ≥ ☐ Black Rating ≥ ☐ Games by Player: ☐

First Attempts

Network



Hierarchical Network



D3 Challenges

HTML ▼

```
<div class="cdv-openings" id="openings">
</div>
<div class="caption">
  World Rapid Chess Championship 2015 openings breakdown.
  <br> Looking at variation: <span id="variation"></span>
  <br> Percentage of games with this variation: <span id="percentage">
</span>
  <br>
  <button id="all" class="button button-primary">All Openings</button>
  <button id="d4" class="button">d4 Variations</button>
</div>
```

JavaScript + No-Library (pure JS) ▼

```
d3.json('https://ebemunk.com/chess-dataviz/data/wrc.json', function(err,
data) {
  var openings = new ChessDataViz.Openings('#openings', {
    arcThreshold: 0.002,
    textThreshold: 0.03,
    colors: d3.scale.ordinal().range(['cyan', 'gold', 'steelblue',
'gray'])
  }, data.openings);

  openings.dispatch
    .on('mouseenter', function(d, moves) {
      d3.select('#variation').text(moves.join(' '));
      var percent = d.value / data.openings.value * 100;
      percent = percent.toFixed(2);
      d3.select('#percentage').text(percent + '%');
    })
    .on('mouseleave', function() {
      d3.select('#variation').text('');
      d3.select('#percentage').text('');
    });

  var allButton = d3.select('#all');
  var d4Button = d3.select('#d4');

  allButton.on('click', function() {
    allButton.classed('button-primary', true);
    d4Button.classed('button-primary', false);
    openings.data(data.openings);
  });
  d4Button.on('click', function() {
    allButton.classed('button-primary', false);
    d4Button.classed('button-primary', true);
    openings.data(data.openings.children[1]);
  });
});
```

CSS ▼

```
.cdv-openings {
  text-align: center;
}
```

World Rapid Chess Championship 2015 openings breakdown.

Looking at variation:

Percentage of games with this variation:

ALL OPENINGS | D4 VARIATIONS

Parsing and Reformatting Data

```
[Event "FICS rated lightning game"]
[Site "FICS freechess.org"]
[Date "2017.01.31"]
[Round "?"]
[White "mahamud"]
[Black "siebertk"]
[Result "0-1"]
[BlackClock "0:01:00.000"]
[BlackElo "1529"]
[BlackRD "114.7"]
[ECO "A40"]
[FICSGamesDBGameNo "410988571"]
[PlyCount "64"]
[Time "23:52:00"]
[TimeControl "60+0"]
[WhiteClock "0:01:00.000"]
[WhiteElo "1868"]
[WhiteRD "16.3"]
```


```
{
    "openings": {
        "san": "start",
        "children": [
            {
                "count": 591,
                "white_points": 323.5,
                "children": [ … ],
                "board": "rnbqkbnr/pppppppp/8/8/3P4/8/PPP1PPPP/RNBQKBNR b KQkq - 0 1",
                "san": "d4"
            },
```


```
1. d4 { [%emt 0.0] } 1... c6 { [%emt 0.0] } 2. Nc3 { [%emt 0.5] } 2... Qc7 { [%emt 0.785] } 3. Qd3 { [%emt 1.531] }
3... d6 { [%emt 0.256] } 4. h4 { [%emt 0.562] } 4... e5 { [%emt 0.346] } 5. d5 { [%emt 1.687] } 5... Nf6 { [%emt 1.38
7] } 6. Bg5 { [%emt 2.187] } 6... Be7 { [%emt 1.631] } 7. Bxf6 { [%emt 0.546] } 7... Bxf6 { [%emt 0.831] } 8. Nf3 {
[%emt 0.641] } 8... Bg4 { [%emt 1.651] } 9. O-O-O { [%emt 1.375] } 9... Nd7 { [%emt 0.894] } 10. Ne4 { [%emt 1.375] }
10... O-O { [%emt 4.503] } 11. dxc6 { [%emt 0.985] } 11... bxc6 { [%emt 1.21] } 12. Qxd6 { [%emt 2.406] } 12... Qxd6
{ [%emt 1.262] } 13. Rxd6 { [%emt 4.891] } 13... Nb6 { [%emt 0.903] } 14. Nxf6+ { [%emt 1.203] } 14... gxf6 { [%emt
1.245] } 15. Rxf6 { [%emt 2.515] } 15... Nd5 { [%emt 0.817] } 16. Rxc6 { [%emt 2.187] } 16... Bxf3 { [%emt 2.154] } 1
7. gxf3 { [%emt 1.39] } 17... f5 { [%emt 1.921] } 18. e4 { [%emt 1.266] } 18... Nf4 { [%emt 3.697] } 19. Bc4+ { [%emt
6.859] } 19... Kh8 { [%emt 1.438] } 20. Rh6 { [%emt 1.765] } 20... fxe4 { [%emt 2.543] } 21. fxe4 { [%emt 1.031] } 2
1... Rac8 { [%emt 1.086] } 22. Bb3 { [%emt 2.156] } 22... Ne2+ { [%emt 1.925] } 23. Kd2 { [%emt 0.672] } 23... Nf4 {
[%emt 1.199] } 24. Rg1 { [%emt 1.75] } 24... Rfd8+ { [%emt 0.785] } 25. Ke1 { [%emt 1.5] } 25... Nh3 { [%emt 3.081] }
26. Rg3 { [%emt 5.547] } 26... Nf4 { [%emt 1.597] } 27. Rf6 { [%emt 5.219] } 27... Rf8 { [%emt 3.065] } 28. Rf7 { [%e
mt 1.031] } 28... Rxf7 { [%emt 0.796] } 29. Bxf7 { [%emt 0.156] } 29... Rxc2 { [%emt 1.099] } 30. Kd1 { [%emt 1.735]
} 30... Rxf2 { [%emt 2.415] } 31. Rg5 { [%emt 1.797] } 31... h6 { [%emt 0.966] } 32. Rxe5 { [%emt 1.328] } 32... Rf1+
{ [%emt 0.894]
White forfeits on time } 0-1
```

Demo

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