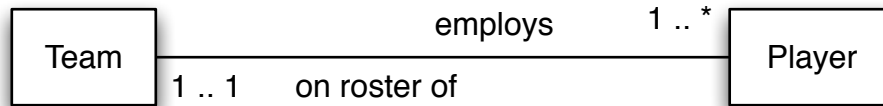


:has_many / :belongs_to examples

Players on Football teams.

Examples: Tom Brady plays for the Patriots. The Falcons employ Matt Ryan. Eric Weems is also on the roster for the Falcons.



We read this as "A single team employs 1 to many players" and "A single player is on the roster of a single team"

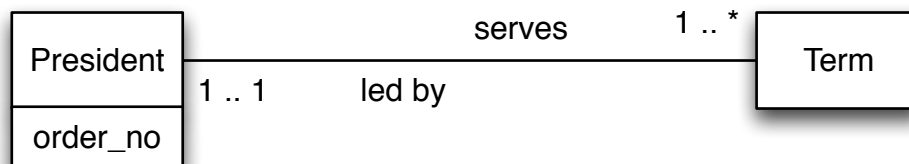
Team :**has_many** Player
Player :**belongs_to** Team

players		
<u>id</u>	<u>name</u>	<u>team_id</u>
1	Tom Brady	10
2	Matt Ryan	20
3	Eric Weems	20

teams	
<u>id</u>	<u>name</u>
10	Falcons
20	Patriots

Presidents and their terms

Examples: Barack Obama was president for two terms, first in 2008 and then in 2012. Franklin D Roosevelt was president for three terms, first in 1932, then 1936, then 1940.



We read this as "A single president serves from 1 to many terms" and "A single term is led by a single president"

President :**has_many** Term
Term :**belongs_to** President

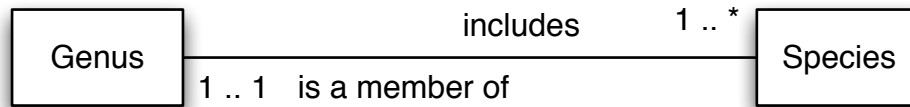
terms		
<u>id</u>	<u>name</u>	<u>president_id</u>
1	2008	1
2	2012	1
3	1932	2
4	1936	2
5	1940	2

presidents		
<u>id</u>	<u>name</u>	<u>order_no</u>
1	Barack Obama	44
2	Franklin D Roosevelt	32

Order number is an attribute of the president, named after the number of presidents that preceded them. It's not really connected to their term. To ensure that people aren't confused, we can show it in the diagram and include it in sample tables. We don't need to include id and name in the diagram since those are common.

Species and Genus

Examples: Felis Catus (domestic cat) and Felis silvestris (wild cat), Canus Lupus, Canus rufus (red wolf). The Genus is the superior category and there are lots of species, but each species is in one genus.



We read this as "A single genus includes 1 to many species" and "Each species is a member of a single genus."

Genus :**has_many** Species
Species :**belongs_to** Genus

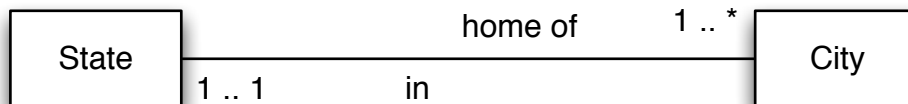
species		
<u>id</u>	<u>name</u>	<u>genus_id</u>
1	Felis Catus	1
2	Felis silvestris	1
3	Canus Lupus	2
4	Canus Rufus	2

genera	
<u>id</u>	<u>name</u>
1	Felis
2	Canus

species is both
the singular and
the plural.
Genera is the
plural of Genus.
Thanks Latin!

Cities and States

Examples: Austin is a city in the state of Texas. Kansas City is actually many formal cities with the same name: Kansas City, in Missouri, Kansas City, in Kansas and Independence, Missouri.



We read this as "A single state could be the home of 1 to many cities" and "A single city is in a single state."

State :**has_many** City
City :**belongs_to** State

cities		
<u>id</u>	<u>name</u>	<u>state_id</u>
1	Austin	1
2	Kansas City	2
3	Kansas City	32
4	Independence	2
5	Springfield	22
6	Springfield	22

states		
<u>id</u>	<u>name</u>	<u>abbr</u>
1	Texas	TX
2	Missouri	MO
32	Kansas	KS
22	Pennsylvania	PA

We can have the name of a city repeat because different actual cities can have the same name. In fact there are a few cases of cities with the same name in the same state! Might be useful to add county to distinguish but as long as the id is different then the city is different. https://en.wikipedia.org/wiki/Springfield_Township,_Pennsylvania