1. Presentation Layer Conceptual ER diagram

RESTAURANT — **name**

MENU — **name**, description, **start_dt**

Has (m ... 1)

Serves (1 ... m)

Lists (n ... m)

DISH — **dish_id**, **name**, type, prep_time, description, price
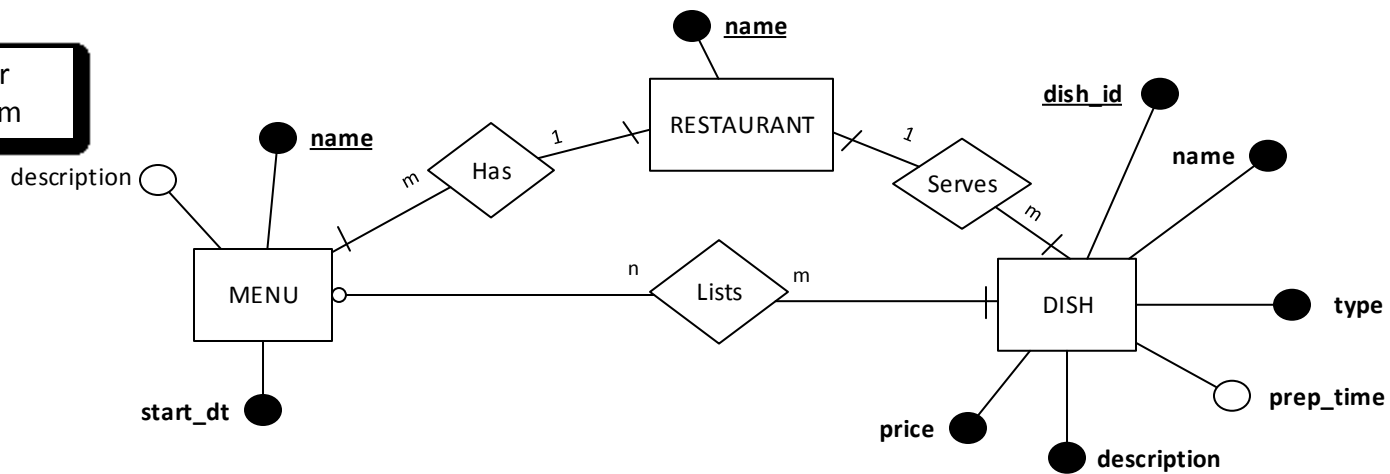
Dish_type: {dessert, entrée, drink, appetizer}

2. Design-Sepcific Conceptual ER diagram

RESTAURANT — [a,20] **name**

MENU — [a,20] **name**, [a,200] description, [Dt,8] **start_dt**

Has (1,1) ... (1,m)

Serves (1,1) ... (1,m)

Lists (1,m) ... (1,1)

MENU_DISH

In (1,1) ... (0,m)

DISH — [n,3] **dish_id**, [n,30] name, [n,5.2] price, [a,200] description, [n,3] prep_time

Has (1,1) ... (1,m)

DISH_TYPE — [a,30] **name**
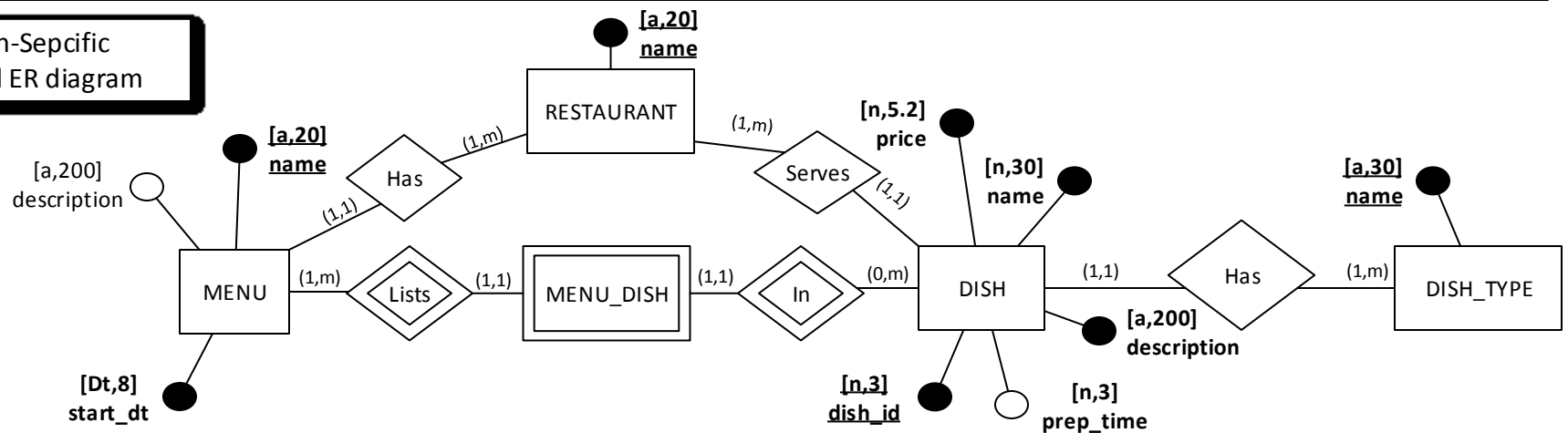
3. Relation Schema for 1 entity type with most attributes

DISH(id, name, price, description, prep_time, dish_type_name, restaurant_name)
inclusion dependency schema

4. Metadata

RELATION	NAME	TYPE	SIZE	OPTIONALITY	COMMENTS
DISH	id	number	< 1000	required	unique
DISH	price	number	5.2	required	
DISH	name	text	30	required	
DISH	description	text	200	required	
DISH	prep_time	number	<200	optional	
DISH	dish_type_name	text	30	required	foreign key to DISH_TYPE(name)
DISH	restaurant_name	text	20	required	foreign key to RESTAURANT(name)