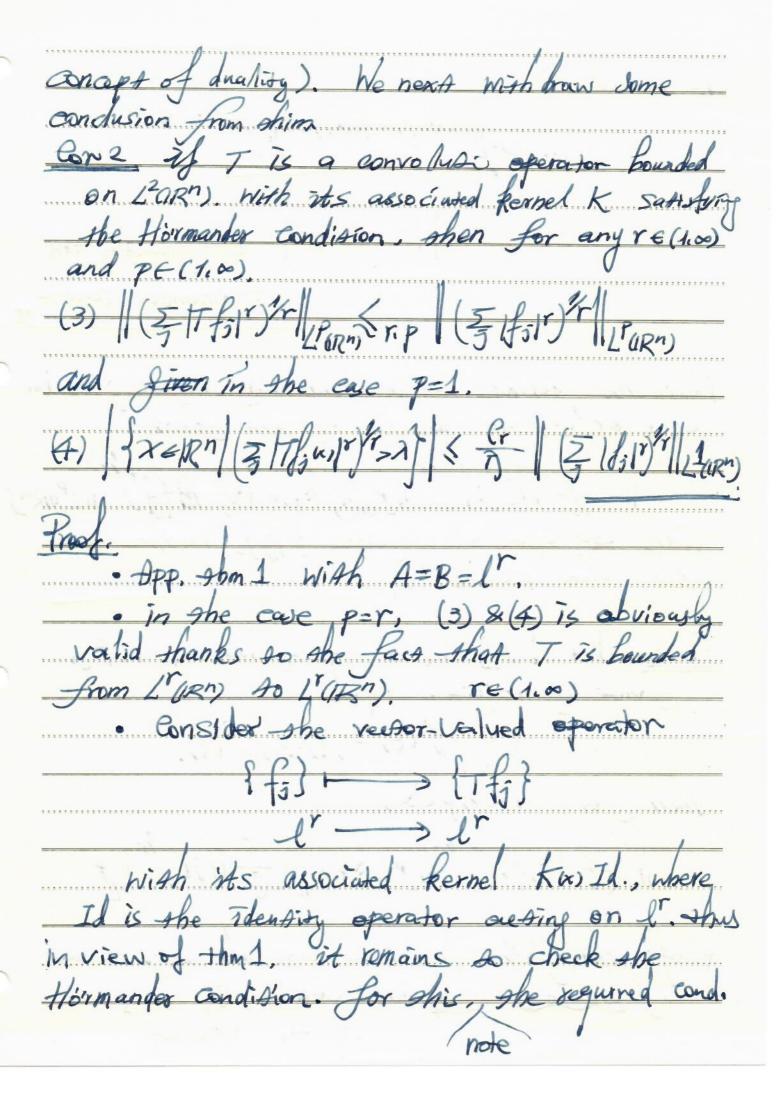


let A and B be Banach spaces, and let L(AIB) := { P: A -> B bdd Ninear } Jet and The an operator which has k as its kernel: Tfix) = Sign Kixiy). findy x & suppf. feconto then, the vector valued C.- 3. theorem asserts that HM1: Let T be a bounded operator from L'(IR", A)

AO L'(IR", B) for some $r \in (1, \infty)$, with k as its associated kernel. K. if k satisfies (1) || K(x,y) - K(x,y) || R(A,B) dx (e) (2) | Kixiy) - Kiwiyi P(AIB) dy (e then T is bounded from L'ORM, A) to L'ORM, B). I will not present the proof. I believe that it is of no problem so follow she routine in the proof of Crs. Ahoony (Seneralized), as long as you keep the concept clear (in particular, the



indeed

[xi>24y| (kx-y)-kx) Id | x dx < e

[xi>24y| (kx-y)-kx) = exactly the

Homander Cond to Now, the question arising naturally is to generalise con 1 or (3) to Eneq. of the form With all spending opening of The fixed opening IT The fixed opening IT Par2: let { Ij} be a seq. of intervals in R,

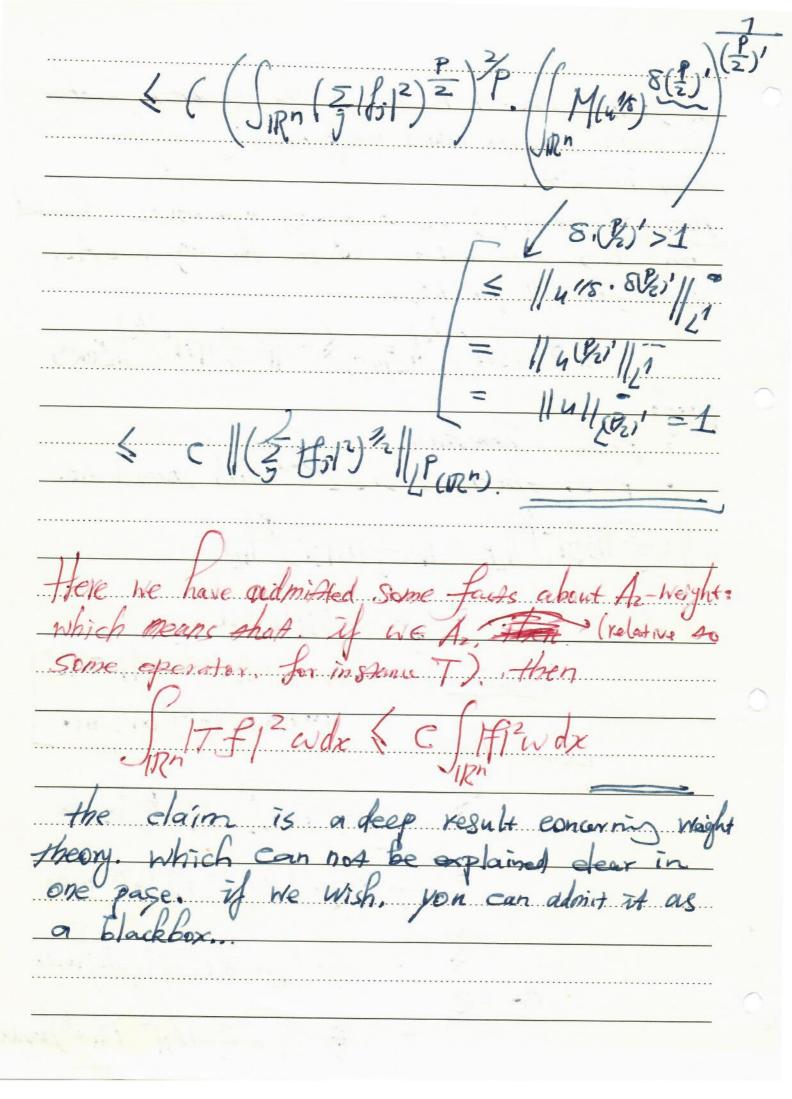
finite for infinite, define

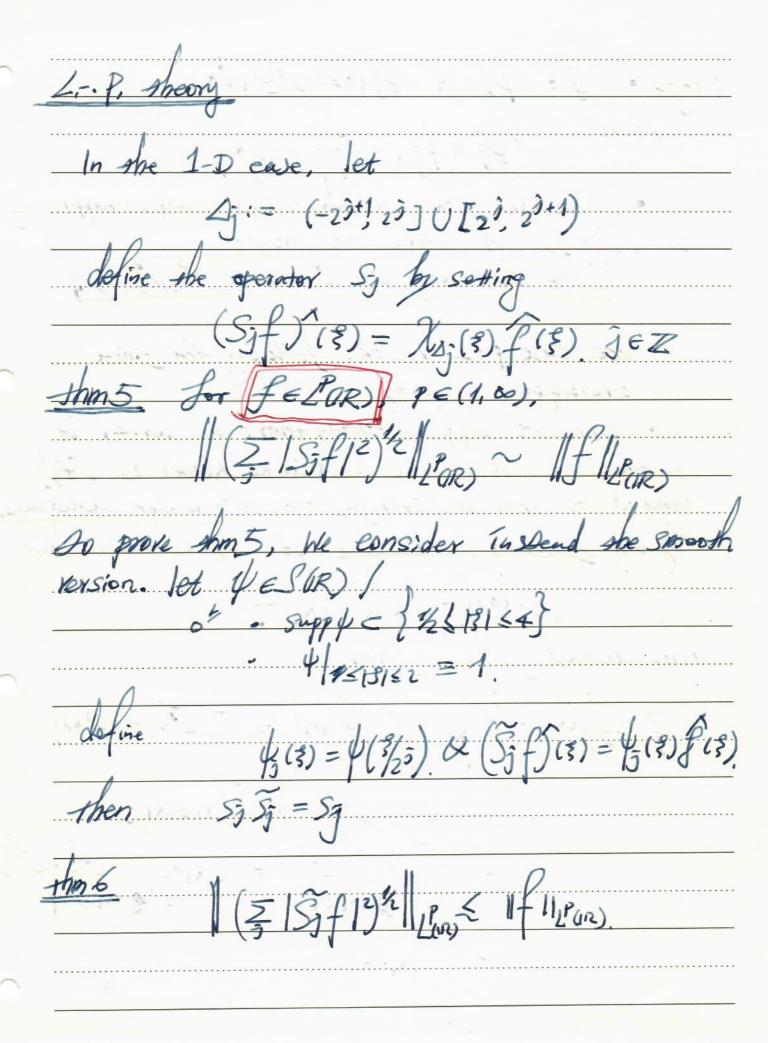
(Sqf)(\xi) = \tau_{ij}(\xi) \bar{\xi}(\xi). then for 1< r, p< 0, (= 15f51r) / | P (Fir (= 1f51r) / P Proof; This follows Turnediately from the unf. boldness.

of Hilbert Franchomy and con. 1. by lossing some

The following shower is indeed the Common feature for proving rector-valued lines: involving weighted porm inequalities. thm 4: fet $\{T_j\}$ be a seq. of operators bounded on $2^{2}(w)$, with unsform conf. for any $w \in A_2$.

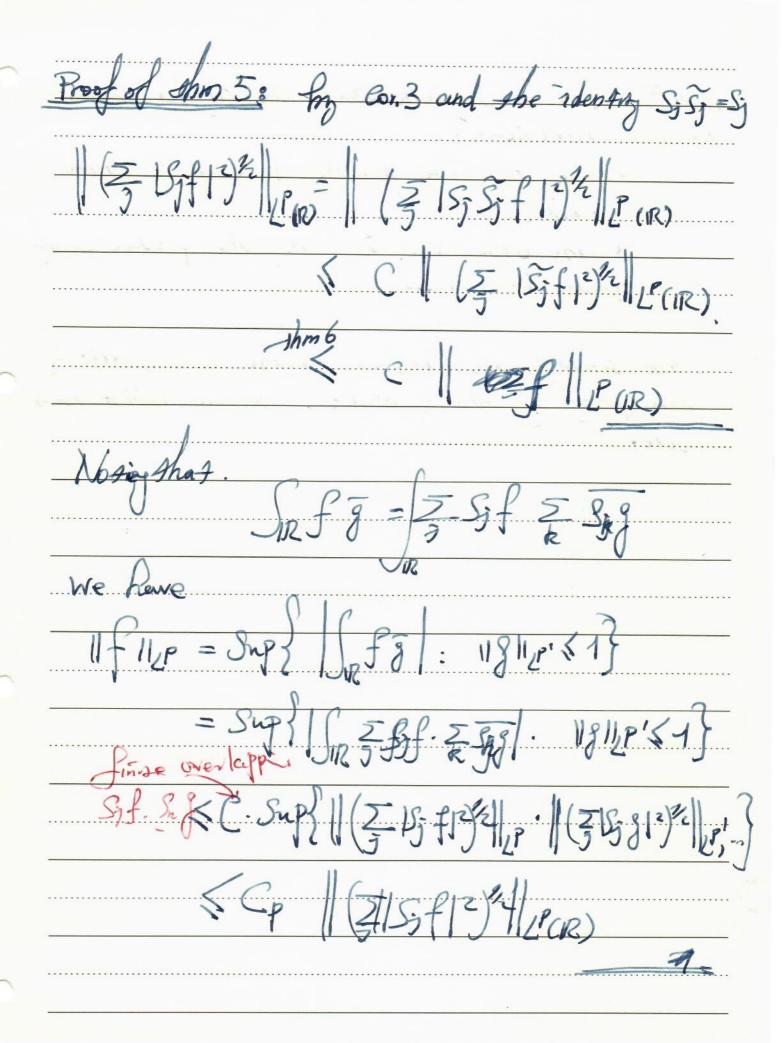
Then for all $p \in (1, \infty)$, (3/5/5/2) 2/2/PORM) < (3/45/2) 2/2/PORM) · P-2, immediate. · P>2, then I well's with point 1 s.t. (等历部) = (等历的) 型度 $= \int_{\mathbb{R}^{n}} \left(\frac{z}{3} | f_{3}f_{3}|^{2} \right) u$ $= \int_{\mathbb{R}^{n}} \left(\frac{z}{3} | f_{3}f_{3}|^{2} \right) u$ $= \int_{\mathbb{R}^{n}} \left(\frac{z}{3} | f_{3}f_{3}|^{2} \right) u$ $= \int_{\mathbb{R}^{n}} \left(\frac{z}{3} | f_{3}f_{3}|^{2} \right) M(u^{1/6}) \int_{(x)}^{\infty} du$ $= \int_{\mathbb{R}^{n}} \left(\frac{z}{3} | f_{3}f_{3}|^{2} \right) M(u^{1/6}) \int_{(x)}^{\infty} du$ = = = Jan / Tofo /2 M (41/5) (10) dx A2 2 San Jis 12-M(4/8) (x) dx





Proof. . T:= 0, & 4; (x)=204 (2x) 望。 = り。 Sif = 少*f. Consider the vector-valued map, mapping of to {Sif}, it Suffices to show:

[the baddness from LPOR) to LP(R: 12)] · she case p=2 is ok, following the finite overlapping property thus do apply theory that or tor. 2, it Suffices to note the associated Remel is 345 mound so show it Soctisfies the Hormander Condiscons. Ty the Gradient condition it Suffices the to Show $\left\| \mathcal{L}_{j}^{(x)} \right\|_{2}^{2} \leqslant C \left| x \right|^{-2}$ this inteed follows from (= 14/0x)/2/2 / = [1/(x)] = = = 22/4/(20x) 5 = 225 min (1, (1x1)3) = 20 x1<1 + c|x132 23.



thm 5	has been seneralled a Rol Di
in AND	has been senepolsed so higher Dim.
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	aconati.
	· the other one is so the product of
	One is she dyadic decomposi into annuli. Ahe other one is so she product of dyadic intervals.
the .	definits are indeed in the Same Spirit of
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PV	J Thim > and 6. OD We emitte Ahen,
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