



# BLP Lattice Structure

Example

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# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W

Generate a BLP lattice-structured system where the objects and subjects are appropriately levelled to give access consistent with the access control matrix shown.

# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W

O1, O2

Subjects from every level can read objects O1 and O2 -> O1 and O2 are dominated by all subject.  
Hence O1 and O2 must be at the lowest point.

# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W

S1, O3

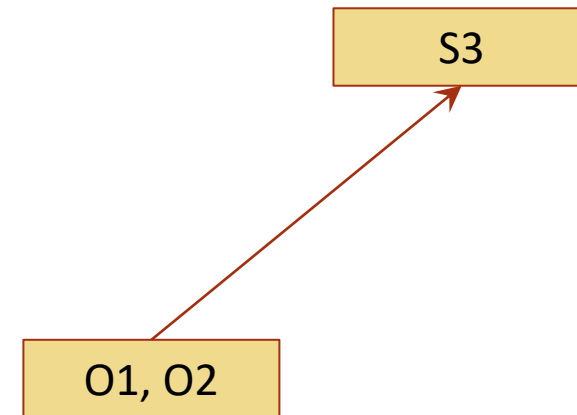
O1, O2

Subject S1 and read and write object O3, hence S1 and O3 must be at the same level (can put them together.)

# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W

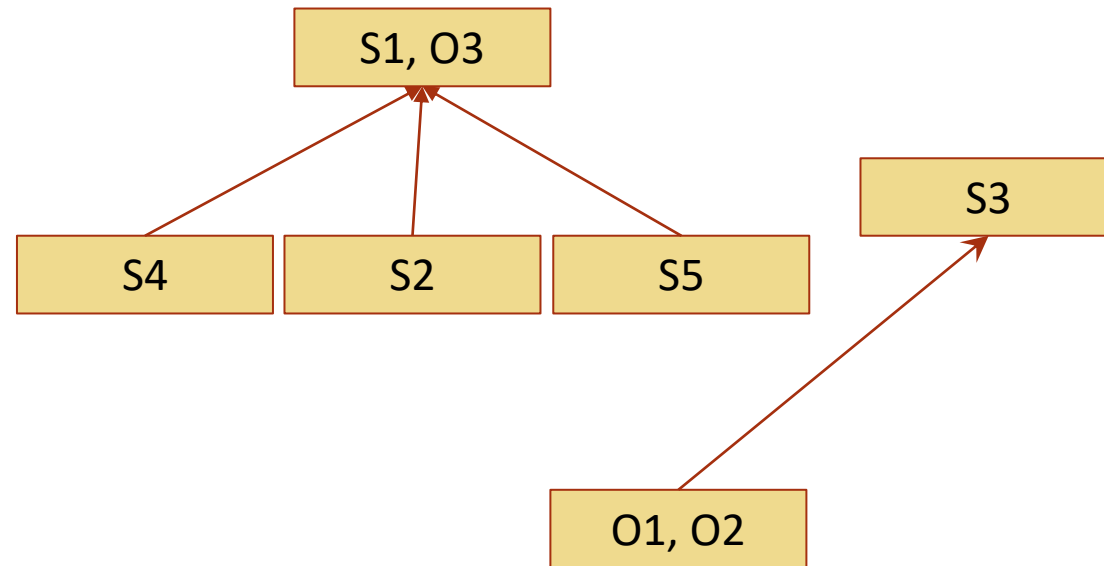
S1, O3



Subject S3 can read only objects O1 and O2, hence subject S3 can only dominate object O1 and O2.

# Given the following access control matrix:

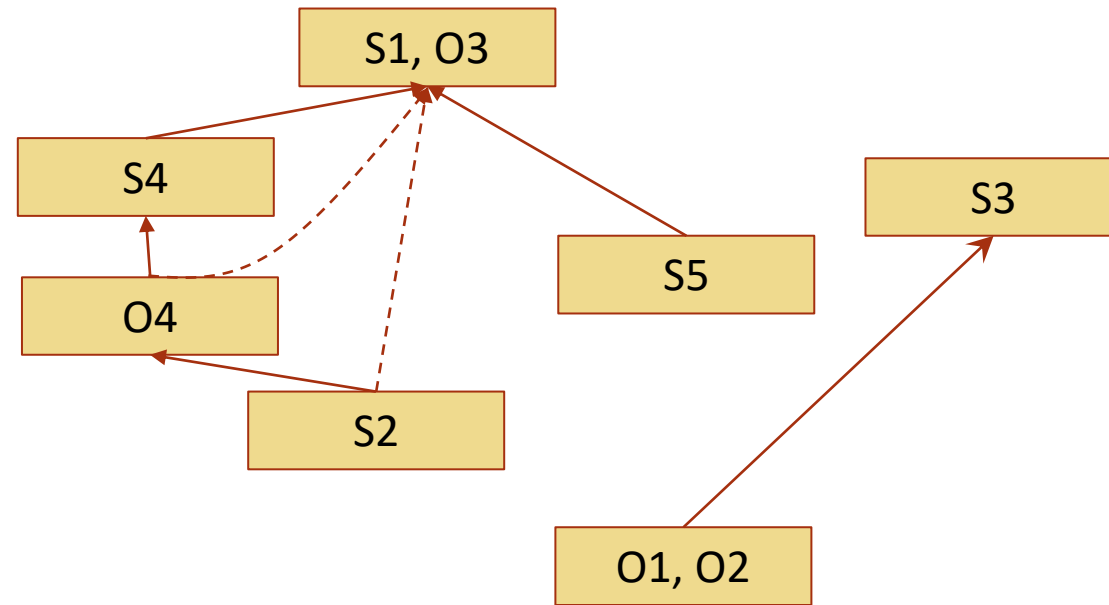
	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W



S1 and O3 must dominate subjects S2, S4 and S5 in order to allow writing.

# Given the following access control matrix:

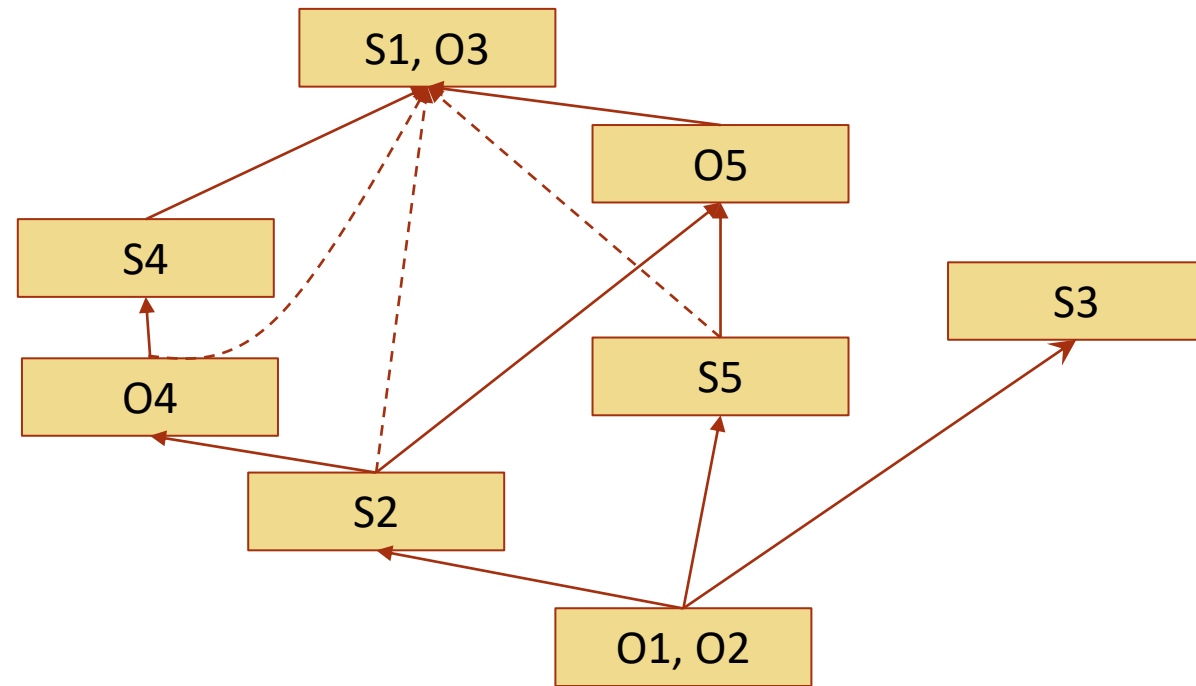
	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W



Subjects S2 and S4 are not at the same level due to the different behaviour with respect to O4.

# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W

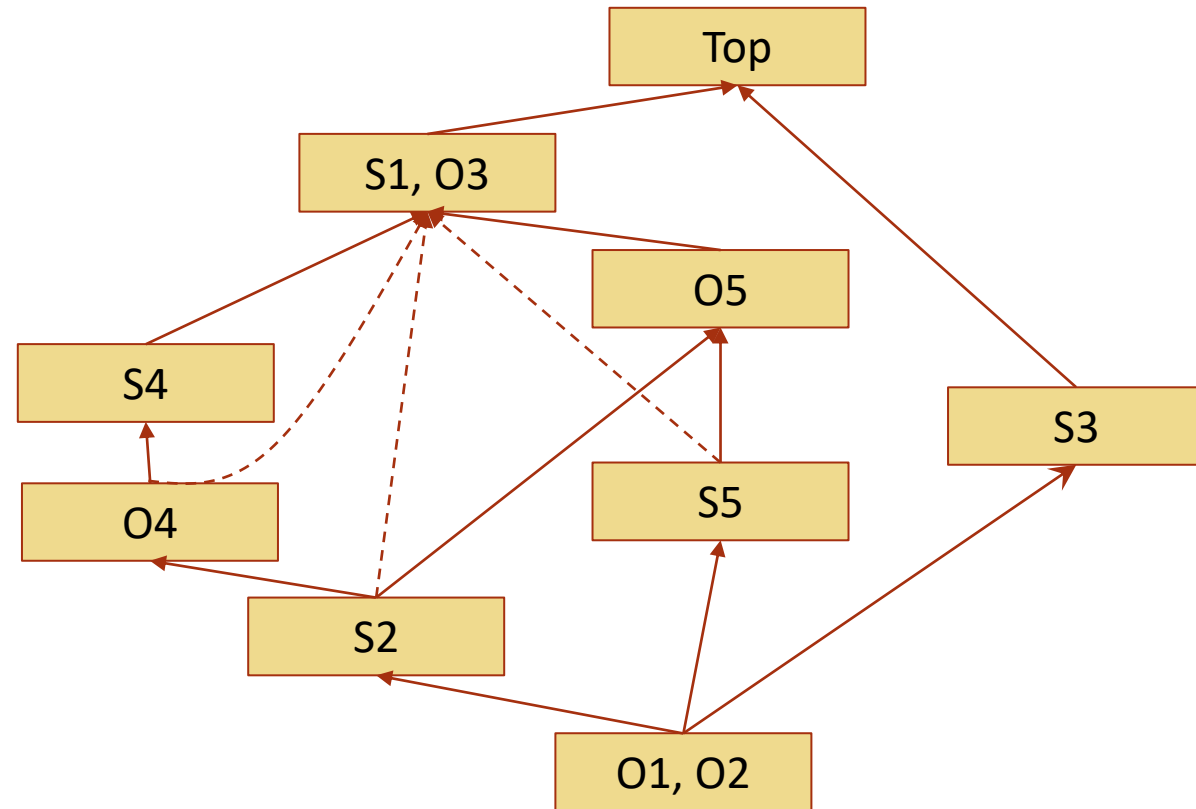


Complete the other dominance.



# Given the following access control matrix:

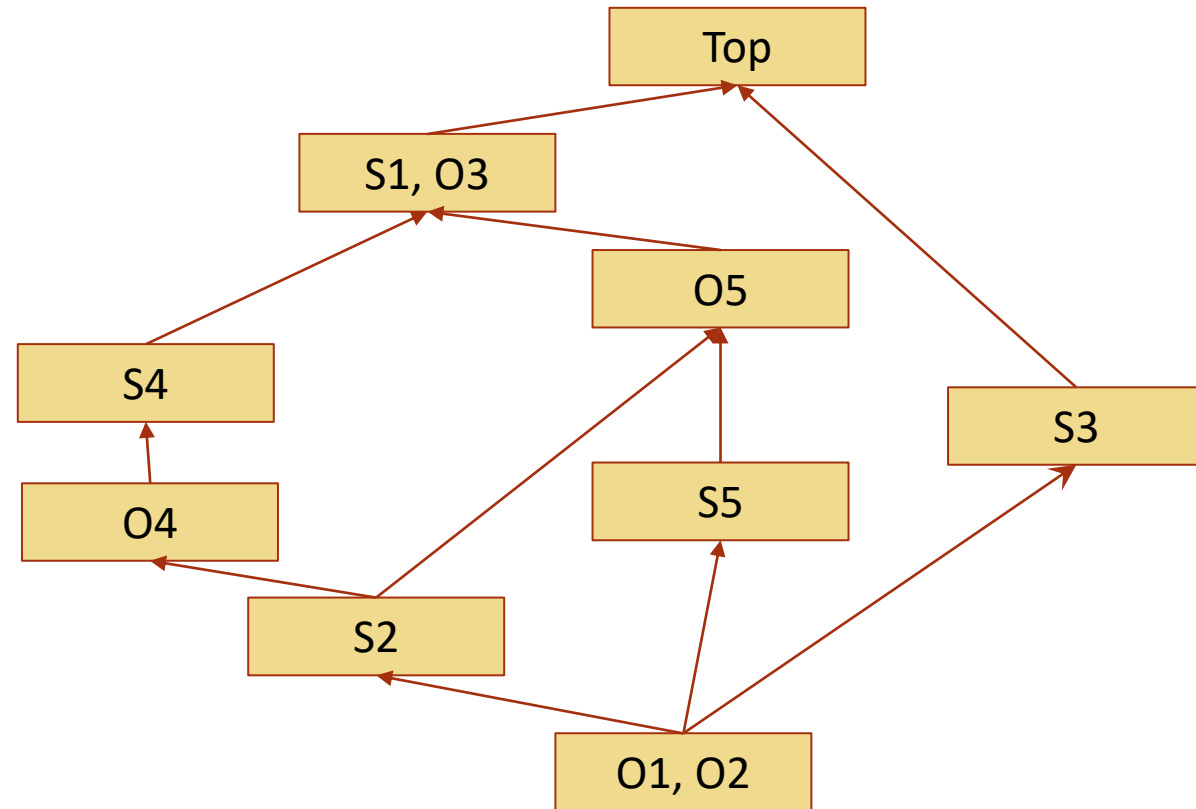
	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W



Introduce a top level to complete the lattice.

# Given the following access control matrix:

	O1	O2	O3	O4	O5
S1	R	R	RW	R	R
S2	R	R	W	W	W
S3	R	R			
S4	R	R	W	R	
S5	R	R	W		W



Final complete lattice.