The process:

Initialization:

Example (to degree 2):

The "it":

The "it" is either a red arrow hiding under one of the reservoirs and oriented the same way or a fork under one of the reservoirs, with its front foot under the head and its back foot, which is a right foot, under the tail.

Main process:

"pull the fork, see what's caught":

moving left across a right-handed positive arrow captures a $-\infty$.

$$x^k = e^x$$
In general, pulling a fork of dir. $d_i$ across an arrow of heading $d_j$ and sign $s_j$ captures

$$-d_j \cdot s_j \times$$

And more generally, pulling a fork of direction $d_i$ across an arrow reservoir of heading $d_j$ and sign $s_j$ captures

$$d_j \left( e^{-s_j d_i - 1} \right)$$

**Termination:**

moving right across the root produces an $-x:$$$

$$= - \ +$$

In general, moving in the direction $d_i$ across produces a $-d_j x$.

**Translation to matrix language:** (signs unrelated)

\[ a_i = \text{arrow} \ # i \]

\[ d_i = \text{direction of } a_i \ \text{here: } (++) \]

\[ s_i = \text{sign of } a_i \ \text{here: } (--) \]
$s_i := \text{sign of } a_i$  \[ \text{here: } (+--++) \]

$A := \text{The "process start" matrix, that is,}$  

$$
A = \begin{pmatrix}
  s_1 & s_2 & 0 \\
  0 & & \\
  & & s_n
\end{pmatrix} \text{ Alternative choice in green: } A = I
$$

$B := \text{The shifting matrix from under } a_i \text{ to under } a_j; \text{ That is,}$  

$$
B_{ij} := \begin{cases} 
\frac{dijd}{2} (e^{-dijd} - 1) & \text{if the head of } a_j \text{ falls within the open span of } a_i \\
0 & \text{otherwise}
\end{cases}
$$

$C := \text{The termination matrix, that is,}$  

$$
C_{ij} := \begin{cases} 
dijd & \text{if the head of } a_j \text{ falls within the closed span of } a_i \\
0 & \text{otherwise}
\end{cases}
$$

**Theorem:** \[ \text{Tr } C \cdot (I - B)^{-1} \text{BA} = \log Z \]

(in the appropriate sense)

\[ \text{I have problems with} \]

\[ \text{Added May 1, 2009:} \]

\[ \text{This is probably} \]

\[ \text{The blow of } Z. \]
A long 4 crossing positive knot is a long trefoil

Before and after the first R3, with some stuff removed, yet problematic:

\[
\text{Compare} \left\{ \text{GC}[\text{Ar}[1, 8, +1]], \right. \\
\left. \text{GC}[\text{Ar}[7, 2, +1], \text{Ar}[12, 3, +1], \text{Ar}[6, 11, +1]], \right. \\
\left. \text{GC}[\text{Ar}[6, 3, +1], \text{Ar}[11, 2, +1], \text{Ar}[7, 12, +1]] \right\}
\]