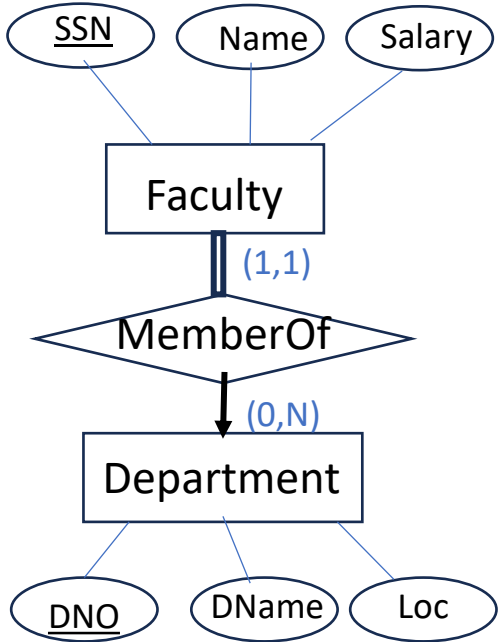




E-R MODEL

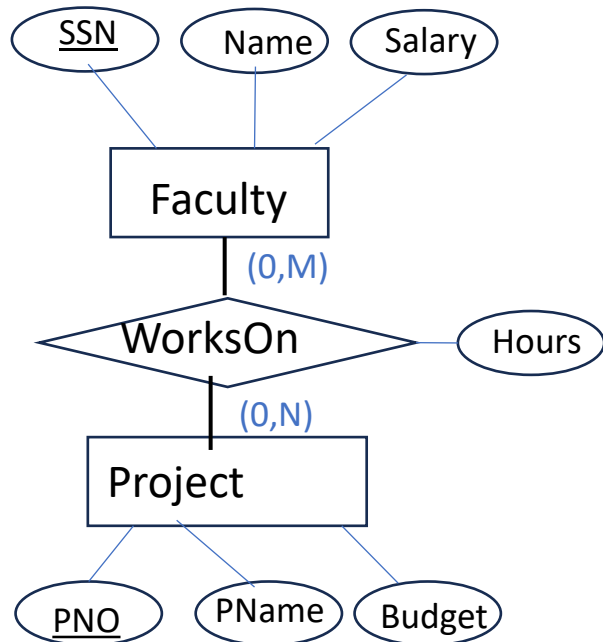
N-1 RELATIONSHIP (required participation or likely participation)

FACULTY	<u>SSN</u>	Name	Salary	MemberOf
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DEPARTMENT	<u>DNO</u>	DName	Loc
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Relational model equivalent
IS ALLOWED TO use a foreign-key attribute for the N-1 relationship (you should use a foreign-key arrow to indicate what the foreign key points to)

RELATIONAL MODEL EQUIVALENT



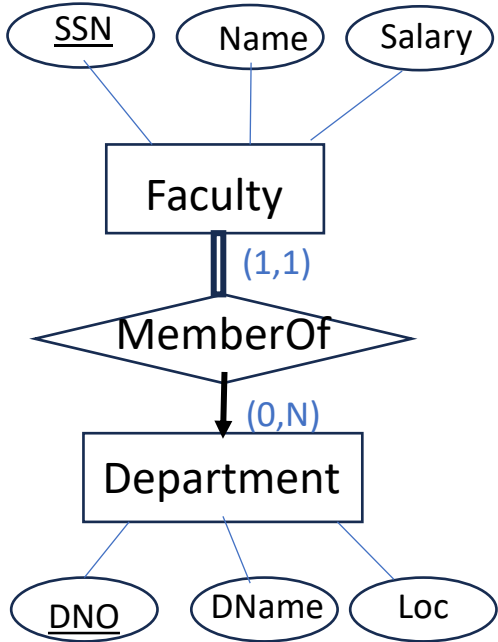
N-M RELATIONSHIP (optional OR required participation)

FACULTY	<u>SSN</u>	Name	Salary
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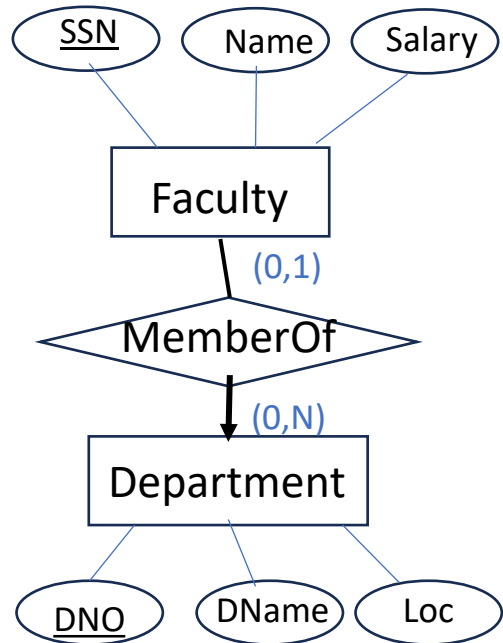
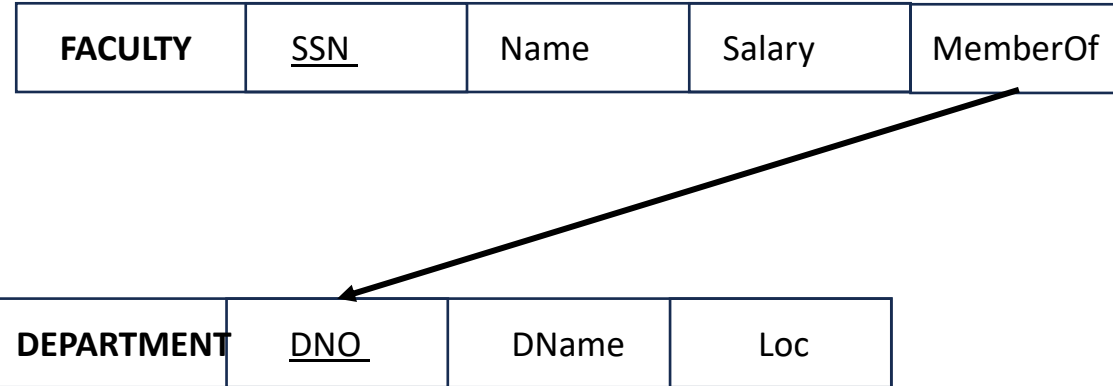
WORKSON	<u>FSSN</u>	PNum	Hours
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PROJECT	<u>PNO</u>	PName	Budget
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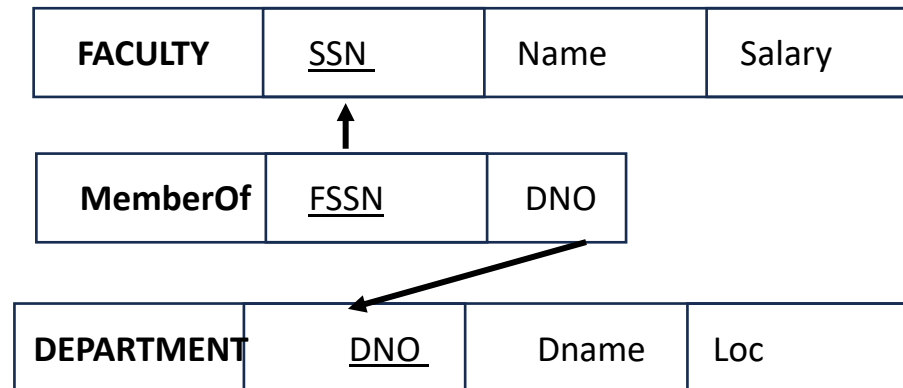
Relational model equivalent
MUST use a relation corresponding to the ER relationship WorksOn



N-1 RELATIONSHIP (required participation or likely participation)



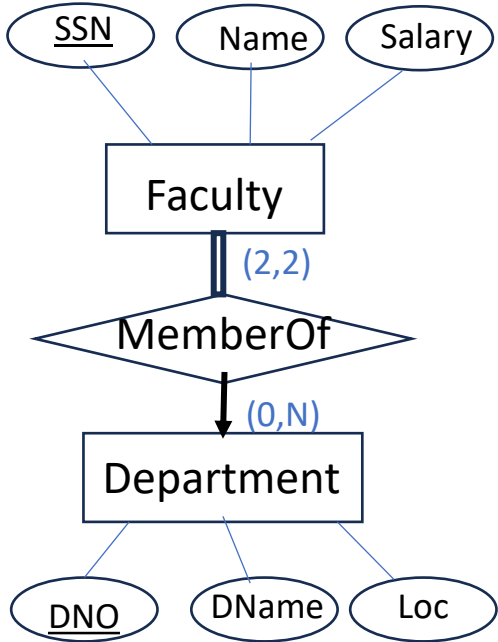
ALTERNATIVE VERBOSE N-1 REPRESENTATION IN THE RELATIONAL MODEL (appropriate if UNlikely participation!)



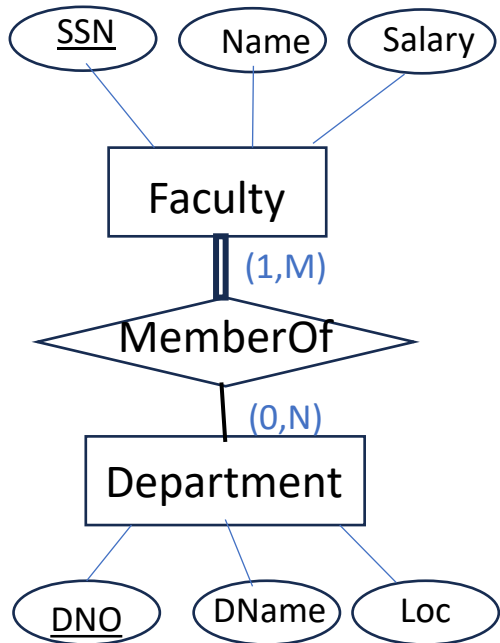
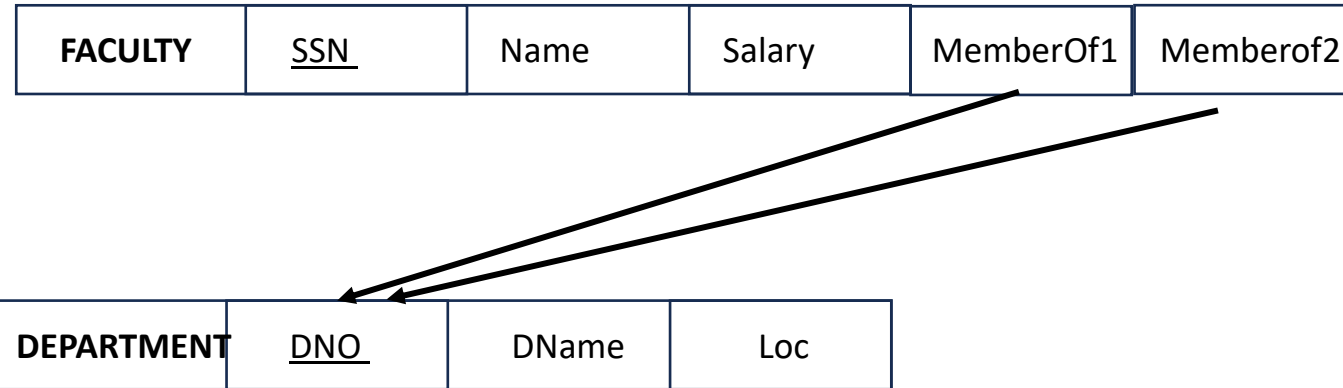
This variant should NOT be used unless there is a reason. Otherwise it's inefficient and wasteful.

Note that DNO is not part of the MemberOf keys because FACULTY never have more than one DNO

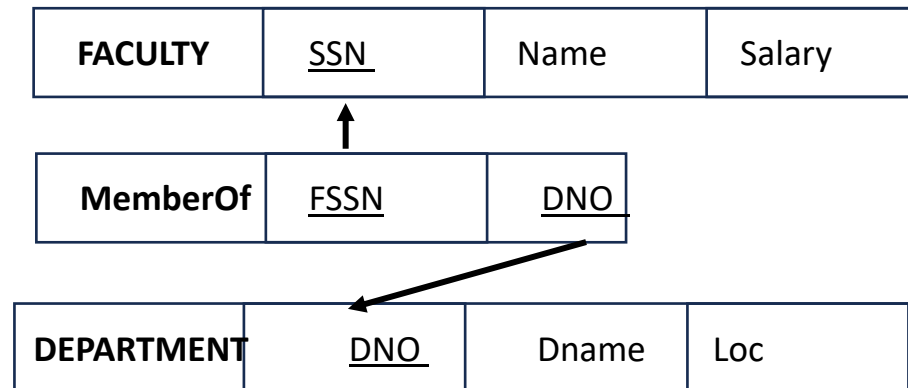
For example, if it's OPTIONAL participation for faculty to have a department (but if they do then they can have at most one department) either variant on this page is OK. And if relatively few faculty have a department then this variant preferred



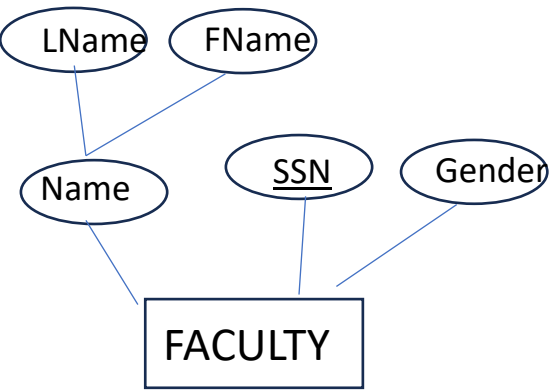
ALTERNATIVE VERBOSE REPRESENTATION for (2,2) CARDINALITY CONSTRAINT
i.e. if all faculty have exactly 2 departments (or mostly have 2 departments)



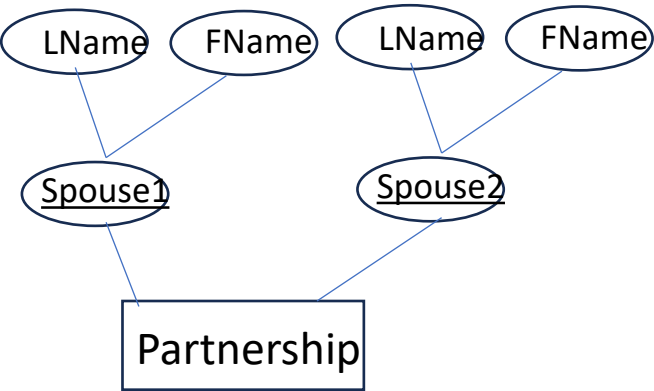
BUT IF FACULTY HAVE AN UNBOUNDED NUMBER OF DEPARTMENTS (N-M)
THEN A FULL RELATIONSHIP-TYPE RELATION IS NECESSARY



WAYS OF REPRESENTING COMPOSITE E-R ATTRIBUTES IN THE RELATIONAL MODEL



FACULTY	Name_Lname	Name_Fname	<u>SSN</u>	Gender
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PARTNERSHIP	<u>Spouse1_Lname</u>	Spouse1_Fname	Spouse2_Lname	Spouse2_Fname
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