n-strand (pure) virtual braids with $(\leqslant m)$-xing:

$m \backslash n$	2	3	4	5	6	General n
0	1	1	1	1	1	1
1	5	13	25	41	61	$2n^2 - 2n + 1$
2	17	145	529	1361	2881	$2n^4 + 4n^3 - 18n^2 + 12n + 1$
3	53	1561	10873	43121	127021	$\frac{1}{3}\left(4n^6 + 36n^5 - 2n^4 - 546n^3 + 1066n^2 - 558n + 3\right)$
4	161	16717	222289	1351481	5484721	
5	485	178873	4540201			
6	1457	1913737				
m	$2 \cdot 3^m - 1$					

URL: http://drorbn.net/tldt20
Zoom Etiquette: If you can see me I should be able to see you!

Credit to Manturov and Chterental!

UU•OO   U•OUO   OUU•OOO   OU•OUOO   OOUU•OOOO

Over then Under Tangles

Trends in Low-Dimensional Topology, online, May 5 2020, noon.

Abstract. Brilliant wrong ideas should not be buried and forgotten. Instead, they should be mined for the gold that lies underneath the layer of wrong. In this paper we explain how "over then under tangles" lead to an easy classification of knots, and under the surface, also to some valid mathematics: an easy classification of braids and virtual braids, an understanding of the Drinfel'd double procedure in quantum algebra, and more.

Based on a paper in preparation with Zsuzsanna Dancso and Roland van der Veen.

Handout: EGOU.html, EGOU.png.

Talk Video.

Pensieve.

URL: http://drorbn.net/tldt20.

n-strand classical braids with $(\leqslant m)$-xing:

$m \backslash n$	2	3	4	5	6	General n
0	1	1	1	1	1	1
1	3	5	7	9	11	$2n - 1$
2	5	17	33	53	77	$2n^2 + 2n - 7$
3	7	47	131	259	439	$\frac{1}{3}\left(4n^3 + 18n^2 - 22n - 63\right)$ $(n > 2)$
4	9	115	469	1579	2233	
5	11	263	1579	4743	10603	
6	13	577	5121	18941	48209	
7	15	1233	16219	73817	213119	
8	17	2589	50581	283165	924825	
9	19	5371				
m	$2m + 1$	$12 \cdot 2^m - 2F_{m+5} - 2m - 1$?				

Not what I do, but the tangent I was on for the last few weeks. But first, the tangent to the tangent I was playing with over the last few *days*. Possibly an embarrassment!

Every braid (classical or virtual) has a directed finite graph associated with it. These are cool!

This is Demo.nb at
http://drorbn.net/ap/Talks/TrendsInLDT-2005/.

BR[3, {1, 2, 1}] // ExtractionGraph

Knot[8, 1] // BR // Echo // ExtractionGraph
BR[5, {-1, -1, -2, 1, -2, -3, 2, 4, -3, 4}]

BR[3, {1, -2, 1}] // ExtractionGraph

BR[3, {1, -2, 1, -2}] // ExtractionGraph
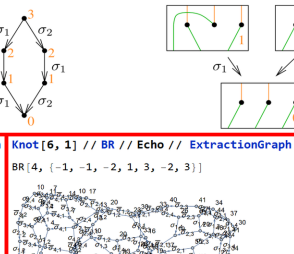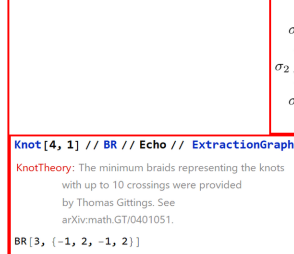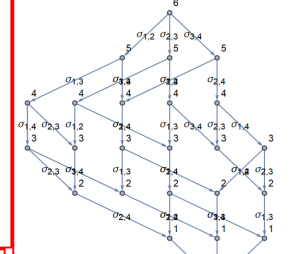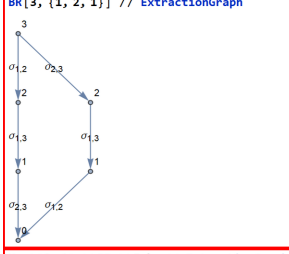
BR[4, {1, 2, 3, 1, 2, 1}] // ExtractionGraph

VPB[5, $\overline{\sigma}_{3,1}$, $\overline{\sigma}_{2,4}$, $\sigma_{5,2}$, $\overline{\sigma}_{1,2}$, $\sigma_{4,1}$, $\overline{\sigma}_{2,3}$, $\sigma_{2,1}$, $\sigma_{5,3}$] // ExtractionGraph

- Enriquez' universal quantization of Lie bi-algebra.
- All else about quantization of Lie bi-algebra.
- PBW / normal ordering.
- Audoux-Meilhan "Characterization of the Reduced Peripheral System of Links".
- B-N's "Balloons and Hoops" paper.

Knot[4, 1] // BR // Echo // ExtractionGraph

KnotTheory: The minimum braids representing the knots with up to 10 crossings were provided by Thomas Gittings. See arXiv:math.GT/0401051.

BR[3, {-1, 2, -1, 2}]

Knot[6, 1] // BR // Echo // ExtractionGraph
BR[4, {-1, -1, -2, 1, 3, -2, 3}]

a loose
b_i ～～～ a_i
"summation" bond
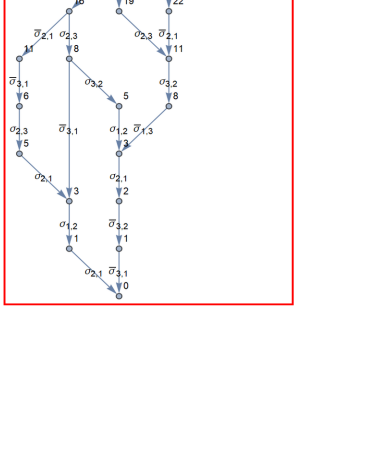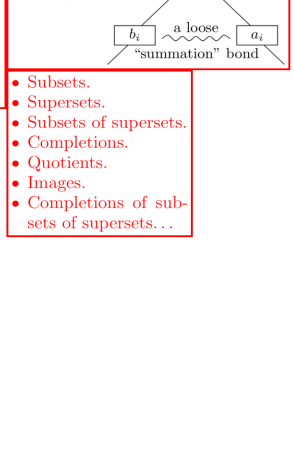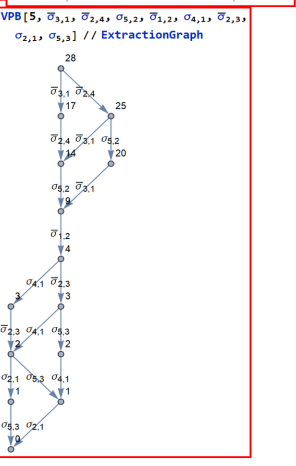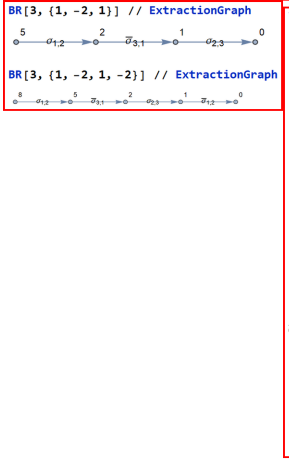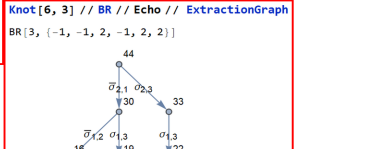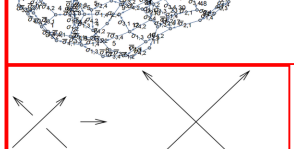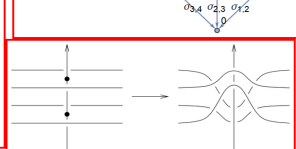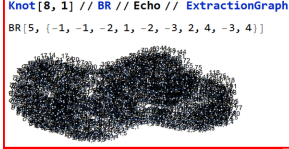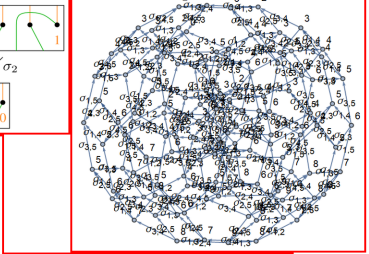
- Subsets.
- Supersets.
- Subsets of supersets.
- Completions.
- Quotients.
- Images.
- Completions of subsets of supersets...

BR[5, {1, 2, 3, 4, 1, 2, 3, 1, 2, 1}] // ExtractionGraph

Knot[6, 3] // BR // Echo // ExtractionGraph
BR[3, {-1, -1, 2, -1, 2, 2}]