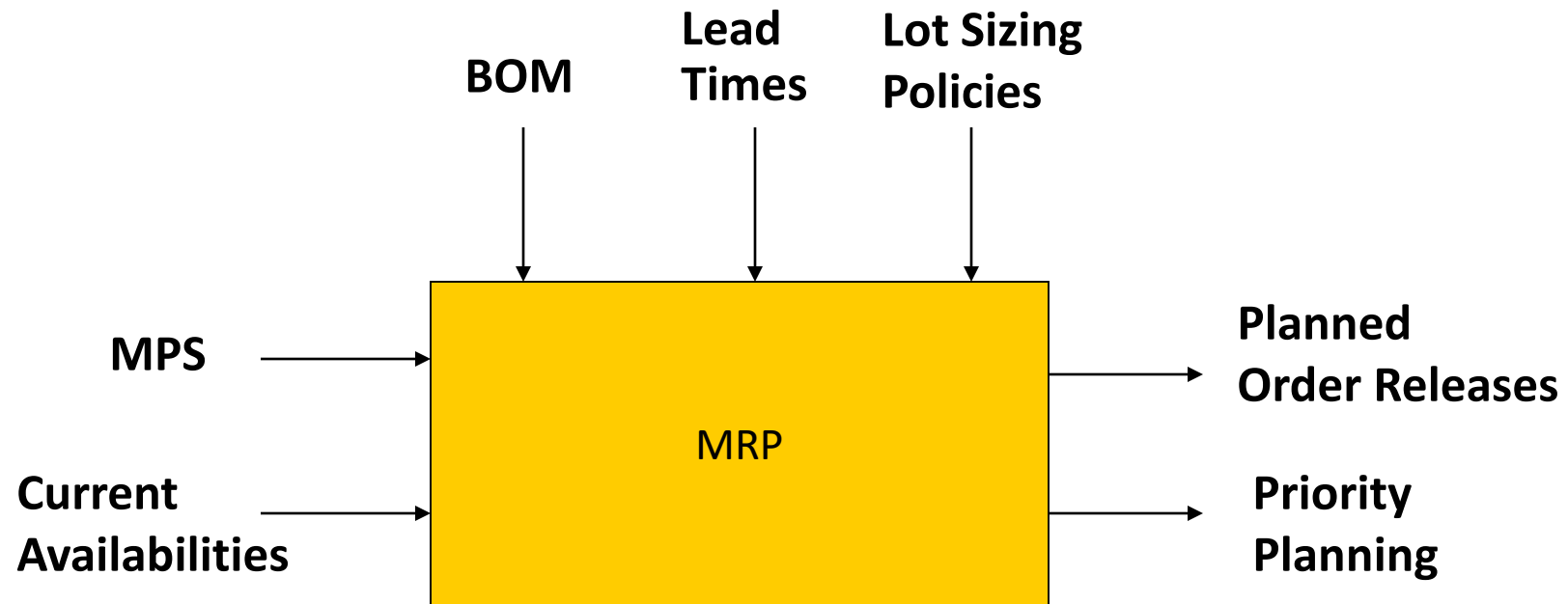
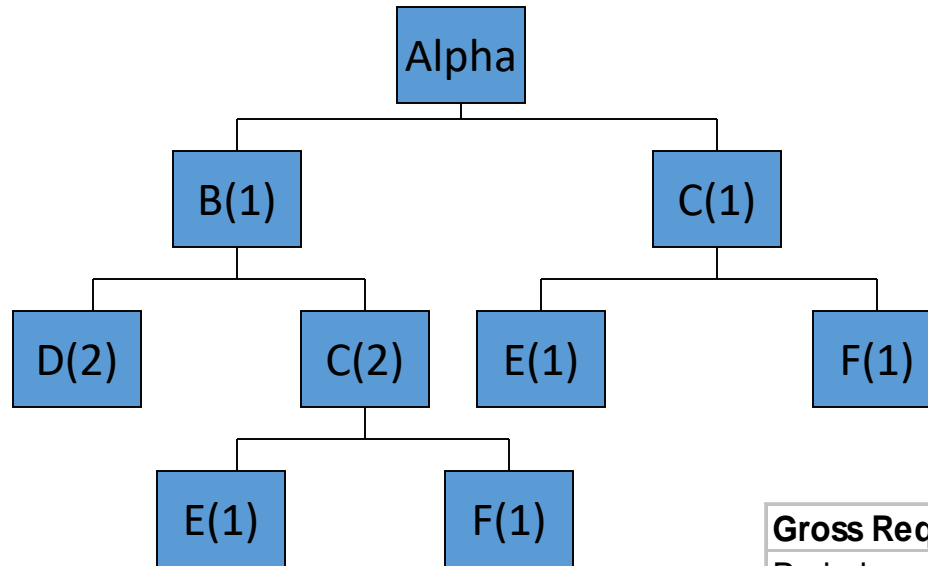


The “MRP Explosion” Calculus



Example: The (complete) MRP Explosion Calculus

Item BOM:



Item	Lead Time	Current Inv. Pos.
Alpha	1	10
B	2	20
C	3	0
D	1	100
E	1	10
F	1	50

Gross Reqs for Alpha								
Period	6	7	8	9	10	11	12	13
Gross Reqs.			50			50		100

Item Levels:

Level 0: Alpha Level 1: B Level 2: C, D Level 3: E, F

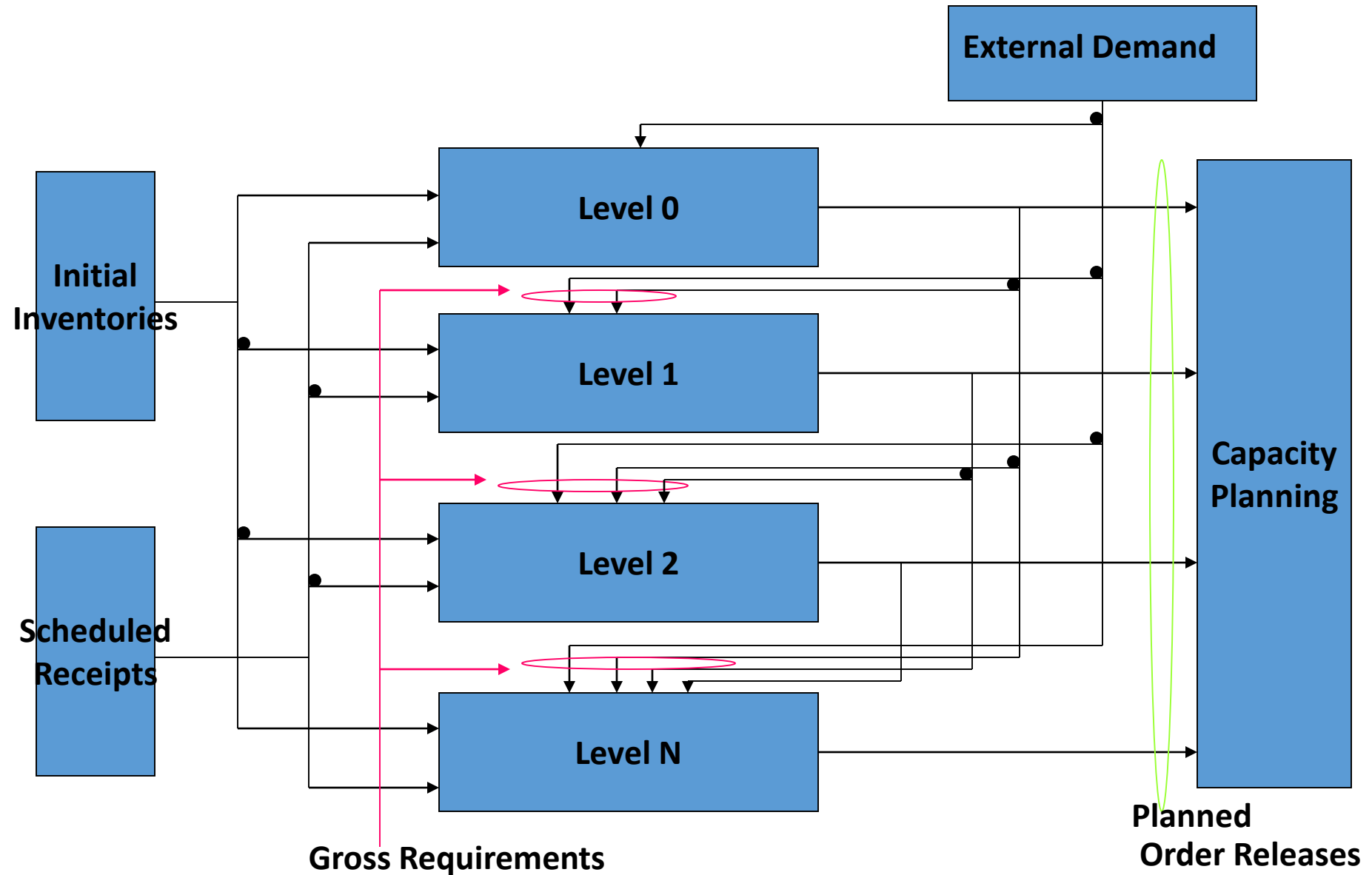
Net Material Requirements Planning Sheet for Alpha.

(borrowed from Heizer and Render)

Note: The letter in parentheses (A) is the source of the demand.

Lot Size	Lead Time (# of Periods)	On Hand	Safety Stock	Allocated	Low-Level Code	Item ID	Period (week, day)												
							1	2	3	4	5	6	7	8	9	10	11	12	13
Lot-for-Lot	1	10			0	Alpha (A)	Gross Requirements							50			50		100
							Scheduled Receipts												
							Projected On Hand	10						10					
							Net Requirements							40			50		100
							Planned Order Receipts												
							Planned Order Releases						40			50		100	
Lot-for-Lot	2	20			1	B	Gross Requirements						40(A)			50(A)		100(A)	
							Scheduled Receipts												
							Projected On Hand	20					20						
							Net Requirements						20			50		100	
							Planned Order Receipts						20			50		100	
							Planned Order Releases				20			50		100			
Lot-for-Lot	3	0			2	C	Gross Requirements				40(B)		40(A)	100(B)		200(B) + 50(A)		100(A)	
							Scheduled Receipts												
							Projected On Hand	0											
							Net Requirements				40		40	100		250		100	
							Planned Order Receipts				40		40	100		250		100	
							Planned Order Releases		40		40	100	250		100				
Lot-for-Lot	1	100			2	D	Gross Requirements				40(B)			100(B)		200(B)			
							Scheduled Receipts												
							Projected On Hand	100			100			60					
							Net Requirements				0			40		200			
							Planned Order Receipts				0			40		200			
							Planned Order Releases			0			40		200				
Lot-for-Lot	1	10			3	E	Gross Requirements		40(C)		40(C)	100(C)		250(C)		100(C)			
							Scheduled Receipts												
							Projected On Hand	10											
							Net Requirements		30		40	100		250		100			
							Planned Order Receipts		30		40	100		250		100			
							Planned Order Releases	30		40	100		250		100				
Lot-for-Lot	1	50			3	F	Gross Requirements		40(C)		40(C)	100(C)		250(C)		100(C)			
							Scheduled Receipts												
							Projected On Hand	50		50	10								
							Net Requirements		0		30	100		250		100			
							Planned Order Receipts				30	100		250		100			
							Planned Order Releases			30	100		250		100				

The “MRP Explosion” Calculus



Computing the item Scheduled Releases

Item C												
Period	1	2	3	4	5	6	7	8	9	10	11	12
Gross Requirements						12	10		90		75	
Scheduled Receipts		20										
Inventory Position: 20	20	40	40	40	40	28	18	18	-72	0	-75	0
Net Requirements									72		75	
Planned Sched. Receipts									72		75	
Planned Sched. Releases						72		75				

