Pensieve header: A guest class in Lisa Jeffrey's UTSC reading course.

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BarcodeImage["https://drorbn.net/AcademicPensieve/Classes/25-GuestAtUTSC"]
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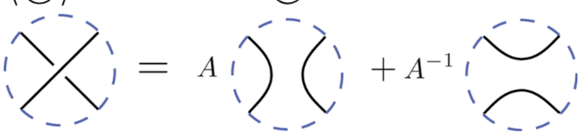
Out[ ]=

From https://en.wikipedia.org/wiki/Bracket_polynomial:

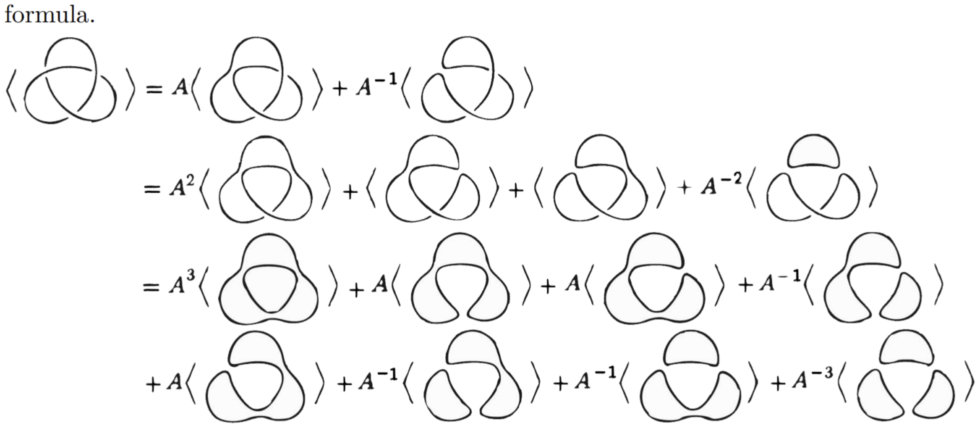
Definition [edit]

The bracket polynomial of any (unoriented) link diagram L, denoted $\langle L\rangle$, is a polynomial in the variable A, characterized by the three rules:

- $\langle\bigcirc\rangle = 1$, where $\bigcirc$ is the standard diagram of the unknot
- 
- $\langle\bigcirc\sqcup L\rangle = (-A^2 - A^{-2})\langle L\rangle$

From https://www.math.uni-hamburg.de/home/runkel/Material/SS20/L1hand.pdf:

Example 3.2. Let D be the canonical diagram of the Trefoil knot. We calculat the Kaufmann bracket of the Trefoil knot $\langle D\rangle$. At first resolve all crossings with the first formula.



Since a diagram without crossings is the disjoint union of loops we obtail the value of the bracket recursively by (II) and (III).

$$\langle D\rangle = (-A^2 - A^{-2})(-A^5 - A^{-3} + A^{-7}).$$

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<< KnotTheory`
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Loading KnotTheory` version of October 29, 2024, 10:29:52.1301.
Read more at http://katlas.org/wiki/KnotTheory.
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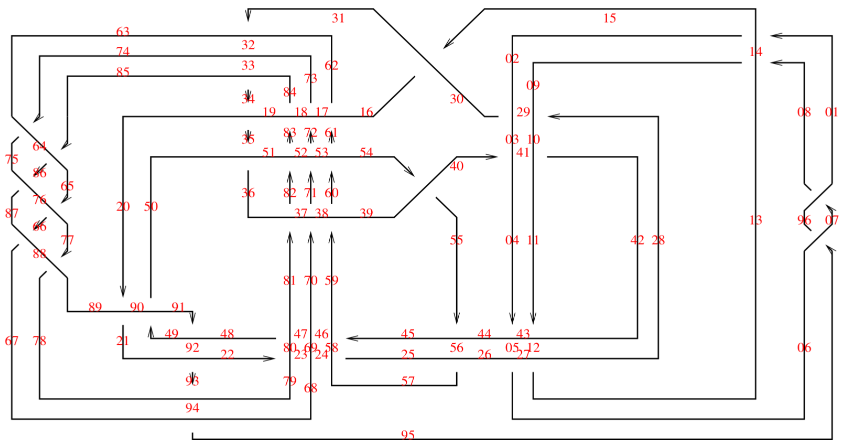
The 48-crossing Gompf-Scharlemann-Thompson knot [GST] is significant because it may be a counterexample to the slice-ribbon conjecture:


Gompf


Scharlemann


Thompson



[GST] R. E. Gompf, M. Scharlemann, and A. Thompson, *Fibered Knots and Potential Counterexamples to the Property 2R and Slice-Ribbon Conjectures,* Geom. and Top. **14** (2010) 2305–2347, arXiv:1103.1601.

In[∘]:=
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PD[GST48] = PD[X[1, 15, 2, 14], X[29, 2, 30, 3], X[40, 4, 41, 3],
   X[4, 44, 5, 43], X[5, 26, 6, 27], X[95, 7, 96, 6], X[7, 1, 8, 96], X[8, 14, 9, 13],
   X[28, 9, 29, 10], X[41, 11, 42, 10], X[11, 43, 12, 42], X[12, 27, 13, 28],
   X[15, 31, 16, 30], X[61, 16, 62, 17], X[72, 17, 73, 18], X[83, 18, 84, 19],
   X[34, 20, 35, 19], X[20, 89, 21, 90], X[92, 21, 93, 22], X[22, 79, 23, 80],
   X[23, 68, 24, 69], X[24, 57, 25, 58], X[56, 25, 57, 26], X[31, 63, 32, 62],
   X[32, 74, 33, 73], X[33, 85, 34, 84], X[35, 50, 36, 51], X[81, 37, 82, 36],
   X[70, 38, 71, 37], X[59, 39, 60, 38], X[54, 39, 55, 40], X[55, 45, 56, 44],
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   X[49, 91, 50, 90], X[82, 52, 83, 51], X[71, 53, 72, 52], X[60, 54, 61, 53],
   X[74, 63, 75, 64], X[85, 64, 86, 65], X[65, 76, 66, 77], X[66, 87, 67, 88],
   X[94, 67, 95, 68], X[86, 75, 87, 76], X[77, 88, 78, 89], X[93, 78, 94, 79]];
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