$$H_n(M) \longrightarrow H_n(M, \overset{\circ}{M}) \longrightarrow H_{n-1}(\overset{\circ}{M}) \longrightarrow$$

$$0 \qquad \mathbb{Z} \qquad \mathbb{Z}$$

$$\begin{array}{ccccccccccccc}
\tilde{H}_n(S^n) & \cong & H_n(S^n, \bar{E}^n_-) & \cong & H_n(\bar{E}^n_+, S^{n-1}) & \cong & \tilde{H}_{n-1}(S^{n-1}) & \cong & H_{n-1}(S^{n-1}, \bar{E}^{n-1}_-) & \cong & \cdots & \cong & \tilde{H}_0(S^0) \\
\downarrow f_* & & \downarrow f_* & & \downarrow f_* & & \downarrow f_* & & \downarrow f_* & & & & \downarrow f_* \\
\tilde{H}_n(S^n) & \cong & H_n(S^n, \bar{E}^n_-) & \cong & H_n(\bar{E}^n_+, S^{n-1}) & \cong & \tilde{H}_{n-1}(S^{n-1}) & \cong & H_{n-1}(S^{n-1}, \bar{E}^{n-1}_-) & \cong & \cdots & \cong & \tilde{H}_0(S^0)
\end{array}$$

è un retratto

è però

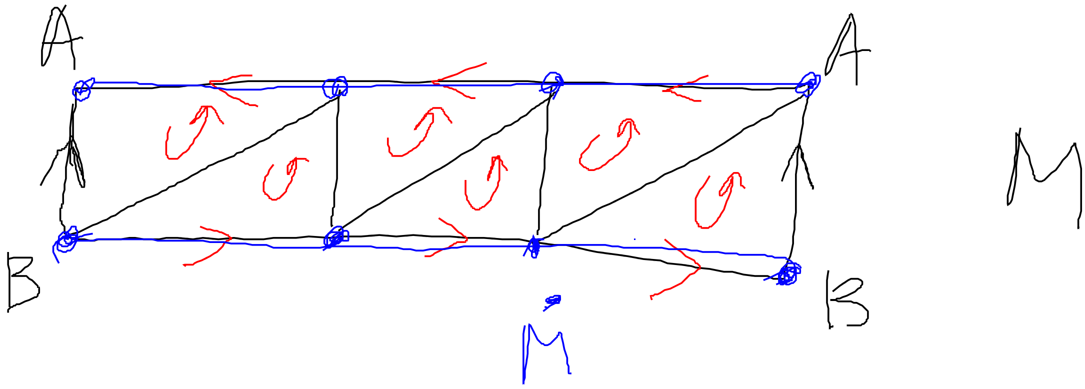
escissione

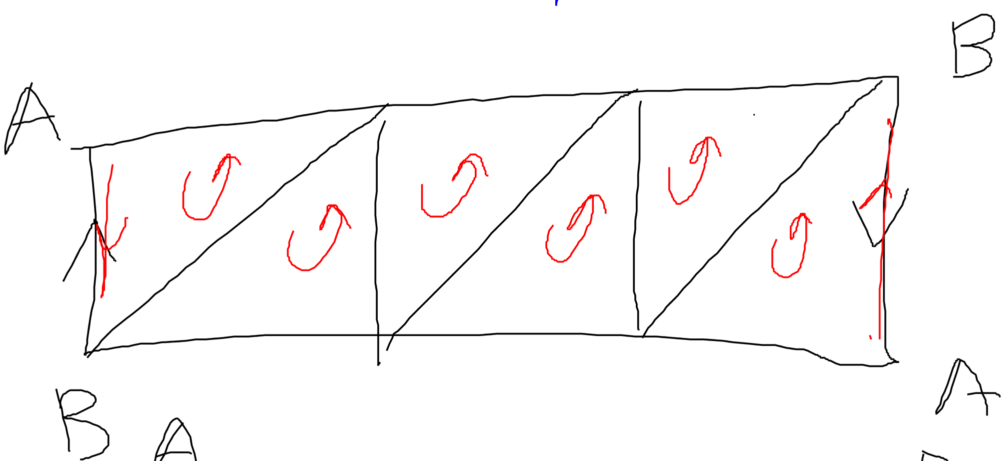
$$(E^n_+, S^{n-1}) \hookrightarrow (\text{Capr}, \text{Capr} - E^n_+) \hookrightarrow (S^n, E^n_-)$$

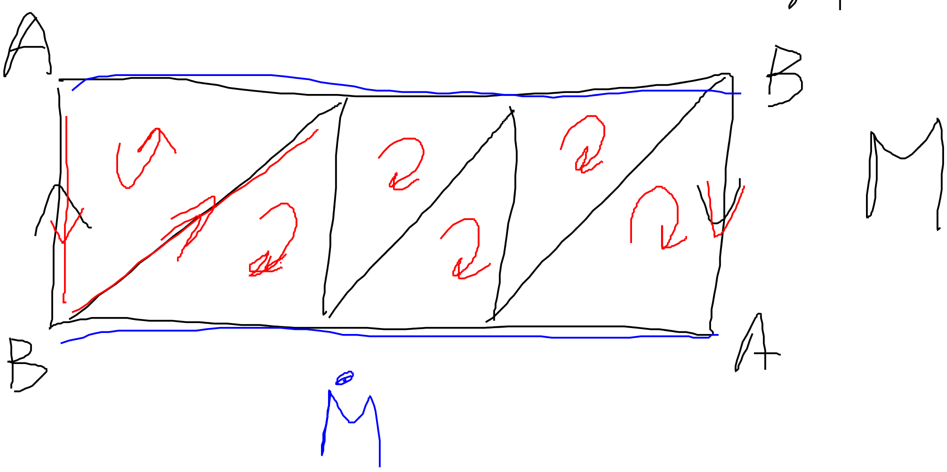
$$\| $$

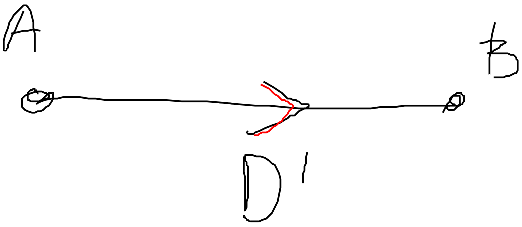
$$(S^n - \text{Sud}, E^n_- - \text{Sud})$$

$$\underset{0}{\tilde{H}_n(E^n_+)} \to \underset{\cong}{H_n(E^n_+, S^{n-1}) \to \tilde{H}_{n-1}(S^{n-1})} \to \underset{0}{\tilde{H}_{n-1}(E^n_+)}$$

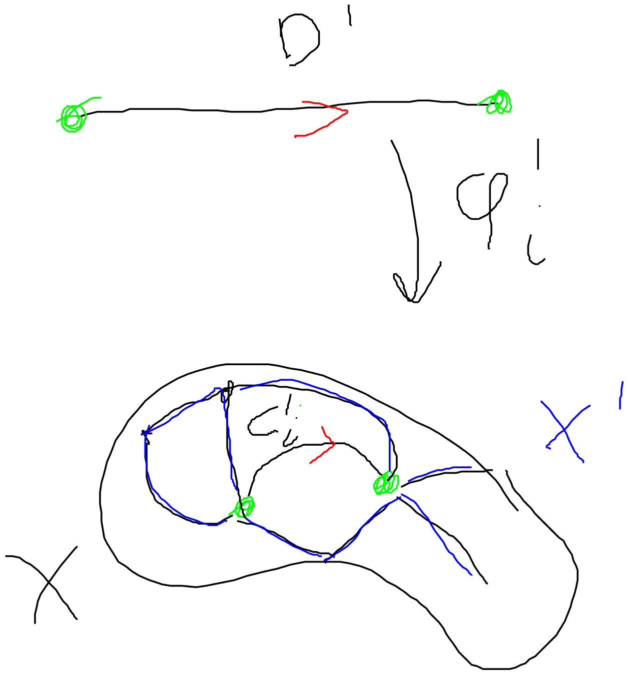


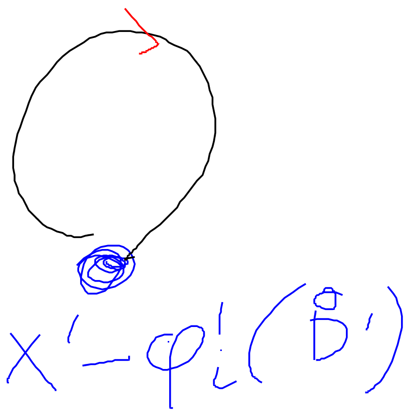


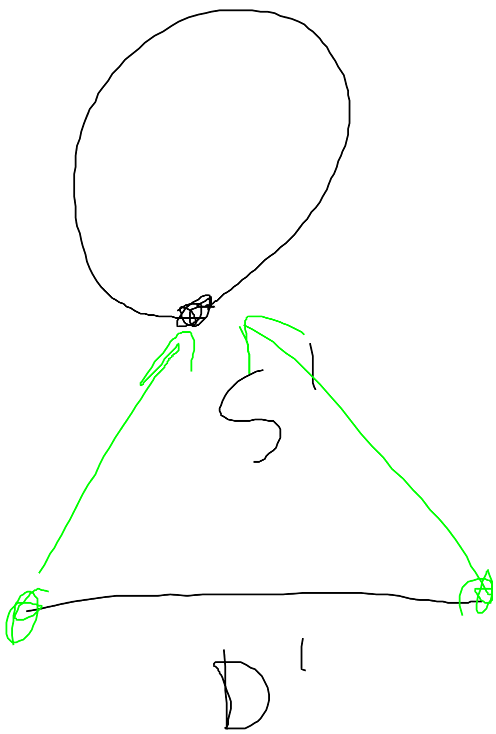


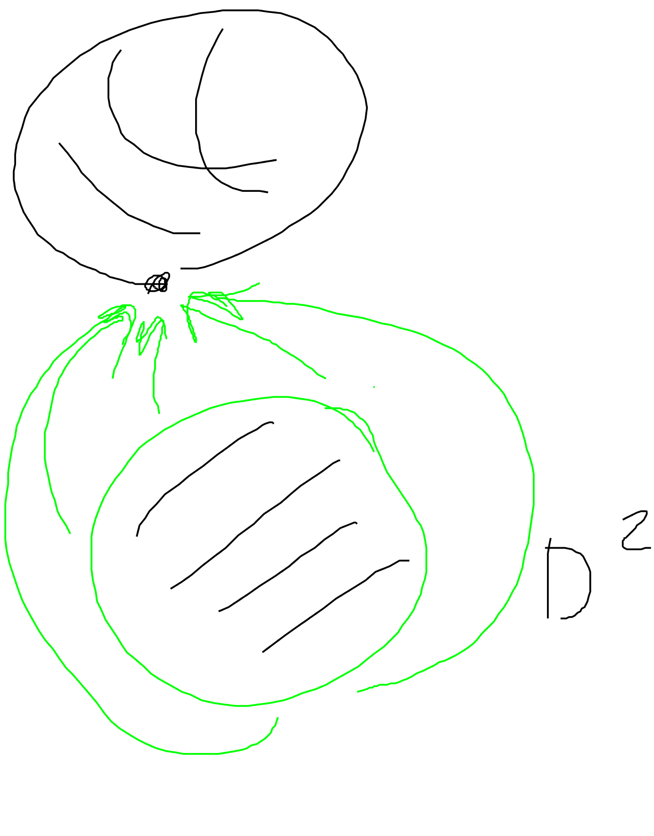


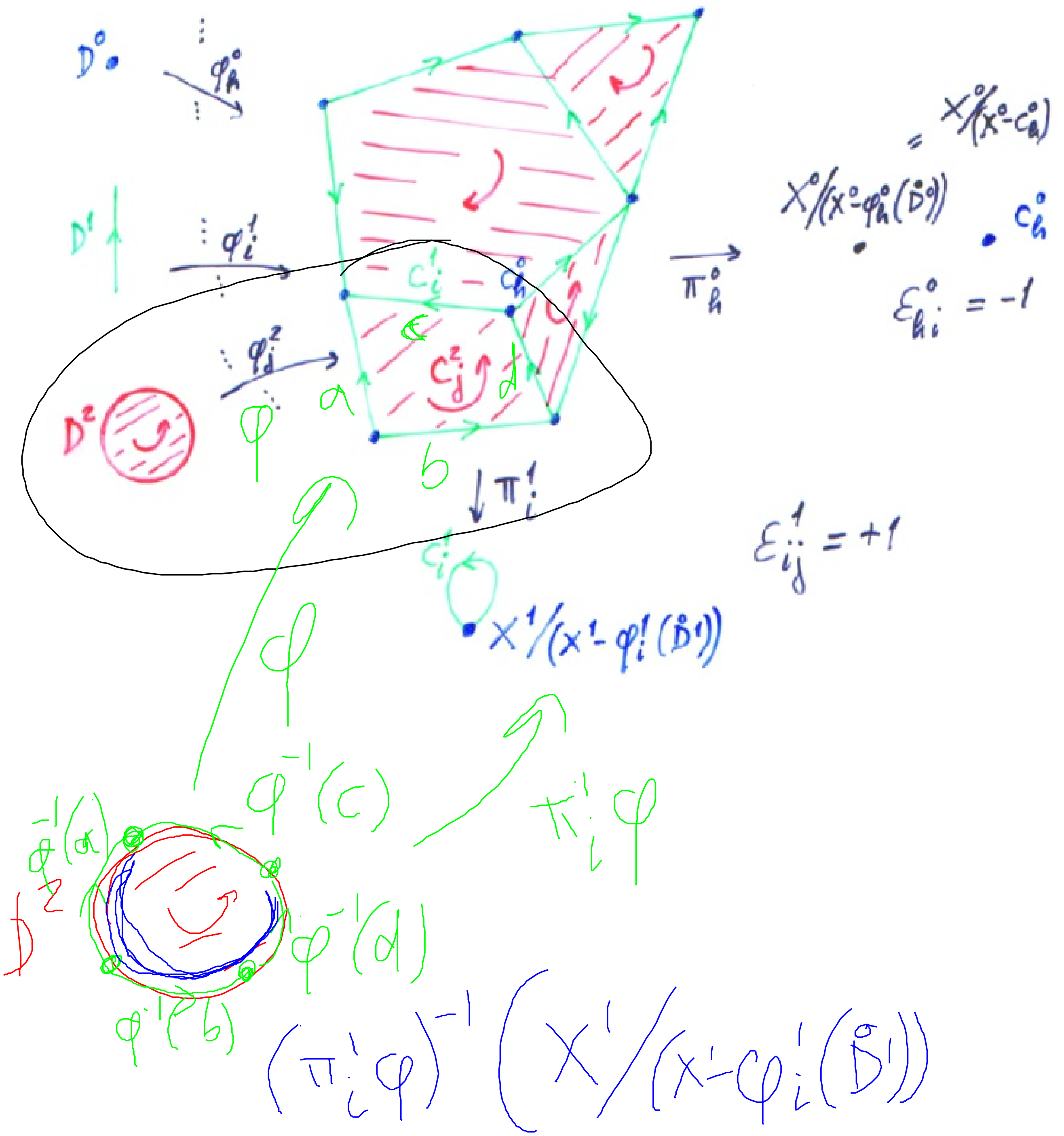
S^0 : $B - A$


D^1
$\varphi_i^!$
$c_i^!$
X
X^1


$X^1 - \varphi_i^!(D^1)$


S^1
D^1


D^2



D°
φ°h
D¹
φ¹i
D²
φ²j
c¹i
c°h
c²j
c
a
b
d
φ
π°h
X°/(X° - φ°h(D̊°)) = X°/(X° - c°h)
c°h
ε°hi = -1
π¹i
c¹i
X¹/(X¹ - φ¹i(D̊¹))
ε¹ij = +1
φ⁻¹(c)
π¹i φ
φ⁻¹(a)
D²
φ⁻¹(d)
φ⁻¹(b)
(π¹i φ)⁻¹(X¹/(X¹ - φ¹i(D̊¹)))