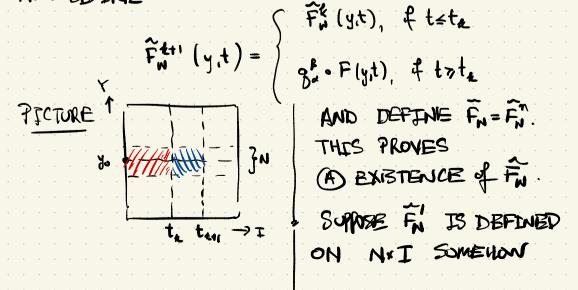


We BUILD $f_{N} : N \times I \longrightarrow X$ BY RECORSION BASE CASE: $\widehat{F}_{N}^{\circ} : N \times 507 \longrightarrow \widehat{X}$ IS DEFINED BY $\widehat{f}_{N}^{\circ} (y, o) = g(y)$

RECURSIVE STEP: SUPPOSE \widehat{F}_{N}^{k} GIVEN. NOTE THAT $F(N \times (t_{k}, t_{kn}, J) \subset U_{d}$ for some a SD THERE IS SOME B WITH $\widehat{F}_{N}^{k} (y_{0}, t_{d}) \in V_{d}^{k}$. SHRINK N BY REPLACING, $N \times \{t_{d}\}$ BY $(N \times \{t_{d}\}) \cap (\widehat{F}_{N}^{k})^{-1} (V_{d}^{k})$.

NOW DEFINE



(PERNAPS VIA A DIFF. PARTITION (12)).
WE MUST SHOW
$$\vec{F}_{N} = \vec{F}_{N}'$$
. So FIX 26N.
NOTE \vec{F}_{N} (20) = 9(2) = \vec{F}_{N}' (20).
NOW PICK 0=6 ct, c -- ct_{2} c - ct_{M} = 1
So THAT $F(2) \times (2 + (1 + 1 + 1)) \subset U_{A}$ (V& 3 +]
WE INDUCT: $\vec{F}_{N} | 2 \times (0, t_{A}] = \vec{F}_{N}' | 2 + 0, t_{A}]$
SUMPSE $\vec{F}_{N} (2) \times (t_{A}, t_{A+1}]) \subset V_{A}^{\beta}$) BUT $V_{A}^{\beta} \wedge V_{A}^{\beta'}$
 $\vec{F}_{N}' (1 + 1 \times t_{A+1}) \subset V_{A}^{\beta'}$) CONTAINS
 $\vec{F}_{N} (1 + 1 \times t_{A+1}) \subset V_{A}^{\beta'}$) CONTAINS
 $\vec{F}_{N} (2 + 1 + 1) = 7RONES \vec{F}_{N} = \vec{F}_{N}'$
SO $\beta = \beta'$. THIS TROVES $\vec{F}_{N} = \vec{F}_{N}'$
SO $WE HAVE (B) UNIDUENESS.$
THE PROOF of (C) : $\vec{F}_{M} [(M \cap N) \times I] = \vec{F}_{N} [(M \cap N) \times I]$
FOILOWS FROM (B)!
FINALLY:
 $\vec{F} = \bigcup \vec{F}_{N}$
AND WE ARE DONE.
 $(.20) (1.7)$
THEOREM) (BROWNER FIXED POINT THM]
SUMPSE $f: B^{n} \rightarrow B^{n}$ IS CONTINUOUS.
THEN THERE IS SOME $x \in B^{n}$ WITH $f(h) = x$.

<u>n=1</u> : Follows from Interm. VAWE THE				
n=2:	Follows f	from theor	EM 17	
173:	NEXT M	DUCE [How	nology of s"	1
REMARK		· · · · · · · · · · ·		
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(ä) COMPA	RE TO T	HE CONTRAC	TION MAPPING	FRINCIPLE
	ENVITY	ES8ENTIAL	•	· · · · · · · · · · · · · · · · · · ·
EXAMPL	ES: S"	(n70) H	As cts maps	w/o
		P	exed poent	S
R", T" (NZI) HAS CTS MAPS WID				
			••••	· · · · · · · ·
		F1	NED POINTS.	· · · · · · · · ·
		FJ Y TB BE THE	NED POINTS.	
EXERCISE	DEFINE	y to be the	RED POINTS	
EXERCISE Y = {ze	DEFINE [121=1, ourg	FJ Y TB BE THE $(t) = \frac{2\pi k}{3}$, keZ $\frac{2}{3}$	NED POINTS. E TRIPOD	
EXERCISE Y = {ze (SHW Y	DEFINE E 12151, ang HAS THE FI	FJ Y TB BE THE $(t) = \frac{2\pi k}{3}, keZ$ IXED ROINT PR	NED POINTS. E TRIPOD	
EXERCISE Y = {ze (SHW Y	DEFINE E 12151, ang HAS THE FI	FJ Y TB BE THE $(t) = \frac{2\pi k}{3}, keZ$ IXED ROINT PR	NED POINTS. E TRIPOD	
EXERCISE Y = {ze (SHW Y	DEFINE E 12151, ang HAS THE FI	FJ Y TB BE THE $(t) = \frac{2\pi k}{3}, keZ$ IXED ROINT PR	NED POINTS. E TRIPOD	
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EXERCISE Y = {ze (SHUW Y EXERCISE :	DEFINE E 121=1, ang HAS THE FI TRY TO PR	FJ Y TB BE THE $(t) = \frac{2\pi i k}{3}$, keZ IXED ROINT PR ONE D ² HAS	NED POINTS. FRIPD PRERTY THE FILED POINTS.	INT TROPERTY.
EXERCISE Y = {ze 0 SHUW Y EXERCISE	DEFINE E 12151, ang HAS THE FI TRY TO PR	FJ Y TB BE THE $(z) = \frac{2\pi A}{3}$, keZ SKED ROIENT PR ONE D ² HAS	NED POINTS. FRIPD FRIPD FRIPD THE FINED DO	INT TRAFERTY.
EXERCISE Y = (ze (Stum y EXERCISE	DEFINE E 121=1, ourg HAS THE FI TRY TO PRI	FJ Y TB BE THE $(+) = \frac{2\pi k}{3}, k \in \mathbb{Z}$ THE ROTENT PR ONE D ² HAS	NED POINTS. FRIPD FILE THE FILED DI	INT TROPERTY.