Lecture **XXXIV** - addendum

ALGEBRAIC CURVES & RIEMANN SURFACES

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* **Amplification**: orbifolds & branched coverings of RS

The surface $\tilde{S}/\Gamma$ ($\tilde{S}$: S^2, $\mathbb{H}^2$, $\mathbb{C}$)

Γ: generated by side pairing

is an orbifold, i.e. possesses * cone singularities

at cycles $\{v\}$ with "aliquot part" $\frac{2\pi}{p}$ $p>1$

p-fold wrapping

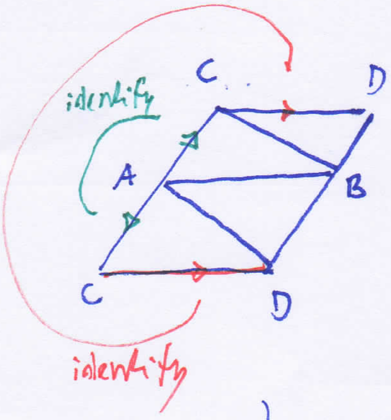
** desingularization ≡ branched covering

↓

construction of a bona fide RS (geometric surface)

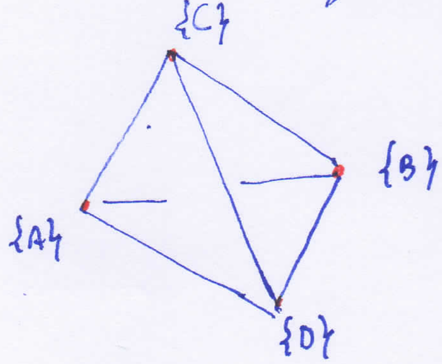
Example: the Klein quartic (a smooth curve ≡ RS)

Example : (see Stillwell)



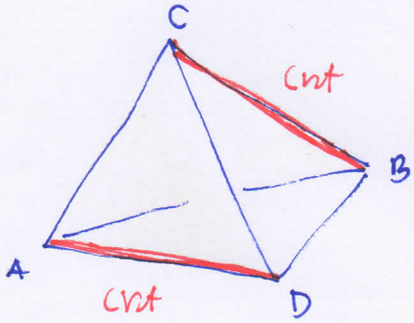
exagonal tiling of $\mathbb{C}$

get a tetrahedron

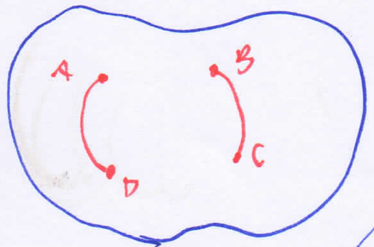


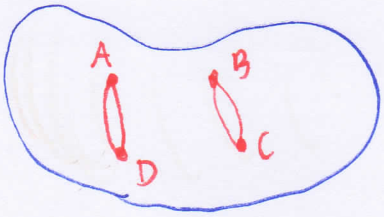
{A},{B},{C},{D}
cone points : angle = π

2-sheeted branched covering

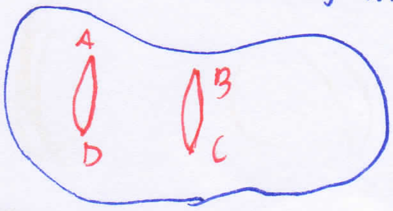


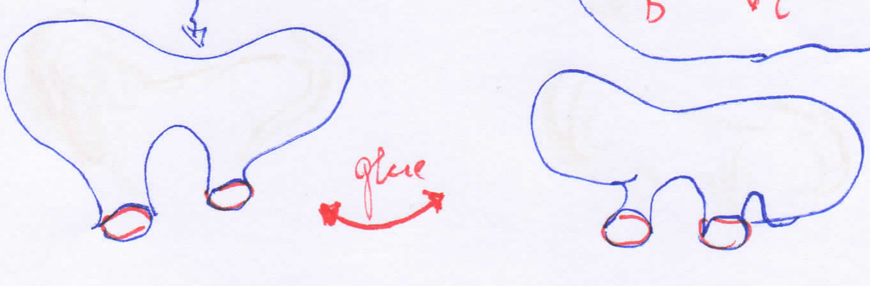
$\sim_D$

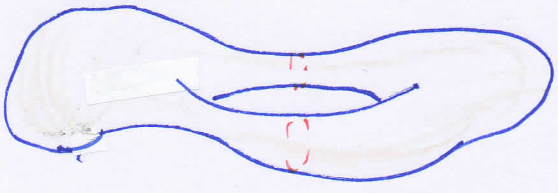




take another copy and join appropriately







get a torus

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In general, the desingularization process is carried out in steps.

But this is another story...

"O fim duma viagem è apenas o começo doutra"

(J. Saramago: "Viagem a Portugal")