Chapter 6			• • •			
Defs. of simple	words, presentation of B(A, n)		• • •			
Lemma 18.1: $X - Y^{m}$ Y - period of rank j \leq i or simple in rank i						
Induction on rar	nki		• • •			
Rd. dgrs. of r	 rank i are A-maps, if q is B-perio	odic & no comp. cells, then it's smooth of rank	[B]			
Lemmas 18.2-	-18.4	· · · · · · · · · · · · · · · · · · ·	• • •			
Lemma 18.5:	X√Y ⇒ X=2Y2	╷ ╷ 」키 [⋞] ዹ(\x +\J)	0 0 0			
Induction on	A + B		0 0 0			
· · · · · · · ·	A _A	· · · · · · · · · · · · · · · · · · ·	• • •			
Lemmas 18	3.6-18.8	· · · · · · · · · · · · · · · · · · ·	• • •			
Lemma 18.9 (1	now n is odd)	· · · · · · · · · · · · · · · · · · ·	• • •			
Lemmas 19.1-	19.3	· · · · · · · · · · · · · · · · · · ·	• • •			
Induction on	[Δ(2)]		• • •			
lemma 194	4: rd darms of rank i+1 are A	-maps	• • •			
	The agents of tank time A	mups .	0 0 0			
l emma 191	5: n is A-neriodic sect of rd	form of rank i+1				
Lemma 19.	5: p is A-periodic sect. of rd. A is simple of rank i+1, or	dgrm. of rank i+1.	0 0 0			
Lemma 19.	5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A	dgrm. of rank i+1. d there are no A-comp. cells with p	• • •			
Lemma 19.5	5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A	dgrm. of rank i+1. d there are no A-comp. cells with p	· · · ·			
Lemma 19.5 Theorem 19.1: E + other applicati	5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions	dgrm. of rank i+1. d there are no A-comp. cells with p	· · · · · · · · · · · · · · · · · · ·			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .			
Lemma 19.5 Theorem 19.1: E + other applicati	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1. d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	d there are no A-comp. cells with p	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1.	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A B(A, n) is infinite ions 	dgrm. of rank i+1.	 . .<			
Lemma 19.5 Theorem 19.1: E + other application	 5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A 3(A, n) is infinite ions 	dgrm. of rank i+1.				
Lemma 19.5 Theorem 19.1: E + other application	5: p is A-periodic sect. of rd. A is simple of rank i+1, or A is a period of rank ≤ i+1 ar => p is smooth of rank A 3(A, n) is infinite ions	dgrm. of rank i+1.	 . .<			

Lemma 18.6	Ind. on A + A
9, A – reduced circ. diagram of rank i	
P. A - simple in rank i	
$\psi(q_1), \psi(q_2)^{-1} - A$ -periodic	
r $ a < 2 \lambda a < 2 \lambda $	natible
Proof	· · · · · · · · ·
	<u>A</u> q ₁
$\left \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	· · · · · · · · · ·
Cyclic shift of A	
· · · · · · · · · · · · · · · · · · ·	
$ \mathbf{P}_{1} < (2 + \mathcal{O}) \mathcal{A}_{1}, \mathbf{P}_{3} < \mathcal{O} \mathcal{A}_{1},$	
$ q_1 > \frac{5}{6}h A , q_1, q_2^{-1} \text{ start with } A,$	
$\varphi(p) \neq 1$	
2) $ 9_1 \ge 9_1 $ without loss of generality	
$ q' < (\frac{1}{2} - 1) q_{1} + A $	· · · · · · · · ·
	· · · · · · · ·
² 3) ^π	
$ \begin{array}{c} \mathbf{x}^{\mathbf{y}} \\ \mathbf{x}^{$	r ₁
$ P_1 $	$\left(\begin{array}{c} 0 \\ - \end{array} \right) \left(\begin{array}{c} 0 \end{array} \right) \left(\begin{array}{c} 0 \\ - \end{array} \right) \left(\begin{array}{c} 0 \end{array} \right) \left(\begin{array}{c} 0 \\- \end{array} \right) \left(\begin{array}{c} 0 \end{array} \right) \left(\left(\begin{array}{c} 0 $
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \end{array} \\ \begin{array}{c} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} $	
not reducing	anything (yet)
· · · · · · · · · · · · · · · · · · ·	
· · · · · · · · · · · · · · · · · · ·	
	· · · · · · · ·

$\begin{array}{c} & & & & \\ \hline \end{array} \\ \hline & & & \\ \hline \end{array} \end{array}$
$ 5' < t + \frac{1}{2} (P_1 + P_2) < \delta'(\frac{1}{\overline{P}} - 1) P_2 + 2 A $ We can assume that s' ends in o ₂
$\varphi(\bar{s}) \stackrel{i}{=} \psi(\bar{r})^{\dagger} \psi(\bar{s})$
$\Psi(P_1) \stackrel{i}{=} Y B^m Y \stackrel{-1}{,} B$ - simple in rank i or period of rank k $\leq i$
B ^M < 느 (印) < 긐 A (L13.3 + L19.4, 19.5 => smooth, T17.1 => upper bound) 声
$ \Upsilon < A (L18.5)$
$\varphi(5) \doteq \varphi(\overline{5}) \doteq Y B'' \gamma'' \varphi(5') \implies Y \varphi(5) \geq B = 1$
$\begin{array}{c c} & \varphi(s) & & \nabla_{1} \\ & & & & \\ & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & $

4) _ン	$ \mathbf{x}_{i} \leq \mathbf{A} $	
$\begin{bmatrix} \mathbf{x} & \mathbf{x} \\ \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} & \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ \mathbf{x} \end{bmatrix} \end{bmatrix} \begin{bmatrix} \mathbf{x} \\ $	$ X_{2} \leq Y^{-1} + \varphi(S') \leq Y(\frac{1}{R} - 1) q_{2} +$	
	יען אוצא]d ^ד ן> <u>א</u> ואן פואואן	· · · · · · · · ·
ν is A-periodic => smooth (/	- simpl. in rk. i) Uz is B-periodic => smooth (*	لع may change)
⊤17.1: 再リル ≤ ×ι +リル₂I+IX	$\underline{v} \implies \nabla_{\underline{z}} > \overline{\underline{\beta}} q_{\underline{1}} - \vee_{\underline{i}} - \vee_{\underline{s}} $	· · · · · · · · · ·
· · · · · · · · · · · · · · ·	$\Rightarrow v_1 > q_2 (\beta - 2(\frac{1}{\beta} - 1)) - 4 A $	
rank(v,) = A , rank(v,) = B , עי	A > B Apply L17.5:	
$\begin{bmatrix} \mathbf{x} & \mathbf{y} \\ \mathbf{x} \end{bmatrix}_{1}^{1} \begin{bmatrix} \mathbf{x} & \mathbf{y} \\ \mathbf{x} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \begin{bmatrix} \mathbf{x} & \mathbf{y} \\ \mathbf{x} \end{bmatrix}_{1}^{1} \begin{bmatrix} \mathbf{x} & \mathbf{y} \\ \mathbf{x} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \begin{bmatrix} \mathbf{x} & \mathbf{x} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \end{bmatrix}_{1}^{1} \begin{bmatrix} \mathbf{x} & \mathbf{x} \end{bmatrix}_{1}^{1} \end{bmatrix}_{$	$\mathcal{M} = \frac{1}{2} \left(\mathbf{x}_1 + \mathbf{x}_2 + \mathbf{B} \right) < \left(\frac{1}{\overline{p}} - 1 \right) \mathbf{q}_2 + \frac{2}{\overline{p}} \mathbf{A} $ $ \mathcal{V}_1 - \mathcal{M} \ge \mathbf{q}_2 - \mathcal{M} > 0$	 q ₁ > <u>5</u> h A 6
	$ v_2 - M > q_2 \left(\overline{\beta} - (\delta+1) \left(\frac{1}{\overline{\beta}} - 1\right) - (4+\frac{5}{\beta})$) 4 > 0
× <mark>'</mark> +	—> < ⊣ B , v¦ > v, −M	
v¦ > v -ハ>さん	$ v_1 > v_2 - M > \frac{3}{4}h A > h B $	
5) L17.4 ⇒> j = rank(Γ') < A + B < A + A	B is simple in rank j (period is simple in s apply L18.8 $\Rightarrow A \stackrel{i}{=} W B^{I} W^{-1}$, contr. with simplicity in	smaller ranks) B < A n rank i
Lemma 18.8 N	△ – reduced circ. diagram of rank i	Ind. on A + B
Pi	N, B - simple in rank i, A ≥ B P(91) — A-periodic, Ψ(92) — B-periodic	
	$P_{i} < \sum_{i=1}^{i} Y_{i} \geq \frac{1}{4} A , Y_{2} \geq h B $ $\implies A \stackrel{i}{=} W B^{*!} W^{-1}$	