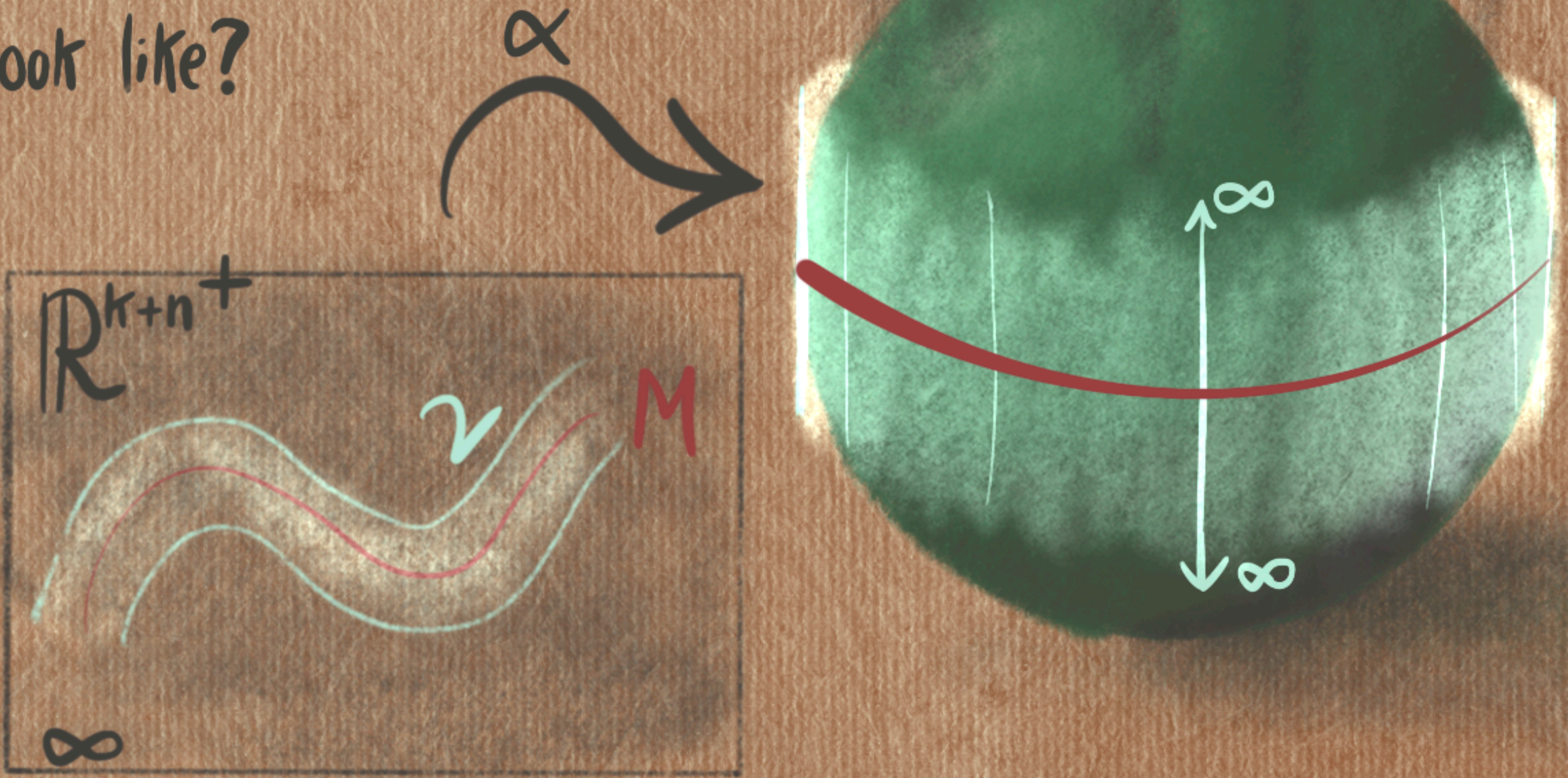
MO

$\beta: \pi_k(MO) \longrightarrow \Omega_k$

realize $f: S^{k+n} \to MO$ w/ $M \hookrightarrow \mathbb{R}^{n+k}$ & P.T map

What does $\alpha[M]: S^{k+n} \to MO$ look like?



0-section only contains M

$\nu \to$ fibers over M

$\partial\nu \to \infty$ in MO

$\beta: \pi_k(MO) \longrightarrow \Omega_k$

When does $f: S^{n+k} \longrightarrow MO$ come from P.T?

0-section of $\tilde{\varepsilon}^k$

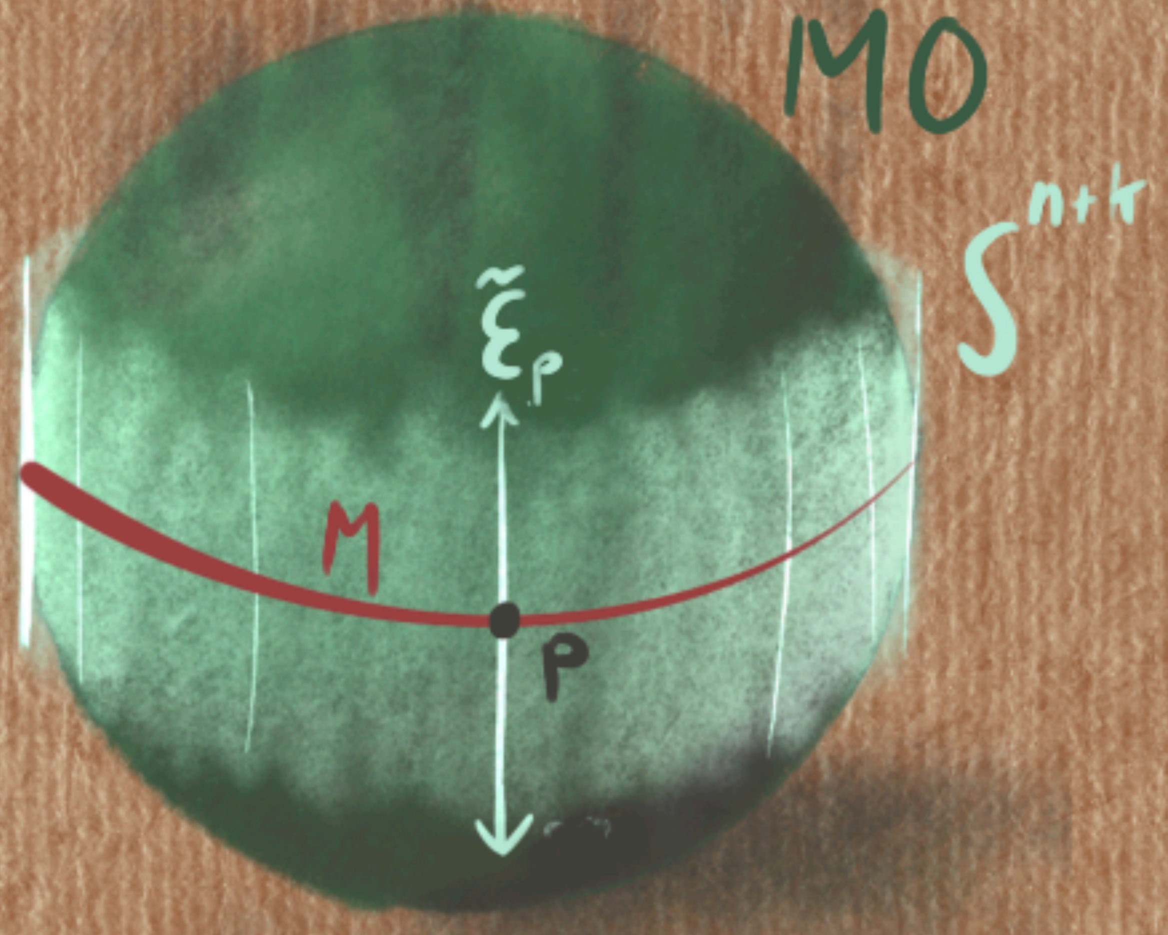
Take $S^{n+k} \supset M = f^{-1}(0)$ say S^{n+1} intersects 0 transversly: $T_p 0 \oplus T_p S = T_p MO$

normal bundle

dimension count: $T_p S^{n+k} = T_p M \oplus \tilde{\xi}_p$

So, P.T∘classifying sends $p \in M$ to $p \in Gr$

& sends $T_p M^{\perp}$ to $\tilde{\xi}_p$. i.e, it sends M to f!



S^{n+k} compact $\Rightarrow$ lies in some $Th(Gr(k, \mathbb{R}^{n+k}))$

Thom transversality transversality is generic!

$\Rightarrow \exists \tilde{f} \in [f]$ w/ $\alpha[\tilde{f}^{-1}(0)] = [f]$

Q.E.D!