real

Bert I:2 $Z_{\mathbb{C}} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = i\,{}^{n}\mathbb{R}_n^{\ni} = {}^{n}\mathbb{R}_n^{\uplus} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n}\mathbb{H}_n^{\supset} = SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{C}_n^{\supset} = SO_{n:n}$$

$$G_{\mathbb{C}}^{c} = {}^{n:n}\mathbb{R}_{n:n}^{\supset} = SO_{n:n}$$

Bert II:0 Cau $Z_{\mathbb{C}} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{R}_n^{\ominus} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{R}_{2n}^{\cap} = Sp_n(\mathbb{R})$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{R}_n^{\subset} = {}^{n}\mathbb{R}_n^{\subset} \times \mathbb{R}^{\times} = GL_n(\mathbb{R})$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_n^{\cup} = U_n$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{R}_n^{\cup} = O_n$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

Bert II:1 $Z_{\mathbb{C}} = {}^{p}\mathbb{C}_{q} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{R}_{q} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\cup} = U_{p:q}$$

$$G_{\mathbb{R}} = {}^{p:q}\mathbb{R}_{p:q}^{\cup} = U_{p:q}(\mathbb{R}) = O_{p:q}$$

$$G_{\mathbb{C}}^{c} = {}^{p+q}_{\subset}\mathbb{R}_{p+q} = SL_{p+q}(\mathbb{R})$$

$$K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{q}\mathbb{C}_{q}^{\cup} = U_{p} \times U_{q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{R}_{p}^{\cup} \times {}^{p}\mathbb{R}_{p}^{\cup} = O_{p} \times O_{q}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert IV:0 $Z_{\mathbb{C}} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = \mathbb{R} \times \mathbb{R}^{n-1} = \mathbb{R}^{1:n-1} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}^{\supset}_{2:n}\mathbb{R}^{2:n} = SO_{2:n}$$

$$G_{\mathbb{R}} = {}^{\supset}_{1:n-1}\mathbb{R}^{1:n-1} \times \mathbb{R}^{\times} = SO_{1:n-1} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert IV:1

$$G_{\mathbb{C}} = {}^{\supset}_{n}\mathbb{R}^{n} \times \mathbb{T} = SO_{n} \times \mathbb{T}$$

$$G_{\mathbb{R}} = {}^{\supset}_{n-1}\mathbb{R}^{n-1} = SO_{n-1}$$

Bert IV:2 $Z_{\mathbb{C}} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = \mathbb{R}^{n-p} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{p}^{\circlearrowleft}\mathbb{R}^{p} \times {}_{2:n-p}^{\circlearrowleft}\mathbb{R}^{2:n-p} = SO_{p} \times SO_{2:n-p}$$

$$G_{\mathbb{R}} = {}_{p-1}^{\circlearrowleft}\mathbb{R}^{p-1} \times {}_{1:n-p}^{\circlearrowleft}\mathbb{R}^{1:n-p} = SO_{p-1} \times SO_{1:n-p}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert IV:3 $Z_{\mathbb{C}} \supset B_{\mathbb{C}}$

$$Z_{\mathbb{R}} = \mathbb{R}^{n-1} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{2:n-1}^{\circlearrowleft}\mathbb{R}^{2:n-1} = SO_{2:n-1}$$

$$G_{\mathbb{R}} = {}_{1:n-1}^{\circlearrowleft}\mathbb{R}^{1:n-1} = SO_{1:n-1}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert IV:5

$$G_{\mathbb{C}} = {}_{2:p+q}^{\text{Ↄ}}\mathbb{R}^{2:p+q} = SO_{2:p+q}$$

$$G_{\mathbb{R}} = {}_{1:p}^{\text{Ↄ}}\mathbb{R}^{1:p} \times {}_{1:q}^{\text{Ↄ}}\mathbb{R}^{1:q} = SO_{1:p} \times SO_{1:q}$$

$$G_{\mathbb{C}}^{c} = {}_{p+1:q+1}^{\text{Ↄ}}\mathbb{R}^{p+1:q+1} = SO_{p+1:q+1}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

complex

Bert I:0 Cau

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_{n} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\text{Ʊ}} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n:n}\mathbb{C}_{n:n}^{\cup} = U_{n:n}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\subset} \times \mathbb{R}^{\times} = SL_{n}(\mathbb{C}) \times \mathbb{R}^{\times}$$

$$G_{\mathbb{R}} : \times G_{\mathbb{C}} \; G_{\mathbb{C}}^{c} = G_{\mathbb{C}}$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\cup} \times {}^{n}\mathbb{C}_{n}^{\cup} = U_{n} \times U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\cup} = U_{n} \text{ diag}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\cup} = U_{n} \text{ off-diag } = S_{\mathbb{R}}$$

Bert I:1 prod

$$Z_{\mathbb{C}} = {}^{p}\mathbb{C}_{q} \times {}^{p}\mathbb{C}_{q} \supset B_{\mathbb{C}} = B_{\mathbb{R}} \times B_{\mathbb{R}}$$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{C}_{q} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\cup} \times {}^{p:q}\mathbb{C}_{p:q}^{\cup} = U_{p:q} \times U_{p:q}$$

$$G_{\mathbb{R}} = {}^{p:q}\mathbb{C}_{p:q}^{\cup} \text{ diag } = U_{p:q}$$

$$G_{\mathbb{R}} :\times G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\cup} \text{ space } = U_{p:q}$$

$$G_{\mathbb{C}}^{c} = G_{\mathbb{R}}^{\mathbb{C}} = {}^{p+q}_{\subset}\mathbb{C}_{p+q} = SL_{p+q}(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{q}\mathbb{C}_{q}^{\cup} \times {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{q}\mathbb{C}_{q}^{\cup} = U_{p}(\mathbb{C}) \times U_{q}(\mathbb{C}) \times U_{p} \times U_{q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{p}\mathbb{C}_{p}^{\cup} = U_{p} \times U_{q} \text{ diag}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{q}\mathbb{C}_{q}^{\cup} = U_{p} \times U_{q} = S_{\mathbb{R}} \times S_{\mathbb{R}}$$

Bert II:2 prod good

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\oplus} \times {}^{n}\mathbb{C}_{n}^{\oplus} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\oplus} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{2n}\mathbb{R}_{2n}^{\Omega} \times {}^{2n}\mathbb{R}_{2n}^{\Omega} = Sp_{n}(\mathbb{R}) \times Sp_{n}(\mathbb{R})$$

$$G_{\mathbb{R}} = {}^{2n}\mathbb{R}_{2n}^{\Omega} \text{ diag } = Sp_{n}(\mathbb{R})$$

$$G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{C}_{2n}^{\Omega} = Sp_{n}(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\cup} \times {}^{n}\mathbb{C}_{n}^{\cup} = U_{n} \times U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\cup} = U_{n} \text{ diag}$$

Bert III:2 prod

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\backepsilon} \times {}^{n}\mathbb{C}_{n}^{\backepsilon} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\backepsilon} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n}\mathbb{H}_{n}^{\reflectbox{C}} \times {}^{n}\mathbb{H}_{n}^{\reflectbox{C}} = SO_{2n}^{*} \times SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\reflectbox{C}} = SO_{2n}^{*} \text{ diag}$$

$$G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{C}_{2n}^{\reflectbox{C}} = SO_{2n}(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\mathsf{U}} \times {}^{n}\mathbb{C}_{n}^{\mathsf{U}} = U_{n} \times U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\mathsf{U}} = U_{n} \text{ diag}$$

Bert IV: prod

$$Z_{\mathbb{C}} = \mathbb{C}^{n} \times \mathbb{C}^{n} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = \mathbb{C}^{n} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{2,n}^{\reflectbox{C}}\mathbb{R}^{2,n} \times {}_{2,n}^{\reflectbox{C}}\mathbb{R}^{2,n} = SO_{2,n} \times SO_{2,n}$$

$$G_{\mathbb{R}} = {}_{2,n}^{\reflectbox{C}}\mathbb{R}^{2,n} = SO_{2,n}$$

$$G_{\mathbb{C}}^{c} = {}_{2+n}^{\reflectbox{C}}\mathbb{C}^{2+n} = SO_{2+n}(\mathbb{C})$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

quaternion

Bert I:3 good

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\mho} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{4n}\mathbb{R}_{4n}^{\cap} = Sp_{4n}(\mathbb{R})$$

$$G_{\mathbb{R}} = {}^{2n}\mathbb{C}_{2n}^{\cap} = Sp_{n}(\mathbb{C})$$

$$G_{\mathbb{C}}^{c} = {}^{4n}\mathbb{C}_{4n}^{\cap} \sqcap {}^{2n:2n}\mathbb{C}_{2n:2n}^{\cup} = Sp_{n:n}$$

$$K_{\mathbb{C}} = {}^{2n}\mathbb{C}_{2n}^{\cup} = U_{2n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\cup} = Sp_{n}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

Bert III:0 Cau

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\mho} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{H}_{2n}^{\supset} = SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\subset} \times \mathbb{R}^{\times} = SL_{n}(\mathbb{H}) \times \mathbb{R}^{\times} = SU_{2n}^{*} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}} = {}^{2n}\mathbb{C}_{2n}^{\cup} = U_{2n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{2n}\mathbb{C}_{2n}^{\cap * U} = {}^{2n}\mathbb{C}_{2n}^{\cap} \sqcap {}^{2n}\mathbb{C}_{2n}^{\cup} = Sp_{n}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

Bert III:1

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{H}_{q} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{2p:2q}\mathbb{C}^{\cup}_{2p:2q} = U_{2p:2q}$$

$$G_{\mathbb{R}} = {}^{2p:2q}\mathbb{C}^{\cup}_{2p:2q} \cap {}^{2\,(p+q)}\mathbb{C}^{\cap}_{2\,(p+q)} = Sp_{p:q}$$

$$G^{c}_{\mathbb{C}} = {}^{p+q}_{\subset}\mathbb{H}_{p+q} = SU^{*}_{2\,(p+q)}$$

$$K_{\mathbb{C}} = {}^{2p}\mathbb{C}^{\cup}_{2p} \times {}^{2q}\mathbb{C}^{\cup}_{2q} = U_{2p} \times U_{2q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{H}^{\cup}_{p} \times {}^{q}\mathbb{H}^{\cup}_{q} = Sp_{p} \times Sp_{q}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

octonion

Bert V:1 cpt

$$G_{\mathbb{C}} = E_{6:-14} \times \mathbb{T}$$

$$G_{\mathbb{R}} = F_{4:-20}$$

$$G^{c}_{\mathbb{C}} = E_{6:-26}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

$$S = \text{ cpt}$$

Bert V:2

$$G_{\mathbb{C}} = {\overset{\cup}{}}_{6:2}\mathbb{C}^{6:2} = SU_{6:2}$$

$$G_{\mathbb{R}} = {\overset{\cup}{}}_{6:2}\mathbb{C}^{6:2} \cap {\overset{\cap}{}}_{8}\mathbb{C}^{8} = Sp_{3:1}$$

$$G_{\mathbb{C}}^{c}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert V: prod $Z_{\mathbb{C}} = \mathbb{O}_{\mathbb{C}}^{1\times 2} \times \mathbb{O}_{\mathbb{C}}^{1\times 2}$

$Z_{\mathbb{R}} = \mathbb{O}_{\mathbb{C}}^{1\times 2}$ real

$$G_{\mathbb{C}} = E_{6:-14} \times E_{6:-14}$$

$$G_{\mathbb{R}} = E_{6:-14} \text{ diag}$$

$$G_{\mathbb{C}}^{c} = E_{6}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert VI:0 Cau $Z_{\mathbb{C}}$

$$Z_{\mathbb{R}} = {}^{3}\mathbb{O}_{3}^{\text{Ʉ}}$$

$$G_{\mathbb{C}} = E_{7:-25} = G_{\mathbb{C}}^{c}$$

$$G_{\mathbb{R}} = E_{6:-26} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert VI: prod $Z_{\mathbb{C}} = {}_{\mathbb{C}}^{3}\mathbb{O}_{3}^{\text{Ʉ}} \times {}_{\mathbb{C}}^{3}\mathbb{O}_{3}^{\text{Ʉ}}$

$Z_{\mathbb{R}} = {}_{\mathbb{C}}^{3}\mathbb{O}_{3}^{\text{Ʉ}}$ real

$$G_{\mathbb{C}} = E_{7:-25} \times E_{7:-25}$$

$G_{\mathbb{R}} = E_{7:-25}$ diag

$$G_{\mathbb{C}}^{c} = E_{7}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

Bert VI:3

$$G_{\mathbb{C}} = E_{7:-25}$$

$$G_{\mathbb{R}} = {}^{4}\mathbb{H}_{4}^{\mathsf{C}} = SU_{8}^{*}$$

$$G_{\mathbb{C}}^{c} = E_{7:7}$$

total

I0 Cau

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_{n} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\bar{\mho}} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n:n}\mathbb{C}_{n:n}^{\mho} = U_{n:n}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\subset} \times \mathbb{R}^{\times} = SL_{n}(\mathbb{C}) \times \mathbb{R}^{\times}$$

$$G_{\mathbb{R}} :\times G_{\mathbb{C}} \; G_{\mathbb{C}}^{c} = G_{\mathbb{C}}$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\mho} \times {}^{n}\mathbb{C}_{n}^{\mho} = U_{n} \times U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\mho} = U_{n} \text{ diag}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\mho} = U_{n} \text{ off-diag } = S_{\mathbb{R}}$$

I1 prod

$$Z_{\mathbb{C}} = {}^{p}\mathbb{C}_{q} \times {}^{p}\mathbb{C}_{q} \supset B_{\mathbb{C}} = B_{\mathbb{R}} \times B_{\mathbb{R}}$$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{C}_{q} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\mho} \times {}^{p:q}\mathbb{C}_{p:q}^{\mho} = U_{p:q} \times U_{p:q}$$

$$G_{\mathbb{R}} = {}^{p:q}\mathbb{C}_{p:q}^{\mho} \text{ diag } = U_{p:q}$$

$$G_{\mathbb{R}} :\times G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\mho} \text{ space } = U_{p:q}$$

$$G_{\mathbb{C}}^{c} = G_{\mathbb{R}}^{\mathbb{C}} = {}^{p+q}_{\subset}\mathbb{C}_{p+q} = SL_{p+q}(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\mho} \times {}^{q}\mathbb{C}_{q}^{\mho} \times {}^{p}\mathbb{C}_{p}^{\mho} \times {}^{q}\mathbb{C}_{q}^{\mho} = U_{p}(\mathbb{C}) \times U_{q}(\mathbb{C}) \times U_{p} \times U_{q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{C}_{p}^{\mho} \times {}^{p}\mathbb{C}_{p}^{\mho} = U_{p} \times U_{q} \text{ diag}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\mho} \times {}^{q}\mathbb{C}_{q}^{\mho} = U_{p} \times U_{q} = S_{\mathbb{R}} \times S_{\mathbb{R}}$$

I2

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = i\,{}^{n}\mathbb{R}_{n}^{\backepsilon} = {}^{n}\mathbb{R}_{n}^{\Psi} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n}\mathbb{H}_{n}^{\supset} = SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\supset} = SO_{n:n}$$

$$G_{\mathbb{C}}^{c} = {}^{n:n}\mathbb{R}_{n:n}^{\supset} = SO_{n:n}$$

I3 good

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\Cup} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{4n}\mathbb{R}_{4n}^{\cap} = Sp_{4n}\left(\mathbb{R}\right)$$

$$G_{\mathbb{R}} = {}^{2n}\mathbb{C}_{2n}^{\cap} = Sp_{n}\left(\mathbb{C}\right)$$

$$G_{\mathbb{C}}^{c} = {}^{4n}\mathbb{C}_{4n}^{\cap} \sqcap {}^{2n:2n}\mathbb{C}_{2n:2n}^{\cup} = Sp_{n:n}$$

$$K_{\mathbb{C}} = {}^{2n}\mathbb{C}_{2n}^{\cup} = U_{2n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\cup} = Sp_{n}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

II0 Cau

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{R}_{n}^{\ominus} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{R}_{2n}^{\cap} = Sp_{n}\left(\mathbb{R}\right)$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{R}_{n}^{\subset} = {}^{n}\mathbb{R}_{n}^{\subset} \times \mathbb{R}^{\times} = GL_{n}\left(\mathbb{R}\right)$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\cup} = U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{R}_{n}^{\cup} = O_{n}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

II1

$$Z_{\mathbb{C}} = {}^{p}\mathbb{C}_{q} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{R}_{q} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{p:q}\mathbb{C}_{p:q}^{\cup} = U_{p:q}$$

$$G_{\mathbb{R}} = {}^{p:q}\mathbb{R}_{p:q}^{\cup} = U_{p:q}\left(\mathbb{R}\right) = O_{p:q}$$

$$G_{\mathbb{C}}^{c} = {}^{p+q}_{\subset}\mathbb{R}_{p+q} = SL_{p+q}\left(\mathbb{R}\right)$$

$$K_{\mathbb{C}} = {}^{p}\mathbb{C}_{p}^{\cup} \times {}^{q}\mathbb{C}_{q}^{\cup} = U_{p} \times U_{q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{R}_{p}^{\cup} \times {}^{p}\mathbb{R}_{p}^{\cup} = O_{p} \times O_{q}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

II2 prod good

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_n^{\oplus} \times {}^{n}\mathbb{C}_n^{\oplus} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_n^{\oplus} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{2n}\mathbb{R}_{2n}^{\Omega} \times {}^{2n}\mathbb{R}_{2n}^{\Omega} = Sp_n(\mathbb{R}) \times Sp_n(\mathbb{R})$$

$$G_{\mathbb{R}} = {}^{2n}\mathbb{R}_{2n}^{\Omega} \text{ diag } = Sp_n(\mathbb{R})$$

$$G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{C}_{2n}^{\Omega} = Sp_n(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_n^{\mho} \times {}^{n}\mathbb{C}_n^{\mho} = U_n \times U_n$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_n^{\mho} = U_n \text{ diag}$$

III0 Cau

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{H}_n^{\ominus} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{H}_{2n}^{\supset} = SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{H}_n^{\subset} \times \mathbb{R}^{\times} = SL_n(\mathbb{H}) \times \mathbb{R}^{\times} = SU_{2n}^{*} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}} = {}^{2n}\mathbb{C}_{2n}^{\mho} = U_{2n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{2n}\mathbb{C}_{2n}^{\Omega *} = {}^{2n}\mathbb{C}_{2n}^{\Omega} \cap {}^{2n}\mathbb{C}_{2n}^{\mho} = Sp_n$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

III1

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{p}\mathbb{H}_q \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{2p:2q}\mathbb{C}_{2p:2q}^{\mho} = U_{2p:2q}$$

$$G_{\mathbb{R}} = {}^{2p:2q}\mathbb{C}_{2p:2q}^{\mho} \cap {}^{2(p+q)}\mathbb{C}_{2(p+q)}^{\Omega} = Sp_{p:q}$$

$$G_{\mathbb{C}}^{c} = {}^{p+q}_{\subset}\mathbb{H}_{p+q} = SU_{2(p+q)}^{*}$$

$$K_{\mathbb{C}} = {}^{2p}\mathbb{C}_{2p}^{\mho} \times {}^{2q}\mathbb{C}_{2q}^{\mho} = U_{2p} \times U_{2q}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{p}\mathbb{H}_{p}^{\mho} \times {}^{q}\mathbb{H}_{q}^{\mho} = Sp_{p} \times Sp_{q}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

III2 prod

$$Z_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\backepsilon} \times {}^{n}\mathbb{C}_{n}^{\backepsilon} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\backepsilon} \text{ real } \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}^{n}\mathbb{H}_{n}^{\text{Ↄ}} \times {}^{n}\mathbb{H}_{n}^{\text{Ↄ}} = SO_{2n}^{*} \times SO_{2n}^{*}$$

$$G_{\mathbb{R}} = {}^{n}\mathbb{H}_{n}^{\text{Ↄ}} = SO_{2n}^{*} \text{ diag}$$

$$G_{\mathbb{C}}^{c} = {}^{2n}\mathbb{C}_{2n}^{\text{Ↄ}} = SO_{2n}(\mathbb{C})$$

$$K_{\mathbb{C}} = {}^{n}\mathbb{C}_{n}^{\mho} \times {}^{n}\mathbb{C}_{n}^{\mho} = U_{n} \times U_{n}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}} = {}^{n}\mathbb{C}_{n}^{\mho} = U_{n} \text{ diag}$$

IV0

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = \mathbb{R} \times \mathbb{R}^{n-1} = \mathbb{R}^{1:n-1} \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = G_{\mathbb{C}}^{c} = {}_{2:n}^{\text{Ↄ}}\mathbb{R}^{2:n} = SO_{2:n}$$

$$G_{\mathbb{R}} = {}_{1:n-1}^{\text{Ↄ}}\mathbb{R}^{1:n-1} \times \mathbb{R}^{\times} = SO_{1:n-1} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

IV1

$$G_{\mathbb{C}} = {}_{n}^{\text{Ↄ}}\mathbb{R}^{n} \times \mathbb{T} = SO_{n} \times \mathbb{T}$$

$$G_{\mathbb{R}} = {}_{n-1}^{\text{Ↄ}}\mathbb{R}^{n-1} = SO_{n-1}$$

IV:2

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = \mathbb{R}^{n-p} = \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{p}^{\text{Ↄ}}\mathbb{R}^{p} \times {}_{2:n-p}^{\text{Ↄ}}\mathbb{R}^{2:n-p} = SO_{p} \times SO_{2:n-p}$$

$$G_{\mathbb{R}} = {}_{p-1}\overset{\text{Ↄ}}{\mathbb{R}}^{p-1} \times {}_{1:n-p}\overset{\text{Ↄ}}{\mathbb{R}}^{1:n-p} = SO_{p-1} \times SO_{1:n-p}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

IV3

$$Z_{\mathbb{C}} \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = \mathbb{R}^{n-1} = \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{2:n-1}\overset{\text{Ↄ}}{\mathbb{R}}^{2:n-1} = SO_{2:n-1}$$

$$G_{\mathbb{R}} = {}_{1:n-1}\overset{\text{Ↄ}}{\mathbb{R}}^{1:n-1} = SO_{1:n-1}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

IV prod

$$Z_{\mathbb{C}} = \mathbb{C}^n \times \mathbb{C}^n \supset B_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = \mathbb{C}^n \text{ real } = \supset B_{\mathbb{R}}$$

$$G_{\mathbb{C}} = {}_{2:n}\overset{\text{Ↄ}}{\mathbb{R}}^{2:n} \times {}_{2:n}\overset{\text{Ↄ}}{\mathbb{R}}^{2:n} = SO_{2:n} \times SO_{2:n}$$

$$G_{\mathbb{R}} = {}_{2:n}\overset{\text{Ↄ}}{\mathbb{R}}^{2:n} = SO_{2:n}$$

$$G^c_{\mathbb{C}} = {}_{2+n}\overset{\text{Ↄ}}{\mathbb{C}}^{2+n} = SO_{2+n}(\mathbb{C})$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} : \times K_{\mathbb{C}}$$

IV5

$$G_{\mathbb{C}} = {}_{2:p+q}\overset{\text{Ↄ}}{\mathbb{R}}^{2:p+q} = SO_{2:p+q}$$

$$G_{\mathbb{R}} = {}_{1:p}\overset{\text{Ↄ}}{\mathbb{R}}^{1:p} \times {}_{1:q}\overset{\text{Ↄ}}{\mathbb{R}}^{1:q} = SO_{1:p} \times SO_{1:q}$$

$$G^c_{\mathbb{C}} = {}_{p+1:q+1}\overset{\text{Ↄ}}{\mathbb{R}}^{p+1:q+1} = SO_{p+1:q+1}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

V1 cpt

$$G_{\mathbb{C}} = E_{6:-14} \times \mathbb{T}$$

$$G_{\mathbb{R}} = F_{4:-20}$$

$$G^c_{\mathbb{C}} = E_{6:-26}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

$S =$ cpt

V2

$$G_{\mathbb{C}} = \overset{\cup}{_{6:2}}\mathbb{C}^{6:2} = SU_{6:2}$$

$$G_{\mathbb{R}} = \overset{\cup}{_{6:2}}\mathbb{C}^{6:2} \cap \overset{\cap}{_{8}}\mathbb{C}^{8} = Sp_{3:1}$$

$$G^c_{\mathbb{C}}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

V prod

$$Z_{\mathbb{C}} = \mathbb{O}_{\mathbb{C}}^{1\times 2} \times \mathbb{O}_{\mathbb{C}}^{1\times 2}$$

$Z_{\mathbb{R}} = \mathbb{O}_{\mathbb{C}}^{1\times 2}$ real

$$G_{\mathbb{C}} = E_{6:-14} \times E_{6:-14}$$

$G_{\mathbb{R}} = E_{6:-14}$ diag

$$G^c_{\mathbb{C}} = E_6$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

VI0 Cau

$$Z_{\mathbb{C}}$$

$$Z_{\mathbb{R}} = {}^{3}\mathbb{O}_{3}^{\mho}$$

$$G_{\mathbb{C}} = E_{7:-25} = G_{\mathbb{C}}^{c}$$

$$G_{\mathbb{R}} = E_{6:-26} \times \mathbb{R}^{\times}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

VI prod

$$Z_{\mathbb{C}} = {}^{3}_{\mathbb{C}}\mathbb{O}_{3}^{\mho} \times {}^{3}_{\mathbb{C}}\mathbb{O}_{3}^{\mho}$$

$$Z_{\mathbb{R}} = {}^{3}_{\mathbb{C}}\mathbb{O}_{3}^{\mho} \text{ real}$$

$$G_{\mathbb{C}} = E_{7:-25} \times E_{7:-25}$$

$$G_{\mathbb{R}} = E_{7:-25} \text{ diag}$$

$$G_{\mathbb{C}}^{c} = E_{7}$$

$$K_{\mathbb{C}}$$

$$K_{\mathbb{R}} = K_{\mathbb{C}} \cap G_{\mathbb{R}}$$

$$K_{\mathbb{R}} :\times K_{\mathbb{C}}$$

VI3

$$G_{\mathbb{C}} = E_{7:-25}$$

$$G_{\mathbb{R}} = {}^{4}\mathbb{H}_{4}^{\mathsf{C}} = SU_{8}^{*}$$

$$G_{\mathbb{C}}^{c} = E_{7:7}$$