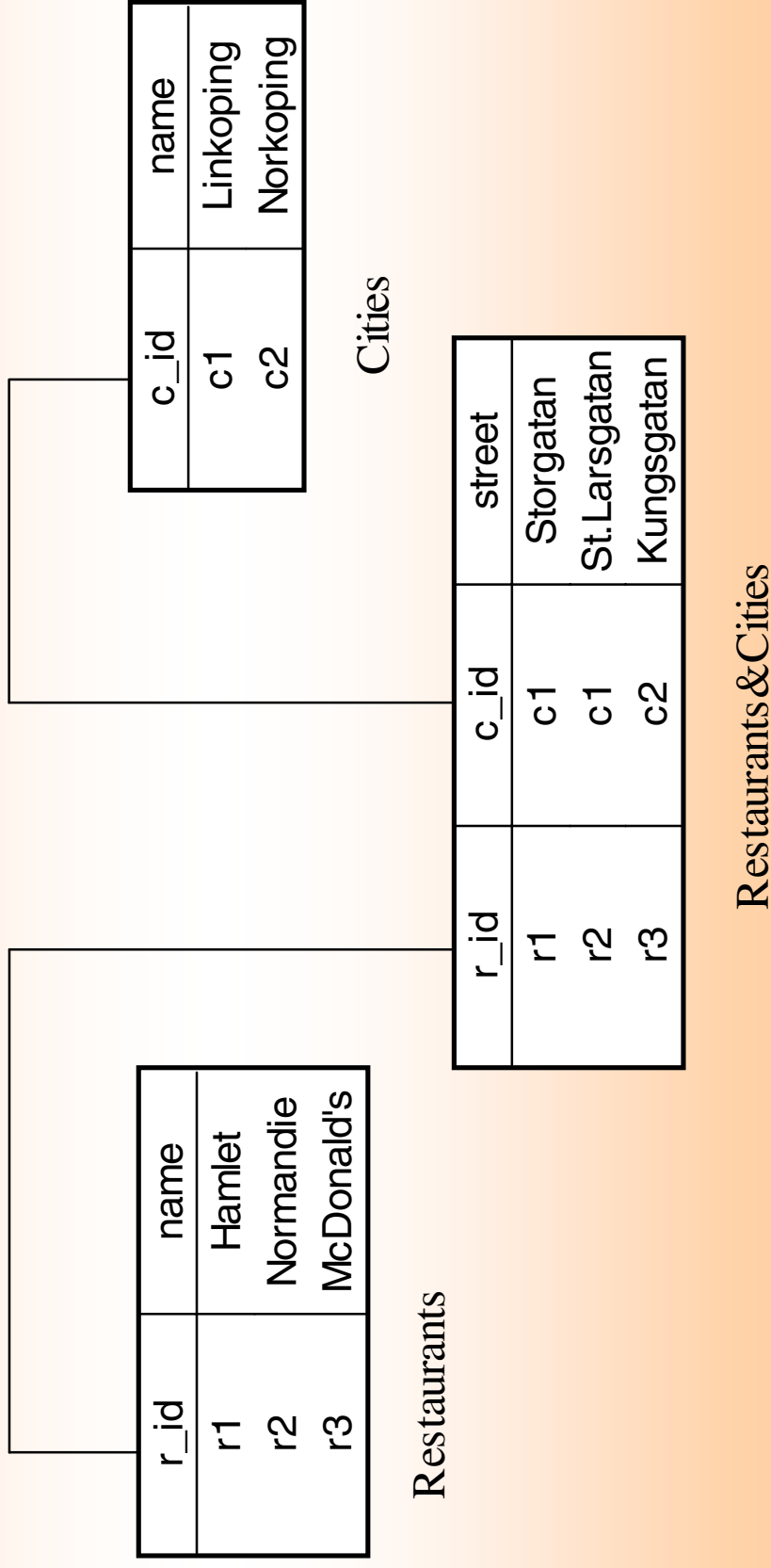


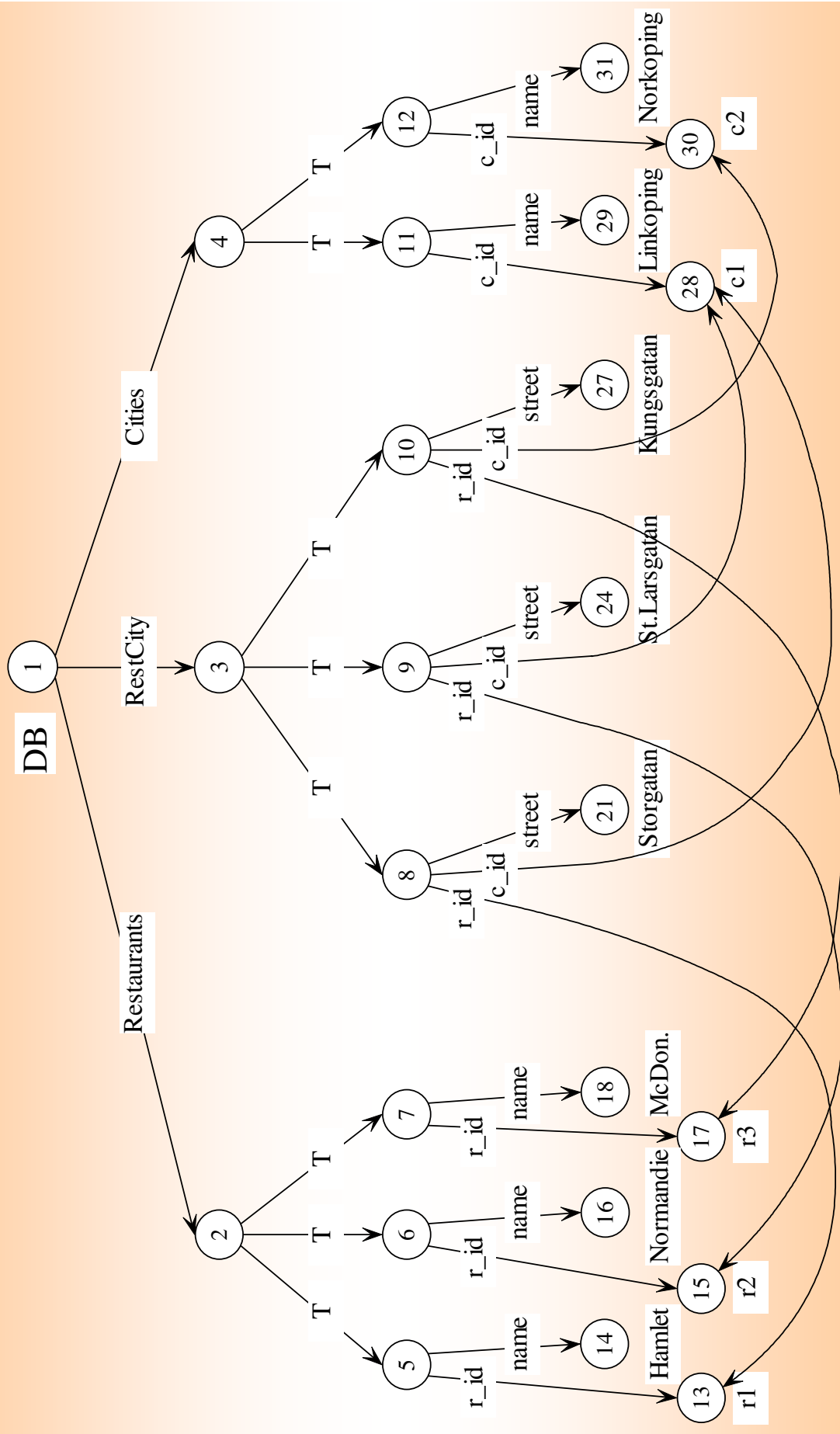
# Semi-structured data - exercises

# Exercise 1

- Represent the relations below using the OEM data model.



# Answer exercise 1 - the OEM model



## Exercise 2

- Using the data model from the previous question, formulate the following queries using Lorel:
  - find all the restaurants that are located in Linköping
  - find the address (city and street) of the “Hamlet” restaurant
  - list the restaurants by city (equivalent of GROUP BY)

## Answer Exercise 2

find all the restaurants that are located in Linköping

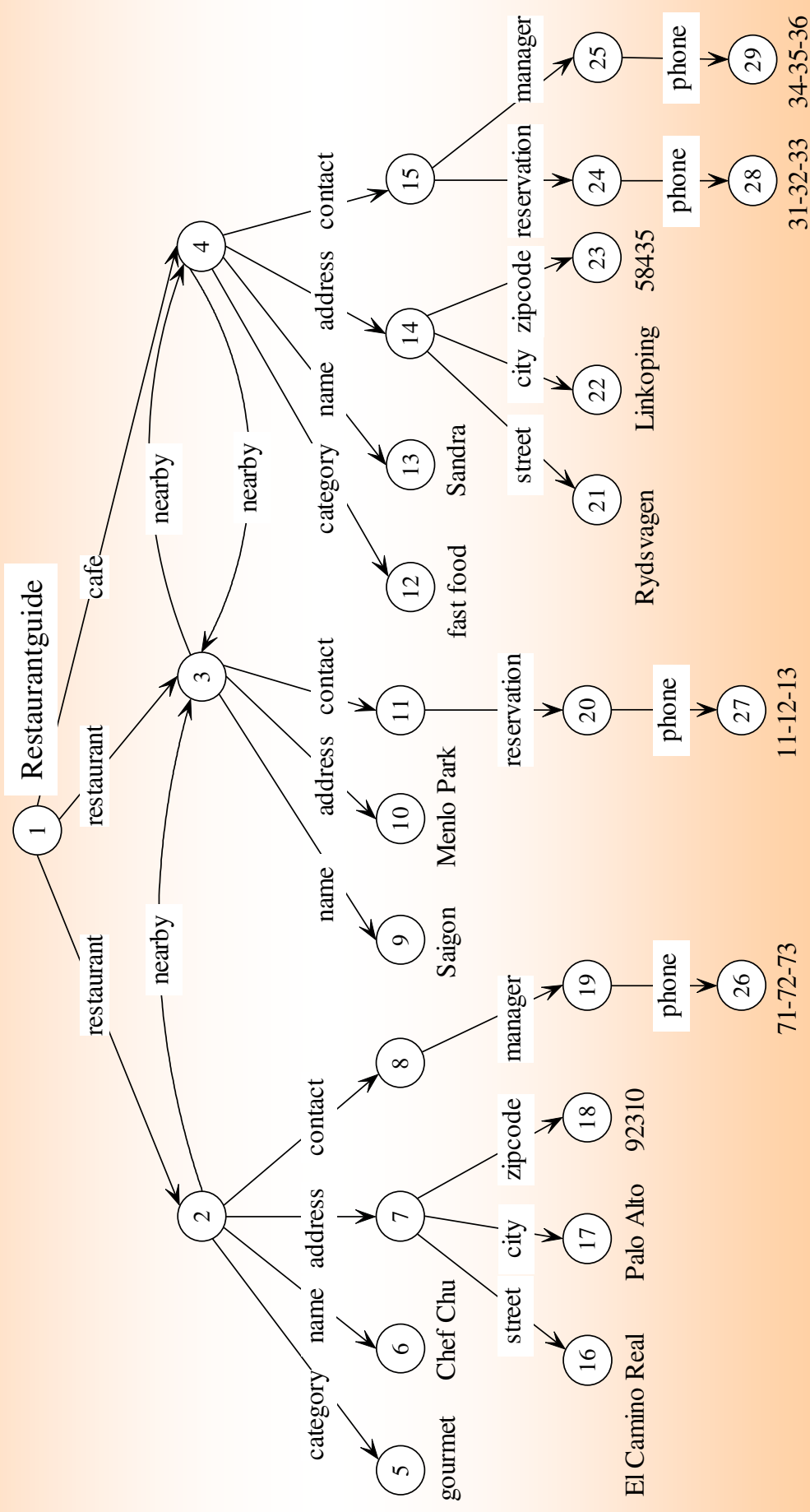
```
select R.name
from DB.Restaurants.T R, DB.RestCities.T RC, DB.Cities.T C
where R.r_id = RC.r_id
      and RC.c_id = C.c_id
      and C.name = "Linköping"
```

list the restaurants by city (equivalent of GROUP BY)

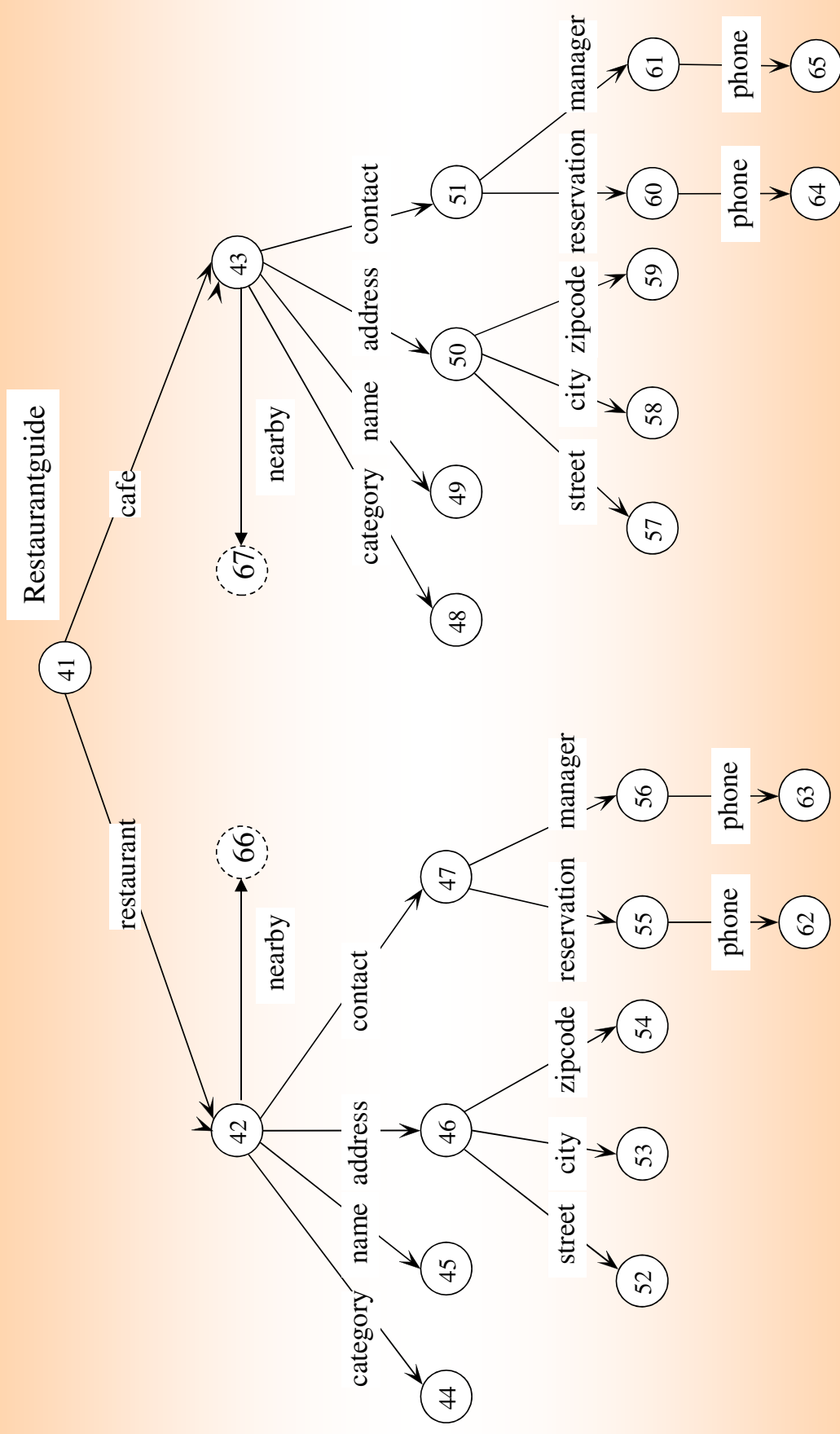
```
select C.name, (select R.name
from DB.Restaurants.T R, DB.RestCities.T RC
where R.r_id = RC.r_id
      and RC.c_id = C.c_id)
from DB.Cities.T C
```

# Exercise 3

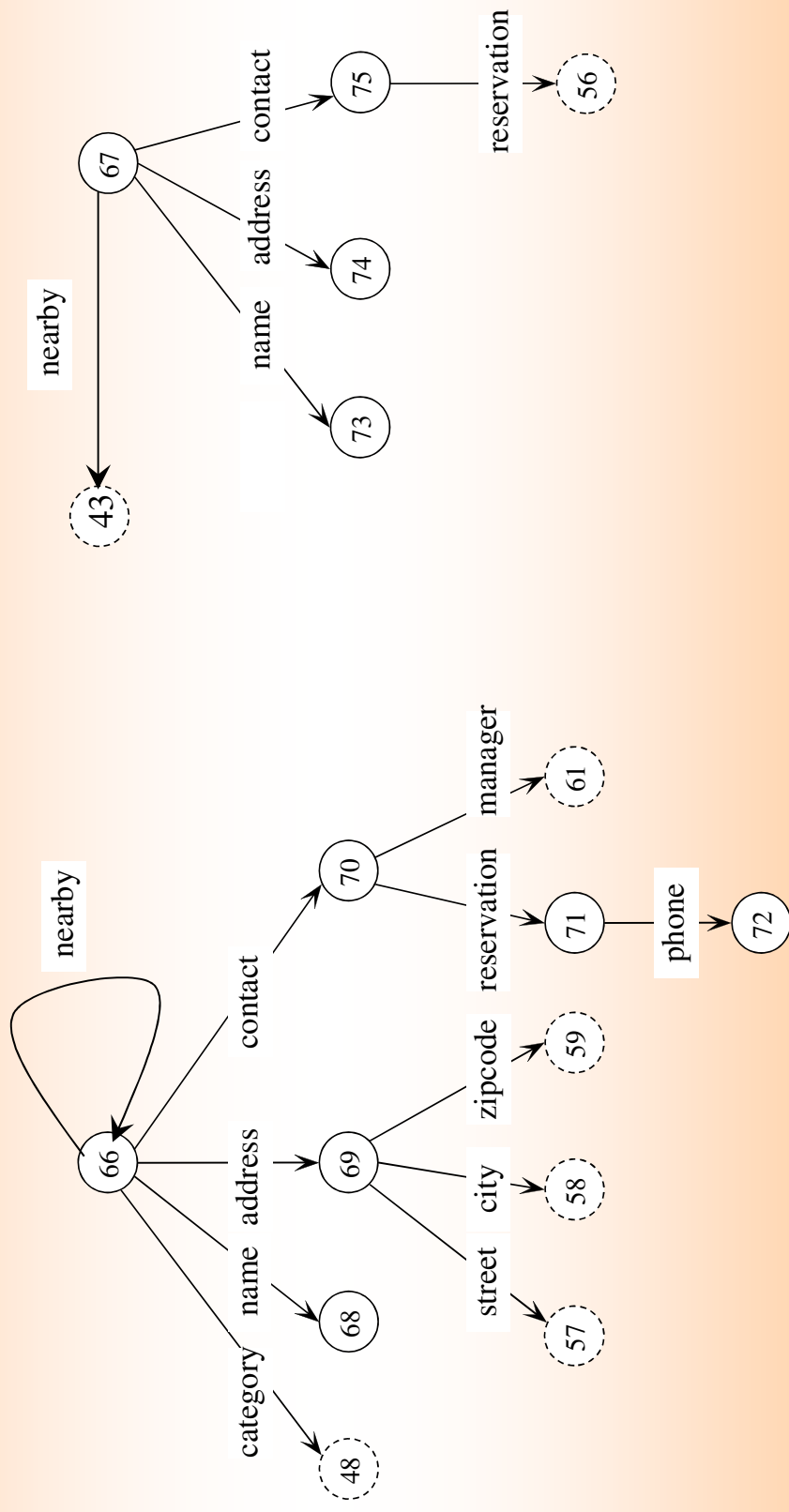
- Draw strong and the minimal Data Guides for the restaurant guide data model below.



# Answer Exercise 3 - Strong Data Guide



# Answer Exercise 3 - Strong Data Guide - continued





41: 1  
42: 2,3  
43: 4  
44: 5  
45: 6,9  
46: 7,10  
47: 8, 11  
48: 12  
49: 13  
50: 14  
51: 15  
52: 16  
53: 17  
54: 18  
55: 19

56: 20  
57: 21  
58: 22  
59: 23  
60: 24  
61: 25  
62: 26  
63: 27  
64: 28  
65: 29  
66: 3,4  
67: 3  
68: 9,13  
69: 10,14  
70: 11,15

71: 20,24  
72: 27,28  
73: 9  
74: 10  
75: 11

# Answer Exercise 3 - Minimal Data Guide

