$B^n \cup_{\partial B^n} B^n \cong S^n$

- - - - - . - - - - -

$B^n + B^n \longrightarrow S^n$

$in_1 \; x_1 \ldots x_n \longmapsto (x_1 \ldots x_{n-1}, \sqrt{1 - x_1^2 - x_2^2 - \ldots - x_{n-1}^2})$

$in_2 \; x_1 \ldots x_n \longmapsto (x_1 \ldots x_{n-1} - \sqrt{1 - x_1^2 \ldots - x_{n-1}^2})$

vezmi:

prave identifikacije:

$\|x_1 \ldots x_n\| = 1 \longmapsto x_1, \ldots x_n, 0$

$\longmapsto x_1 \ldots x_n, 0$

je končnost na dve razdelih

če $\vec{r}\, \sqrt{1-|r|} = r, -\sqrt{1-|r|}$

potem $\vec{r} = \vec{r}$

$\sqrt{1-|r|} = -\sqrt{1-r}$

surjektivnost

$\Rightarrow 1 - |r| = 0$

$|r| = 0$

$f: S^{n-1} \to S^{n-1}$

$F: B^n \to B^n \quad F|_{S^{n-1}} = f$

$$F(\vec{r}) = \begin{cases} \|\vec{r}\| f\left(\frac{\vec{r}}{\|\vec{r}\|}\right) \\ 0 \quad ; \quad \vec{r} = 0 \end{cases}$$

$$\lim_{t \to 0} \|t \cdot e\| f\left(\frac{t\vec{e}}{\|t\|}\right) = \lim_{t\to 0} t \cdot f(e) = 0$$

c) $D_1 \approx B^n \approx B_2$

$X \approx S^n$

$X = D_1 \cup D_2 \longrightarrow S^n$

$h_1: D_1 \to B_n$ hom.

$h_2: D_2 \to B_n$

$$x \mapsto \begin{cases} h_1(x) \; ; \sqrt{1 - h(x)^2} \\ h_2(x) \; ; -\sqrt{1-h(x)^2} \end{cases}$$

ni dobro definirane

$\partial D_1 \xrightarrow[h_1/\text{zoožen}]{} S_{n-1}$

$$S_{n-1} \xrightarrow{\approx} \partial D_1 \xrightarrow[h_1/S^{n-1}]{} S_{n-1}$$

$\partial D_1 = \partial D_2$

dobimo F ki velja $B_n \to B_n$

$F: B_n \to B_n$

$F/_{S_n}$: ✓

$F \cancel{f(x^{-1})}$:

$F \circ (h_2^{-1}): D_2 \to B_n$

$$x \begin{cases} h(x) \; , \sqrt{1 - h_2(x)^2} \\ F \circ (h_2^{-1}(x)) \; , -\sqrt{1 - |F(h_2(x))|} \end{cases}$$