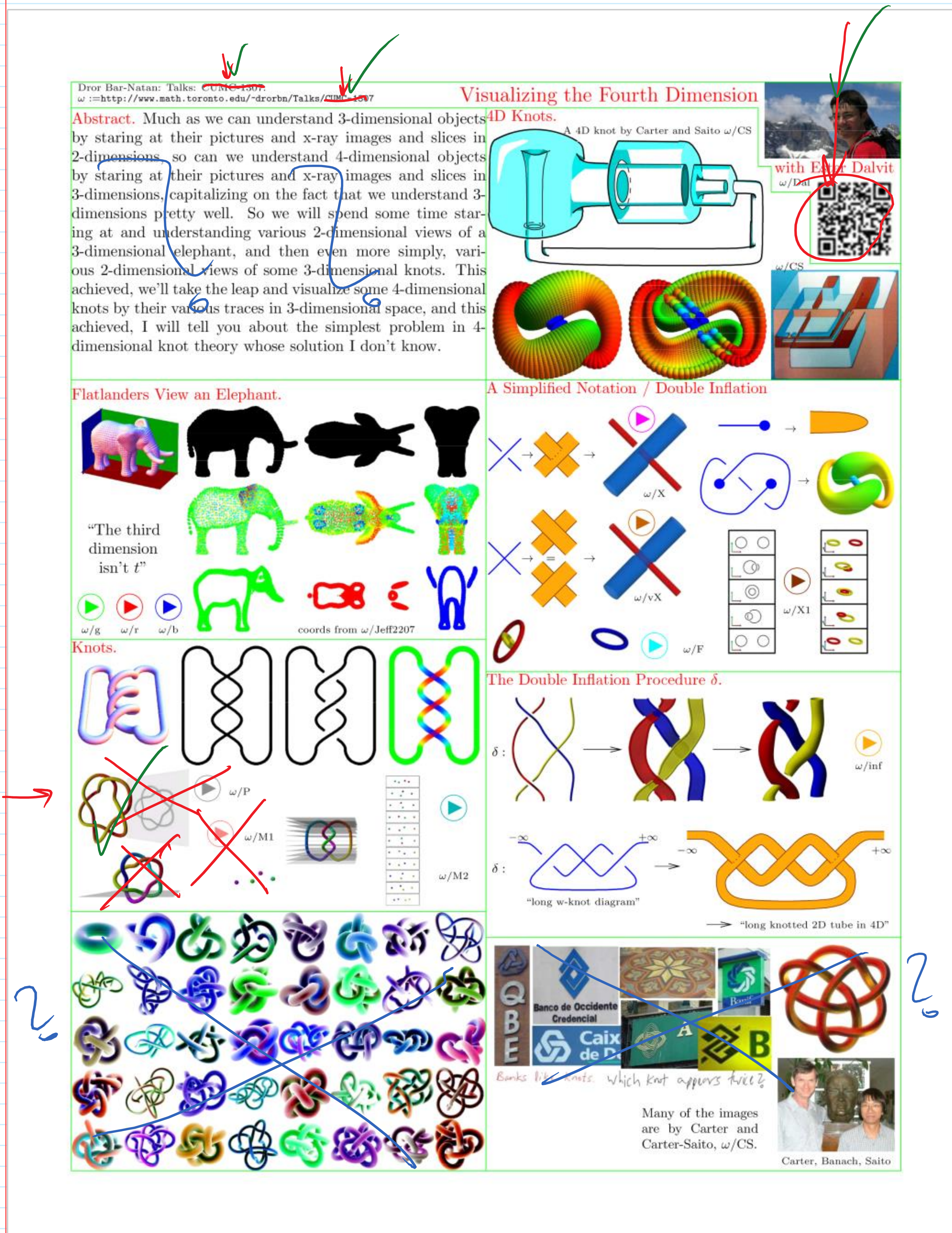
ClassroomAdventures-1401 preps

January-12-14 5:06 PM

From 2013-07/CUMC-2013 Post Mortem:

I should have put a "references" section with refs to some good knot theory books.



Dror Bar-Natan: Talks: CUMC-1307:
ω :=http://www.math.toronto.edu/~drorbn/Talks/CUMC-1307

and the Simplest Thing I Don't Know About It

Shin Satoh

Satoh's Conjecture. (ω/Sat) The "kernel" of the "double inflation" map δ, mapping "long" w-knot diagrams in the plane to "long" knotted 2D tubes in 4D, is precisely the moves R1–R3, VR1–VR3, D and OC listed below.

In other words, two long w-knot diagrams represent via δ the same long 2D knotted tube in 4D iff they differ by a sequence of the said moves.

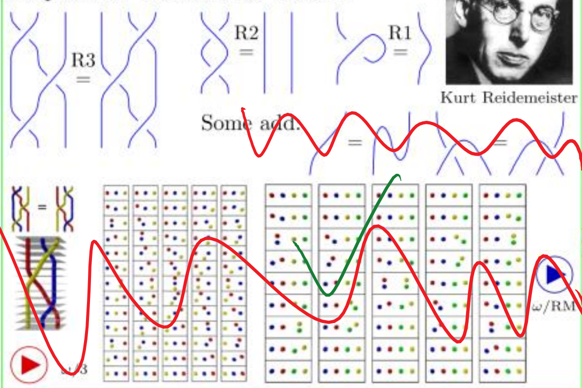
First Iso. Thm: $\phi\colon G \to H \;\Rightarrow\; \operatorname{im}\phi \cong G/\ker(\phi)$

δ is a map from algebra to topology. So a thing in "hard" topology ("ribbon 2-knots") is the same as a thing in "easy" algebra.

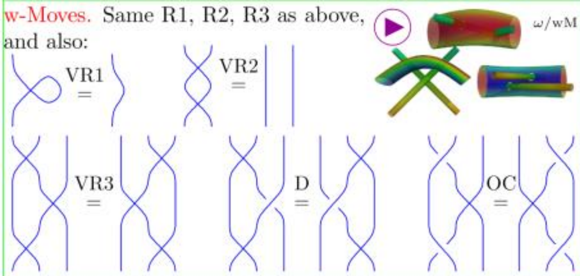
What's "The Same"?

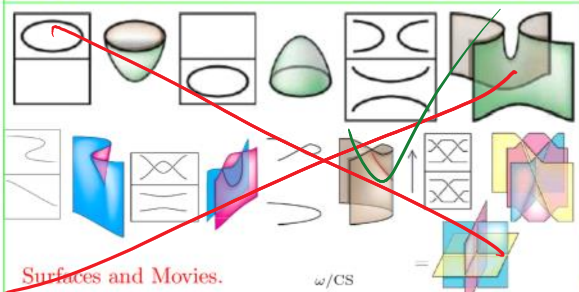
Kurt Reidemeister

Reidemeister' Theorem. Two knot diagrams represent the same 3D knot iff they differ by a sequence of "Reidemester moves":



w-Moves. Same R1, R2, R3 as above, and also:



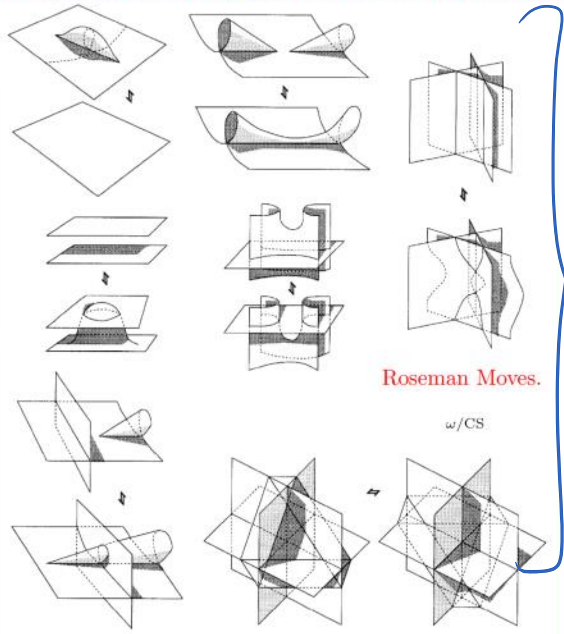


Surfaces and Movies.

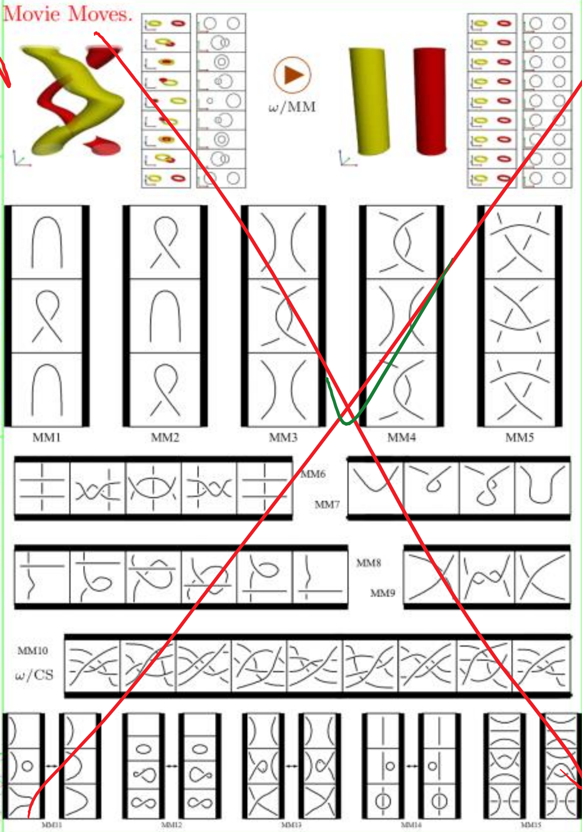
"God created the knots, all else in topology is the work of mortals."

Leopold Kronecker (modified)

www.katlas.org



Roseman Moves.



Movie Moves.

Can do my own!

Recycling