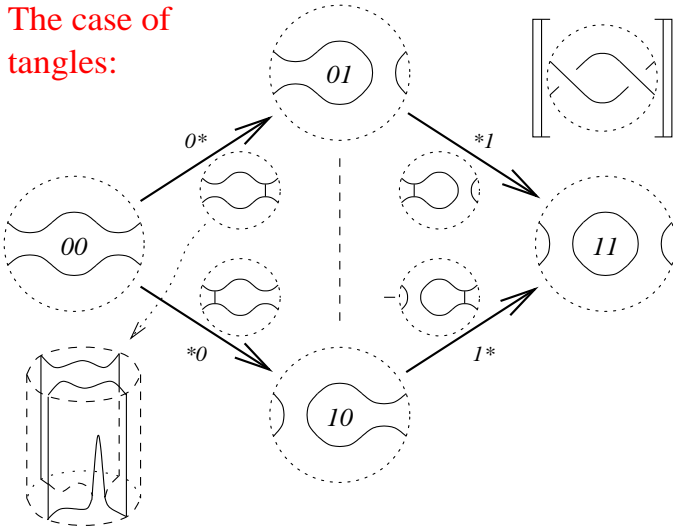


Local Khovanov Homology (2)

The case of tangles:



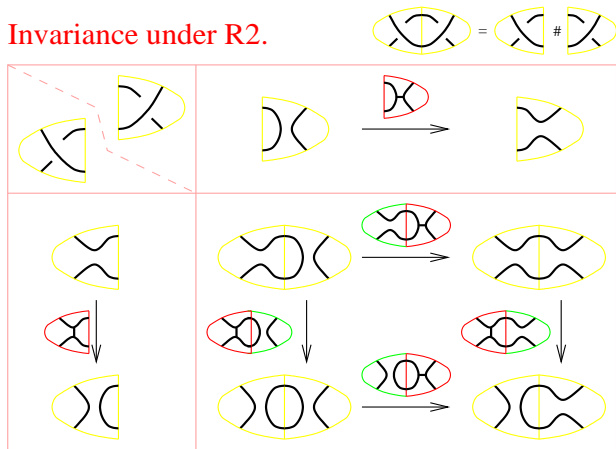
The Reduction Lemma. If ϕ is an isomorphism then the complex

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

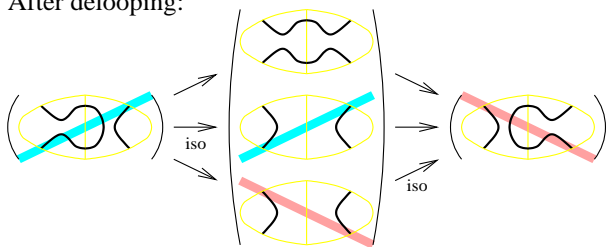
is isomorphic to the (direct sum) complex

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

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.



In 1 day

says

$T(7,6)$



Old techniques:

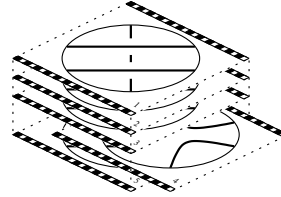
~1,000 years,
~1Ggb RAM.

(now down to seconds)

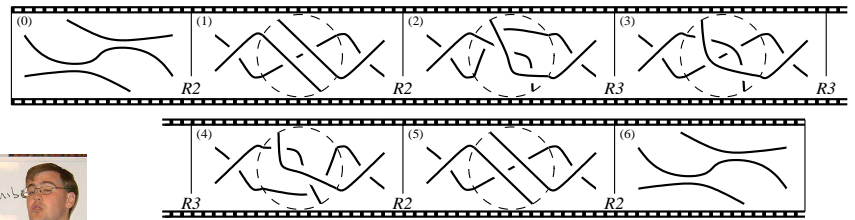
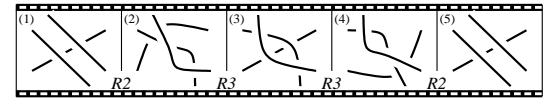
$\dim_j H_r$ is given by:

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

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

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

(minor further revisions are necessary)

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

Leopold Kronecker (modified)



Visit!

Edit!

<http://katlas.org>

Video and more at <http://www.math.toronto.edu/~drorbn/Talks/Hamburg-1208/>