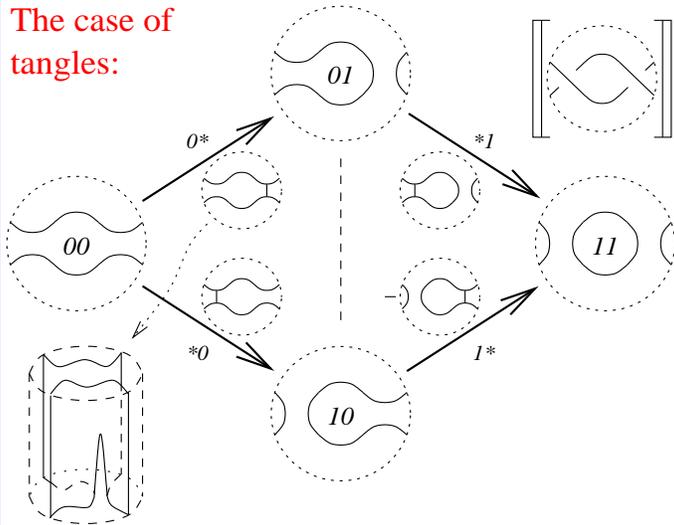


Local Khovanov Homology (2)

The case of tangles:



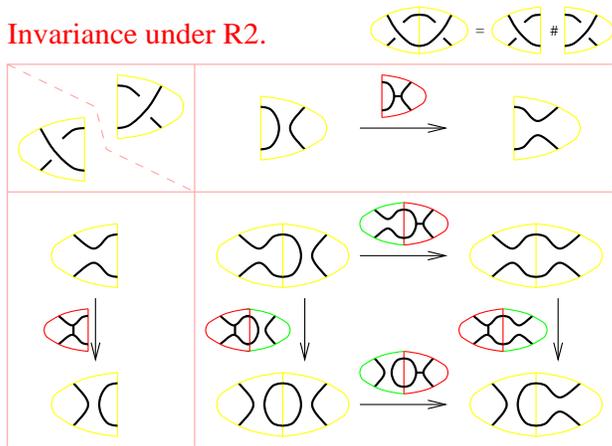
The Reduction Lemma. If ϕ is an isomorphism then the complex

$$[C] \xrightarrow{\begin{pmatrix} \alpha \\ \beta \end{pmatrix}} \begin{bmatrix} b_1 \\ D \end{bmatrix} \xrightarrow{\begin{pmatrix} \phi & \delta \\ \gamma & \epsilon \end{pmatrix}} \begin{bmatrix} b_2 \\ E \end{bmatrix} \xrightarrow{(\mu \ \nu)} [F]$$

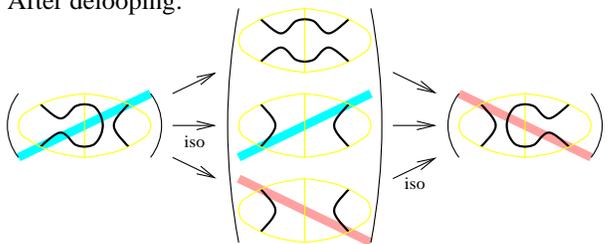
is isomorphic to the (direct sum) complex

$$[C] \xrightarrow{\begin{pmatrix} 0 \\ \beta \end{pmatrix}} \begin{bmatrix} b_1 \\ D \end{bmatrix} \xrightarrow{\begin{pmatrix} \phi & 0 \\ 0 & \epsilon - \gamma\phi^{-1}\delta \end{pmatrix}} \begin{bmatrix} b_2 \\ E \end{bmatrix} \xrightarrow{(0 \ \nu)} [F]$$

Invariance under R2.



After delooping:



Kurt Reidemeister

- <http://www.math.toronto.edu/~drorbn/papers/Cobordism/>
- <http://www.math.toronto.edu/~drorbn/papers/FastKh/>
- <http://www.math.toronto.edu/~drorbn/Talks/Hamburg-1208/>

I mean business.

T(7,6)



Old techniques:

~1,000 years,
~1Ggb RAM.

(now down to seconds)

In 1 day

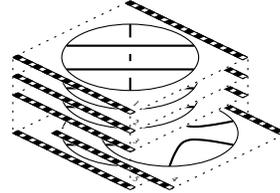


says

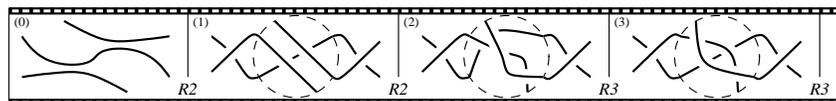
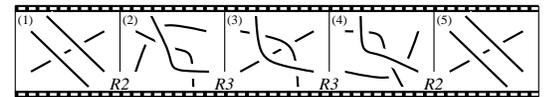
$\dim_j H_r$ is given by:

$j \setminus r$	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
57																					
55																					1
53																					1 1
51																					1 1
49																					1 1
47																					1 1
45																					1 1
43																					1 1
41																					1 1
39																					1 1
37																					1 1
35																					1 1
33																					1 1
31																					1 1
29																					1 1

Functoriality / cobordisms.



M. Jacobsson



J. Rasmussen: Leads to a no-analysis proof of a conjecture by Milnor.

A more general theory: Remove G and NC, add

$$4Tu: \begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix} + \begin{matrix} \text{crossing} \\ \text{crossing} \end{matrix} = \begin{matrix} \text{link} \\ \text{link} \end{matrix} + \begin{matrix} \text{link} \\ \text{link} \end{matrix}$$

(minor further revisions are necessary)

"God created the knots,
all else in topology is the work of mortals"

Leopold Kronecker (modified)



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Edit!

<http://katlas.org>