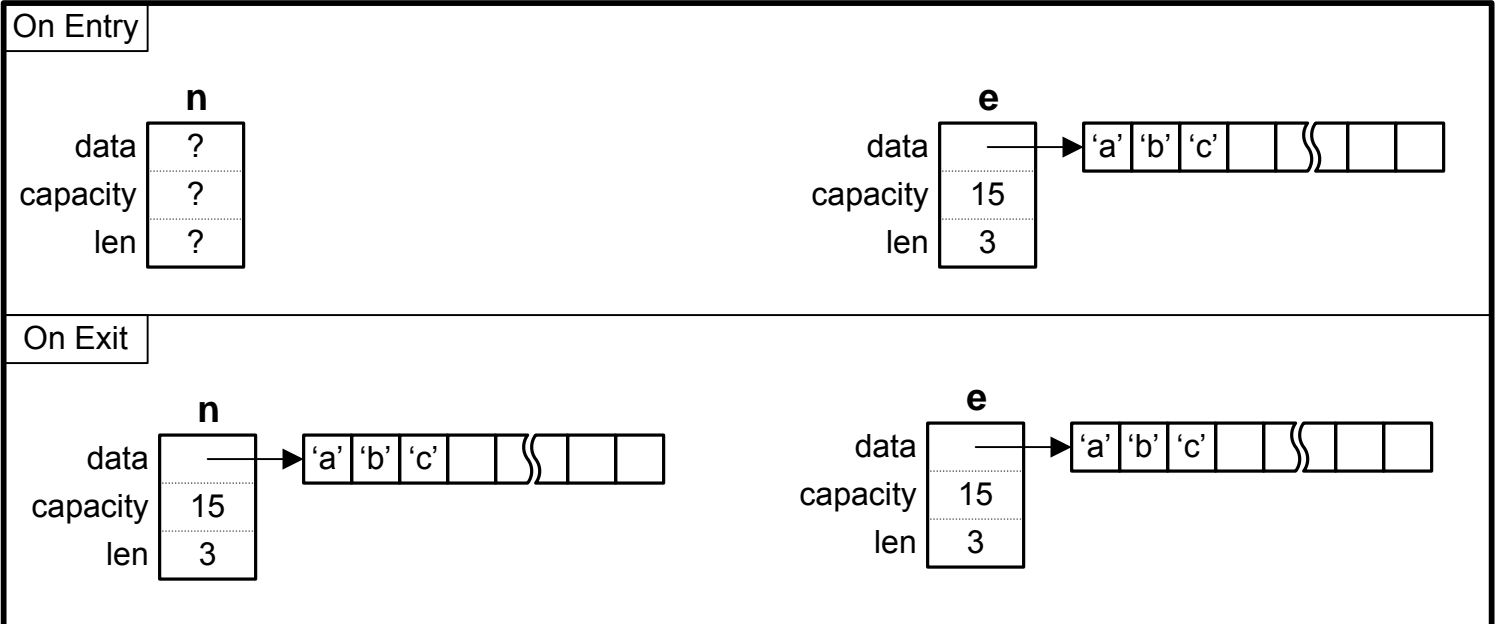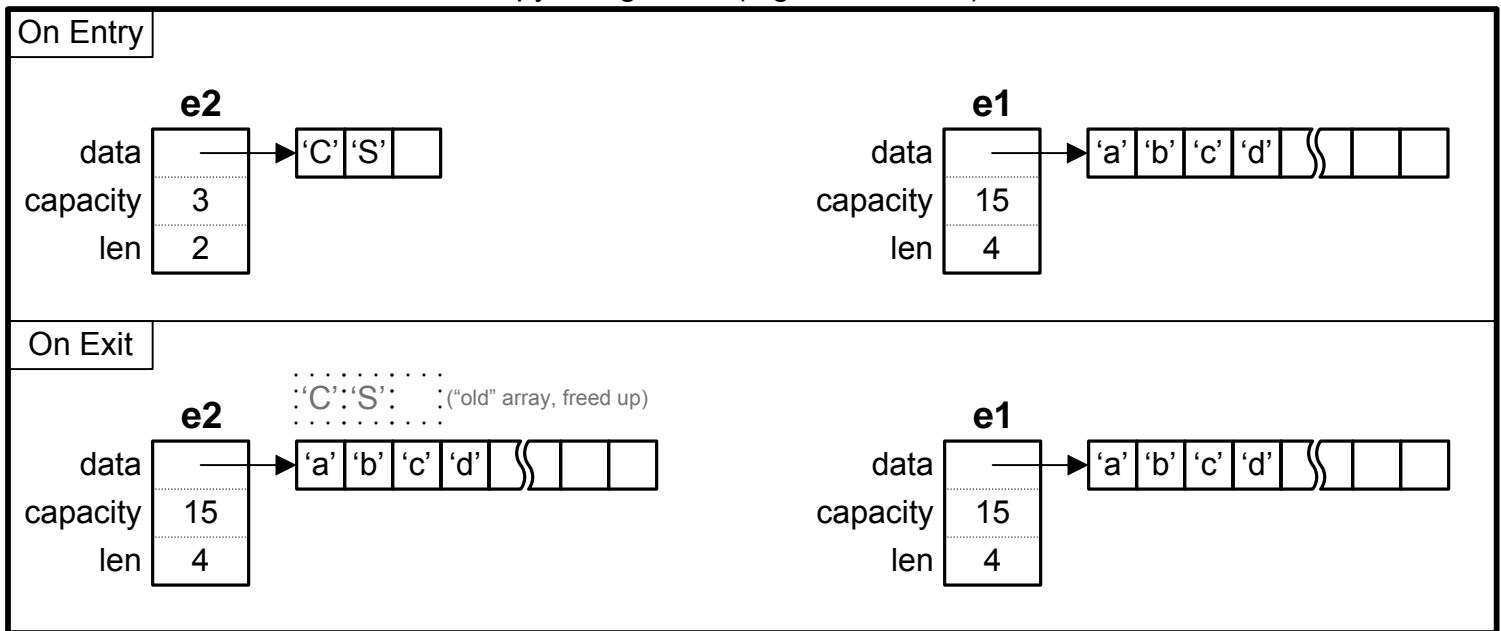# Logical Memory Pictures – Deep Copying and Resizing (by *Lee S. Koh*)

Notes: (1) **n**ew objects have names beginning with **n**; **e**xisting objects have names beginning with **e**.

(2) for first 2 cases: *LHS* picture is for *invoking* object (*RHS* picture is for *source* object).

Copy Construction (e.g.: `ourStr n = e;`)

On Entry

	n
data	?
capacity	?
len	?

	e	
data	→	'a' 'b' 'c' ...
capacity	15	
len	3	

On Exit

	n	
data	→	'a' 'b' 'c' ...
capacity	15	
len	3	

	e	
data	→	'a' 'b' 'c' ...
capacity	15	
len	3	

Copy Assignment (e.g.: `e2 = e1;`)

On Entry

	e2	
data	→	'C' 'S'
capacity	3	
len	2	

	e1	
data	→	'a' 'b' 'c' 'd' ...
capacity	15	
len	4	

On Exit

'C' 'S' ("old" array, freed up)

	e2	
data	→	'a' 'b' 'c' 'd' ...
capacity	15	
len	4	

	e1	
data	→	'a' 'b' 'c' 'd' ...
capacity	15	
len	4	

Resizing (e.g.: `resize(5);`)

On Entry

	e	
data	→	'a' 'b'
capacity	3	
len	2	

On Exit

'a' 'b' ("old" array, freed up)

	e	
data	→	'a' 'b'
capacity	5	
len	2	