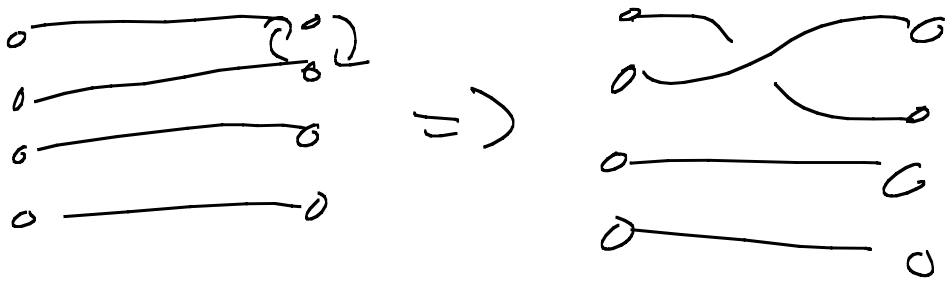
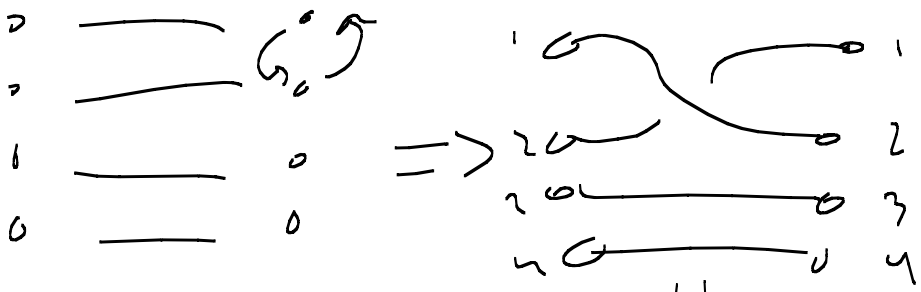
lecture three Brielin

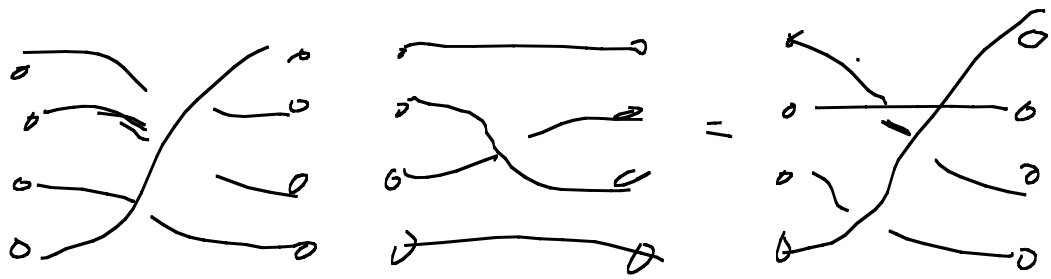
Note Title 4/22/2008

Braid Groups

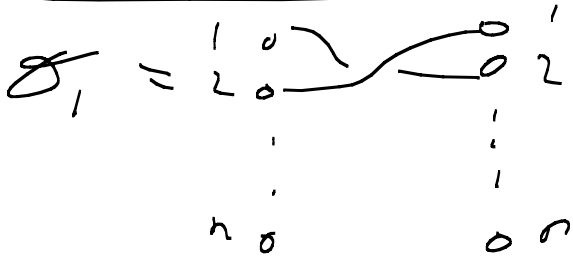
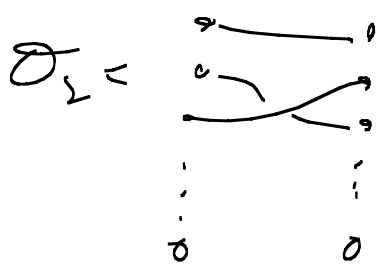
$n = 4$







Generators

$\sigma_1 =$  $\sigma_2 =$ 

Scan left → right

σ_i when i and $i+1$ cross

under $= \sigma_i$

over $= \sigma_i^{-1}$

Length of a Braid

Homomorphism $B_n \to \mathbb{Z}$

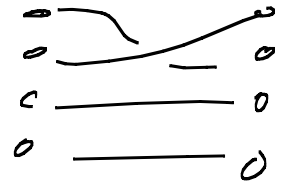
$\phi(a) \to l$

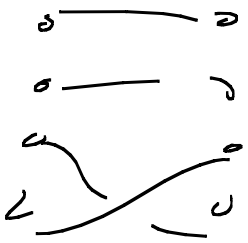
$a \in B_n$

$\sigma_i \sigma_j \sigma_k^{-1} = 1 + 1 - 1 = 1$

Relations

$\sigma_i \sigma_j = \sigma_j \sigma_i$ if $|i-j| \geq 2$

$\sigma_1 =$ 

$\sigma_3 =$ 

$\sigma_i \sigma_{i+1} \sigma_i = \sigma_{i+1} \sigma_i \sigma_{i+1}$

for $i = 1 \ldots n-2$