

Combing w-Braids

January-07-10
7:55 PM

From Karene:
Hello Dror,

Here is the element from today

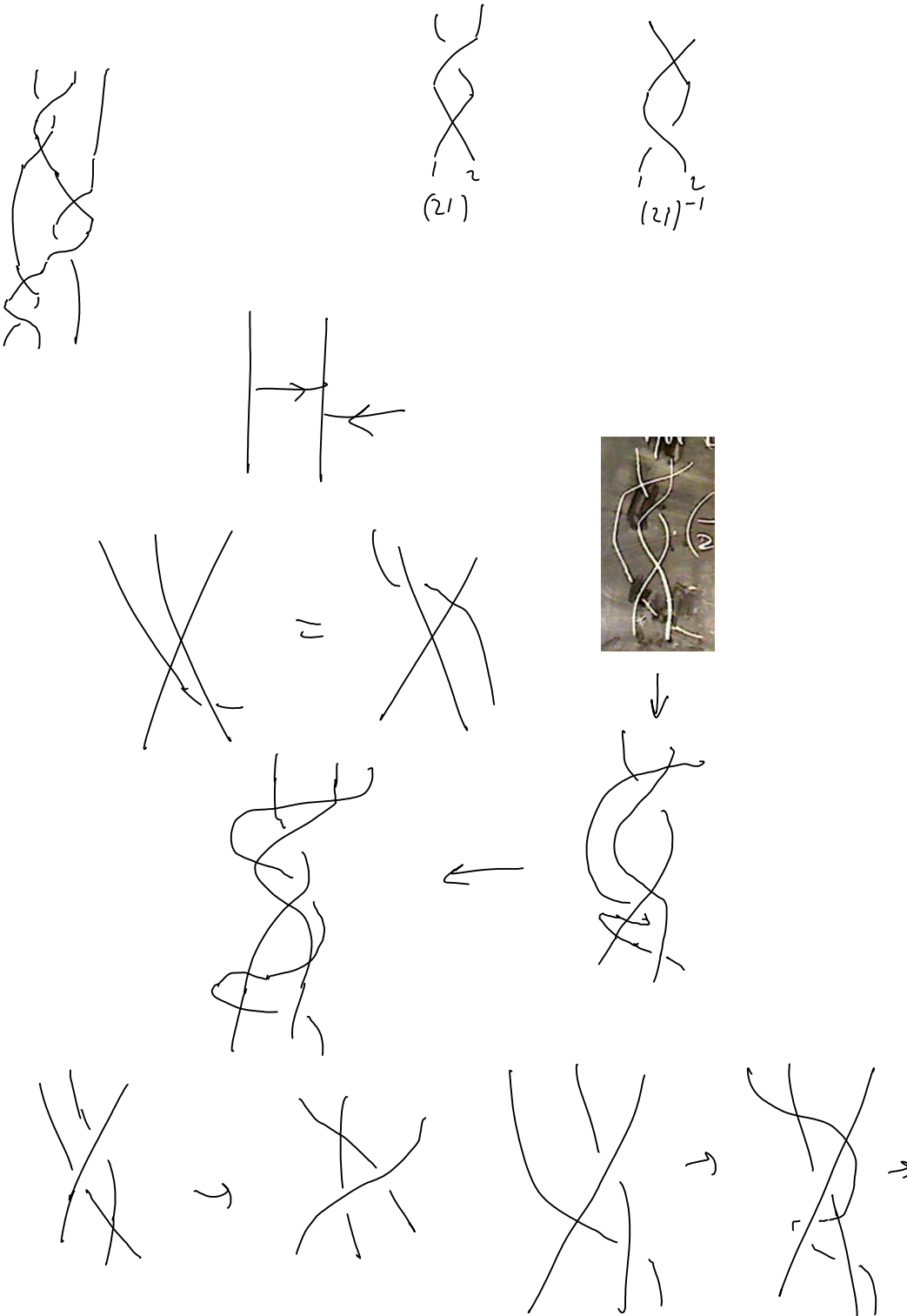
<http://katlas.math.toronto.edu/drorbn/bbs/show?shot=Chu-100107-153019.jpg>

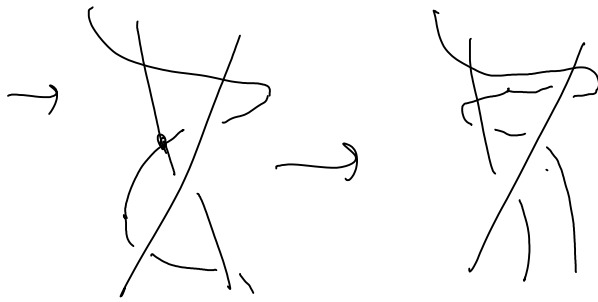
combed:

$(23)(13)(21)$ where (ij) is the generator "i over j writhe+"

$=(21) [(23)^{(21)}] [(13)^{(21)}]$ (here $(13)^{(21)}$ means (13) "acted on" by (21))

$=(21) [(23)] [(23)(13)(23^{-1})]$





Conjecture Let A_n be the free commutative algebra on n letters and let F_n be the free associative algebra on same.

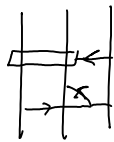
Then

$$A_n^w = (A_1 * F_1) \times (A_2 * F_2) \times (A_3 * F_3) \dots \times (A_{n-1} * F_{n-1})$$

$$0 = [a_{12}, [a_{31}, a_{32}]] = [[a_{12}, a_{31}], a_{32}] + [a_{31}, [a_{12}, a_{32}]] = \#$$

Aside: $[a_{12}, a_{31}] = -[a_{12}, a_{32}] = [a_{13}, a_{32}]$

$$\# = [[a_{13}, a_{32}], a_{32}] + [a_{31}, [a_{32}, a_{13}]]$$



So the conjecture is false.

.... but there may still be something to salvage.