

Week 5 Suggested Tutorial Solution: Complex Objects

Semester 1, 2006

A. Which classes are **independent** and which are **dependent**? How are instances of the dependent classes identified?

Independent class: owner, lessee, estate agent and prospective tenant.

Dependent classes	Classes depended on	The dependent object identified absolutely	The dependent object identified with respect to an object
Lease	Owner, Lessee and Estate Agent	Lease numbers	
House	Owner	Addresses	
Unit	Owner	Addresses	
Bus	Property	Identifiers on bus stop plates.	
Ferry	Property	terminal names	
Train	Property	Station names	
Shop	Property	Shop names	
(Leased Property) Entirety	Owner		Property addresses
(Leased Property) Room	Owner		Addresses and/or room description
Unfurnished Property	Owner		
(Furnished Property) White Goods Only	Owner		Property addresses with appliance descriptions
(Furnished Property) White Goods and Furniture	Owner		Property addresses with furniture description
Gender	Room		Gender description with the room addresses and descriptions
Cultural Background	Room		The description of cultural background with the room addresses and descriptions
Smoking?	Room		Smoking permission and or description with the room addresses and/or descriptions

Diet	Room		Diet descriptions with the room addresses and descriptions
Date	Room		Date expressions with the room addresses and descriptions
Rent	Owner, Lessee and Lease		Lease numbers, rent amounts and durations the amounts cover
House	Lease		Lease numbers and addresses
Unit	Lease		Lease numbers and addresses
Furnishing	Lease		Lease numbers and furnishing categories
Pet Allowance	Lease		Lease numbers, pet permissions and/or descriptions
Expenses	Lease		Lease numbers and expense descriptions
Mode	Lease		Lease numbers and mode descriptions
Fixed term	Lease		Lease numbers and the lengths of engagements
Indefinite term	Lease		Lease numbers and the lengths of prior notices for moving out

B. Describe the shared complex objects.

A lease is a shared complex object. The lease is shared by both a lessor and lessee.

What are their parts?

A lease consists of a variety of clauses. The clauses include rent amounts and the lengths of periods the amounts cover, engagement lengths, furnishing descriptions, property details such as houses or units, pet permissions, expenses included in or excluded from the rent, and lease modes such as one bedroom or the whole property.

What are their identifying and unifying relations?

Lease numbers are lease identifiers. Leases consist of clauses and look like *containers* unifying their clauses. Thus, their identifiers - lease numbers, are also the symbols of unifying relations between leases and their clauses.

Are they unifying relations logical or lexical?

The unifying relations are lexical because the lease *contains* the clauses.

Are there any objects identified indexically?

“There is a furnished room for lease at Toowong. There are a Queen-size bed with mattress, a wardrobe, desk and chair in *that room*.”

From the above statement, the identifying of furniture relies upon *that room*. Thus, we can say that furniture is identified indexically.

Generally, the response to a query is identified indexically, although a hidden absolute identifier is often used for archiving the query and response.

Any identified metonymically?

“A suburb usually has numerous buildings, some of which are considered as landmarks for their suburb. For example, *Toowong Village* and *UQ* are the landmarks for Toowong and St Lucia respectively.” From the above statement, a number of suburbs can be identified metonymically by their landmark buildings.

It is fairly common for people to identify a prospective property by some prominent part "large kitchen one', tiny bathroom one", "cast-iron lace Queenslander".

This ontology has no formal classes identified metonymically.

Are the independent classes used in unifying relations? (Make plausible additions if necessary.)

The owner would be used as the unifying relation for a property portfolio.

C. *Describe the bulk types in the ontology, showing how they are bulk types. What containers are they in? Do the containers give pseudo-identity?*

Furniture is a good example of the bulk type. E.g. there are five identical chairs in a 2-bedroom unit. Those chairs are the bulk types because there is no unique identity for each of them. That 2-bedroom unit is regarded as a pseudo-identity for those chairs because that unit can be identified uniquely by its address.

The value of rent is another example of bulk types. For example, \$230.00 is a plain value without any context. Some questions could be raised for that value: what its currency is and what this amount is for.

- If the value is printed under *rent per week* – one of the clauses on a lease, the currency of the \$230.00 is presumably Australian currency and the purpose of the amount is the rent per week. At the same time, the lease acts as a container for that amount since that amount is printed on that lease. Thus, the lease number gives the pseudo-identity to that amount, i.e. that amount can be identified by a lease number.
- If the value is printed on an electricity bill issued by Energex, Brisbane, obviously, the currency is Australian dollar and the amount is due to Energex. The electricity bill is considered as a container and the bill number is the pseudo-identity for that amount.

Hence, the money value is bulk types because its identity varies with respect to its container (context).

Distances to bus stop, University, shops etc are all bulk types, as are size of hours (square metres)