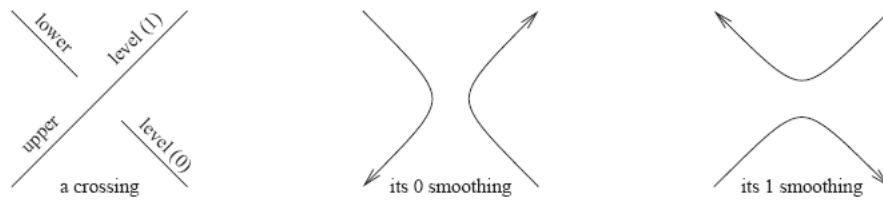


# AKT-090915, Hour 3: The properly normalized Jones, "Knot Properties"

September-14-09

1. Kauffman-Jones correction.
2. Why I skip Reidemeister's theorem.
3. "About this class".
4. Examples of "Knot Properties".



**Figure 2.** A crossing is an interchange involving two highways. The 0-smoothing is when you enter on the lower level (level 0) and turn right at the crossing. The 1-smoothing is when you enter on the upper level (level 1) and turn right at the crossing.

$$\langle \emptyset \rangle = 1; \quad \langle \bigcirc L \rangle = (-A^2 - B^2) \langle L \rangle; \quad \langle \times \rangle = A \langle \smile \rangle + B \langle \frown \rangle$$

$$J(L) = (-A^3)^{w(L)} \frac{\langle L \rangle}{\langle \bigcirc \rangle} \Big|_{A \rightarrow q^{1/4}}, \rightarrow \begin{matrix} A^2 \rightarrow -q^{-1/2} & A^4 \rightarrow 1/q \\ A \rightarrow i q^{-1/4} & -A^2 - A^{-2} \rightarrow q^{1/2} + q^{-1/2} \end{matrix}$$

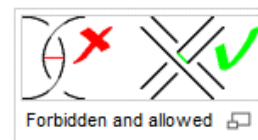
<http://www.math.toronto.edu/~drorbn/classes/0102/AlgTop/Pathologies/print.html>

<http://katlas.math.toronto.edu/drorbn/index.php?title=AKT-09/About This Class>

## 06-1350/Class Notes for Tuesday September 19

### Quick Plan

- Talk about 06-1350/Some Equations by Kurlin.
- Talk about some interesting properties of knots:
  1. Can it be unknotted in less than 3 crossing changes?
  2. Does it bound a Seifert surface of genus less than 7? (See the program [SeifertView](#) by [Jack van Wijk](#).)
  3. Is it a boundary link? (See an amusing list at the bottom of the Knot Atlas page on [The Multivariable Alexander Polynomial](#).)
  4. Is it fibered? (See an [animation](#) by Robert Barrington Leigh).
  5. Is it a ribbon knot? Does it bound a disk in the 4-ball?



- Briefly mention a few other interesting properties of knots:
  1. Is it the closure of a braid on at most 6 strands?
  2. Does it have a projection with less than 23 crossings?
  3. Does it have an alternating projection?
  4. Is it algebraic?
  5. Does it have some symmetries?

<http://www.math.toronto.edu/~drorbn/classes/0304/KnotTheory/SeifertAlgorithm/index.html>

<http://www.math.toronto.edu/~drorbn/People/BarringtonLeigh/FiberedKnot.html>