

2015-11 Baker Bug Report on MVA (unresolved)

January 25, 2016 5:04 PM

Hi Dror,

I didn't see anywhere to submit bugs/errors on KnotAtlas for the KnotTheory` package (my apologies if I'm blind!) so I thought I'd shoot you an email.

I noticed what appears to be a slight error in the Multivariable Alexander Polynomial calculation: When using the DTcode for a two component link as input, the variables in the polynomial are swapped. I haven't confirmed how it handles orientations of the link components yet.

I've used SnapPy's Plink to get the DT code (see attached screenshot). In the example below, it should be fairly clear that the 2nd component is unknotted. The linking number in this example is 1, so the Torres formula says that setting $t[1]=x=1$ should give the Alexander polynomial of the unknot.

```
Simplify[MultivariableAlexander[
  DTCode[{16, -32, -52, -22, 24, -26, 28, 50, 4, -54, 42, -40, 38, -36, 48,
    46, -2, -14, 12, -10, 8, 56, -18, 30, -34}, {-6, 44, -20}]]
t] /. {t[1] -> x, t[2] -> y}
```

$$(x^2 (-1 + y)^2 - x y^2 + (-1 + y)^2 y^2)/(x y^2)$$

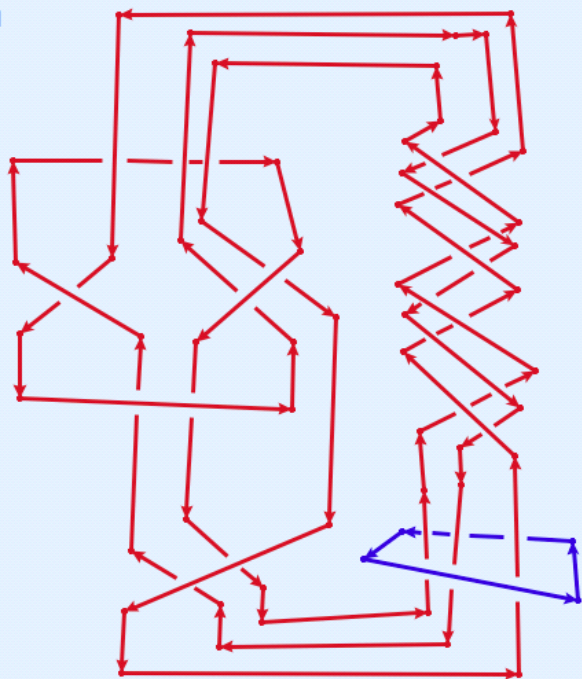
With $x=1$, this is $(-1/y + 1)^2 - 1 + (-1 + y)^2$ which is the Alexander polynomial of the first component.

Best,

Ken

(And of course many thanks to you and all the people who helped develop the package!)

0 1



DT: [(16,-32,-52,-22,24,-26,28,50,4,-54,42,-40,38,-36,48,46,-2,-14,12,-10,8,56,-18,30,-34),(-6,44,-20)], [0,0,1,0,1,0,1,0,1,1,0,1,0,1,0,0,1,0,