HDH

$$e^{itH} = \int e^{itz}\, dP_H(z)$$

$S: \mathcal{M}(\mathcal{H}) \longrightarrow \mathcal{M}(\mathcal{H}')$

$M \longmapsto U(M) = \{ U\varphi \mid \varphi \in M \}$

orto-izomorf.

Anti-U: $U: \mathcal{H} \to \mathcal{H}$ mit

- BIJEKT.
- KONJ. LIN: $U(\alpha\varphi + \beta\psi) = \alpha^* U\varphi + \beta^* U\psi$
- SKAL. SZ. FORD: $\langle U\varphi | U\psi \rangle = \langle \psi | \varphi \rangle = \langle \varphi | \psi \rangle^*$

$\dim \mathcal{H} > 2$

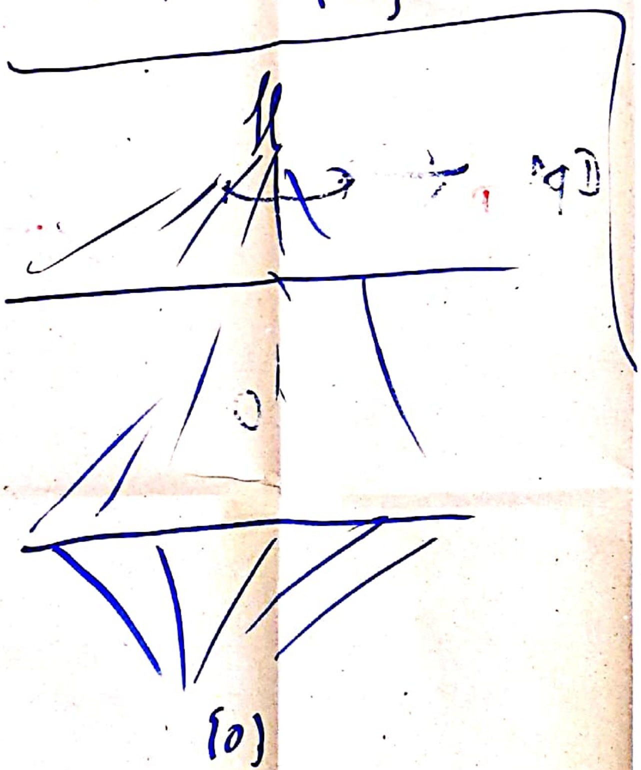
$M_0 \in \mathcal{M}(\mathcal{H})$

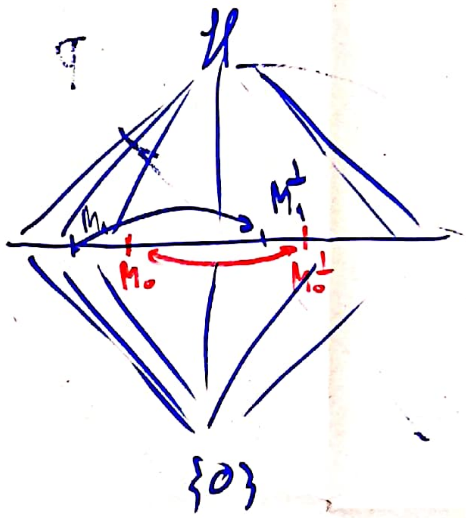
$S: M_0 \longmapsto M_0^{\perp}$ 1 Dim Alte

$M \longmapsto M$ ha $M \neq M_0$

$\mathcal{H} \longmapsto \mathcal{H}$

$\{0\} \longmapsto \{0\}$





$\boxed{H\,28}$ $\varphi \in \mathcal{H} \rightsquigarrow P_\varphi$ $\quad \mathcal{P}_r(\mathcal{H}) \longrightarrow [0,1]$

$\qquad\qquad\qquad\qquad P \longmapsto \langle \varphi | P \varphi \rangle$

GLEASON: $\mathcal{H}$ SZEP. $\dim \mathcal{H} > 2$

$\forall$ fiz. KÖRÜLMÉNY $\quad \sum_{n \in \mathbb{N}} \lambda_n P_{\varphi_n} \qquad \lambda_n \geq 0, \quad \sum_{n\in\mathbb{N}} \lambda_n = 1$

$\dim \mathcal{H} = 2$: $P_0 \in \mathcal{P}_r(\mathcal{H})$ $\dim(\operatorname{Ran} P_0) = 1$

$p(0) = 0 \qquad p(P_0) = 0$

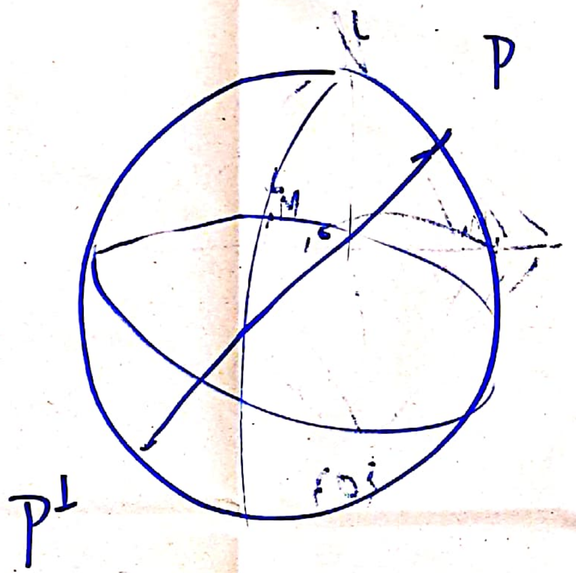
$p(I) = 1 \qquad p(P_0^\perp) = 1$

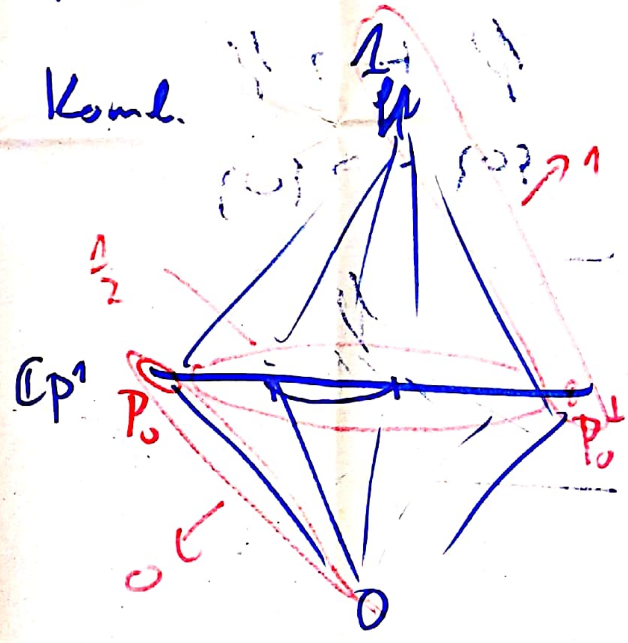
$\qquad\qquad\quad p(P) = \frac{1}{2}$

$\qquad\qquad\quad P \neq 0, P_0, P_0^\perp$

Kell: p mérték ✓

$\quad p$ nem σ-han Komb.





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$$\mathrm{Tr}(A) = \sum_{n\in\mathbb{N}} \langle \xi_n | A | \xi_n \rangle \qquad |\xi_n\rangle \text{ O.N.B.}$$

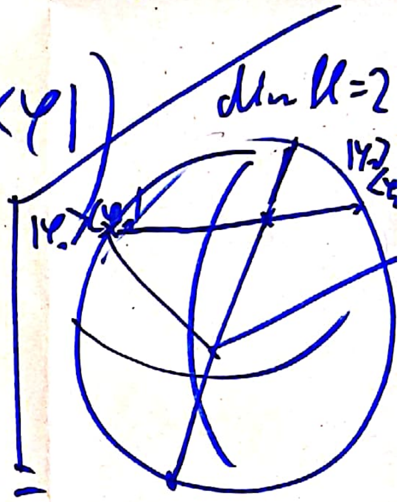
$$|\varphi\rangle = \sum_n |\xi_n\rangle\langle\xi_n|\varphi\rangle = \Big[\underbrace{\sum_n |\xi_n\rangle\langle\xi_n|}_{I}\Big]|\varphi\rangle$$

$$\langle\varphi|\psi\rangle = \sum_n \langle\varphi|\xi_n\rangle\langle\xi_n|\psi\rangle$$

PARSEVAL

$$\varphi\in\mathcal{H}: \; p_\varphi(P) = \langle\varphi|\overset{\psi}{\widetilde{P\varphi}}\rangle = \sum_n \langle\varphi|\xi_n\rangle\langle\xi_n|P|\varphi\rangle$$

$$\sum_n \langle\xi_n|\big[P|\varphi\rangle\langle\varphi|\big]|\xi_n\rangle = \mathrm{Tr}\big(P|\varphi\rangle\langle\varphi|\big)$$



$$W = (u)\sum_{n\in\mathbb{N}} \lambda_n |\varphi_n\rangle\langle\varphi_n|$$

$$\mathrm{Tr}(W) = \sum_m \langle\xi_m|\sum_{n\in\mathbb{N}} \lambda_n|\varphi_n\rangle\langle\varphi_n|\xi_m\rangle =$$

$$= \sum_{n\in\mathbb{N}}\sum_{m\in\mathbb{N}} \lambda_n \langle\varphi_n|\xi_m\rangle\langle\xi_m|\varphi_n\rangle =$$

$$= \sum_n \lambda_n \langle\varphi_n|\Big[\underbrace{\sum_m |\xi_m\rangle\langle\xi_m|}_{I}\Big]|\varphi_n\rangle = \sum \lambda_n = 1$$

$$p(P) = \sum_n \lambda_n p_{\varphi_n}(P) = \sum_n \lambda_n \langle\varphi_n|P|\varphi_n\rangle =$$

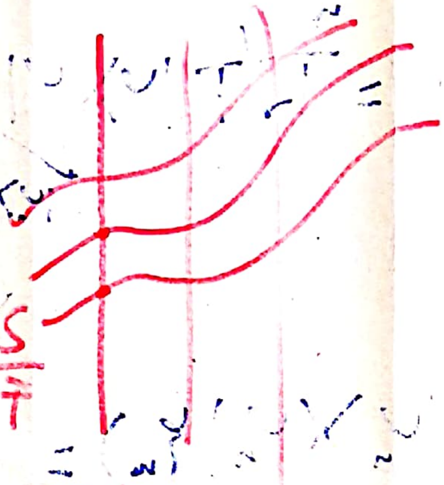
$$= \sum_n \lambda_n \sum_m \langle\xi_m|\big[P|\varphi_n\rangle\langle\varphi_n|\big]|\xi_m\rangle =$$

$$= \sum_m \langle\xi_m|\Big[P\underbrace{\sum_n \lambda_n|\varphi_n\rangle\langle\varphi_n|}_{W}\Big]|\xi_m\rangle = \mathrm{Tr}\, P W$$

H39

$\bar{T} \times S \times \frac{S}{\bar{T}}$

$(t, q, \dot{q}) \mapsto \frac{m|\dot{q}|^2}{2} \in S$



$K_{(t,x)} : \mathcal{F} \to t \times V(t)$

$V \in \frac{S}{\bar{T}}$

$p \cdot S \to$

$m \in \frac{T_1}{L1\otimes L}$ $\quad 0t_S$

$X, \dot{X}$

$\mathbb{M} = M \quad V(\mathbb{M})$

$F|_t : t \times V(t) \to$

$L(t, q, \dot{q}) \to$

$p = \frac{\partial L}{\partial \dot{q}} \qquad \left(\frac{S}{\bar{T}}\right)^*$

$q + t\dot{q}$

$\underbrace{\Pi_u \underbrace{(x - o)}_{M}}_{S} - \underbrace{\tau \underbrace{(x - o)}_{M}}_{\bar{T}} \otimes \underbrace{(\dot{x} - u)}_{\frac{S}{\bar{T}}}$