

Nested Tables and Association

Association

- A row in a nested table for an association contains
 - a Transaction ID
 - an Item Set (Multi-valued)
- Because the Item Set is multi-valued, the association table is a nested table.

Association

- Transaction Examples:
 - Payment at the grocery store (checkout)
 - Netflix Customer
- Item set examples:
 - Flour, Milk, Eggs
 - “Die Hard”, “Die Hard 2”, “Live Free or Die Hard”, “A Good Day to Die Hard”

Flat Table to Nested Table

Party	Person
Halloween	Tom
Labor Day	Rose
Salmon Days	Carl
Labor Day	Jane
Halloween	Harry
Salmon Days	Harry
Salmon Days	Greg
Salmon Days	Keith
Halloween	Jill
Halloween	Dick
Halloween	Joan
Halloween	Jane
Labor Day	Tom
Salmon Days	Jill
Labor Day	Sue

Flat Table

Flat Table to Nested Table

Group By Common Event

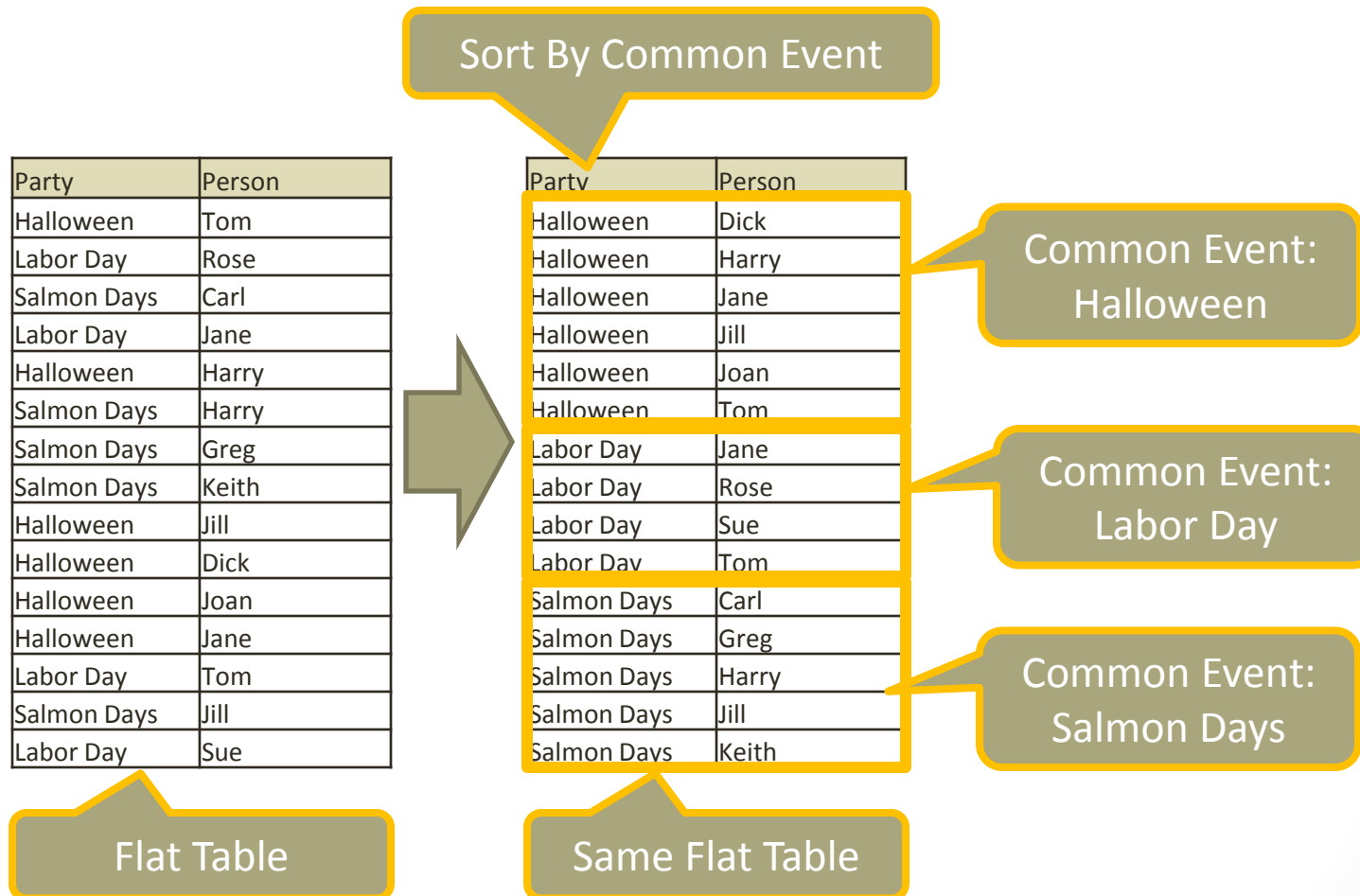
Party	Person
Halloween	Tom
Labor Day	Rose
Salmon Days	Carl
Labor Day	Jane
Halloween	Harry
Salmon Days	Harry
Salmon Days	Greg
Salmon Days	Keith
Halloween	Jill
Halloween	Dick
Halloween	Joan
Halloween	Jane
Labor Day	Tom
Salmon Days	Jill
Labor Day	Sue

Flat Table

Party	Person
Halloween	Dick
Halloween	Harry
Halloween	Jane
Halloween	Jill
Halloween	Joan
Halloween	Tom
Labor Day	Jane
Labor Day	Rose
Labor Day	Sue
Labor Day	Tom
Salmon Days	Carl
Salmon Days	Greg
Salmon Days	Harry
Salmon Days	Jill
Salmon Days	Keith

Same Flat Table

Flat Table to Nested Table



Flat Table to Nested Table

Party	Person
Halloween	Tom
Labor Day	Rose
Salmon Days	Carl
Labor Day	Jane
Halloween	Harry
Salmon Days	Harry
Salmon Days	Greg
Salmon Days	Keith
Halloween	Jill
Halloween	Dick
Halloween	Joan
Halloween	Jane
Labor Day	Tom
Salmon Days	Jill
Labor Day	Sue

Flat Table



Party	Person
Halloween	Dick
Halloween	Harry
Halloween	Jane
Halloween	Jill
Halloween	Joan
Halloween	Tom
Labor Day	Jane
Labor Day	Rose
Labor Day	Sue
Labor Day	Tom
Salmon Days	Carl
Salmon Days	Greg
Salmon Days	Harry
Salmon Days	Jill
Salmon Days	Keith

Same Flat Table



Flat Table to Nested Table

Party	Person
Halloween	Tom
Labor Day	Rose
Salmon Days	Carl
Labor Day	Jane
Halloween	Harry
Salmon Days	Harry
Salmon Days	Greg
Salmon Days	Keith
Halloween	Jill
Halloween	Dick
Halloween	Joan
Halloween	Jane
Labor Day	Tom
Salmon Days	Jill
Labor Day	Sue

Flat Table

Party	Person
Halloween	Dick
Halloween	Harry
Halloween	Jane
Halloween	Jill
Halloween	Joan
Halloween	Tom
Labor Day	Jane
Labor Day	Rose
Labor Day	Sue
Labor Day	Tom
Salmon Days	Carl
Salmon Days	Greg
Salmon Days	Harry
Salmon Days	Jill
Salmon Days	Keith

Same Flat Table

Party	Person
Halloween	Dick
	Harry
	Jane
	Jill
	Joan
Labor Day	Tom
	Jane
	Rose
	Sue
Salmon Days	Tom
	Carl
	Greg
	Harry
	Jill
	Keith

Nested Table

Flat Table to Nested Table

Party	Person
Halloween	Tom
Labor Day	Rose
Salmon Days	Carl
Labor Day	Jane
Halloween	Harry
Salmon Days	Harry
Salmon Days	Greg
Salmon Days	Keith
Halloween	Jill
Halloween	Dick
Halloween	Joan
Halloween	Jane
Labor Day	Tom
Salmon Days	Jill
Labor Day	Sue

Flat Table

Party	Person
Halloween	Dick
Halloween	Harry
Halloween	Jane
Halloween	Jill
Halloween	Joan
Halloween	Tom
Labor Day	Jane
Labor Day	Rose
Labor Day	Sue
Labor Day	Tom
Salmon Days	Carl
Salmon Days	Greg
Salmon Days	Harry
Salmon Days	Jill
Salmon Days	Keith

Same Flat Table

Party	Person
Halloween	Dick
	Harry
	Jane
	Jill
	Joan
Labor Day	Tom
	Jane
	Rose
	Sue
Salmon Days	Tom
	Carl
	Greg
	Harry
	Jill
	Keith

Nested Table

Transaction ID

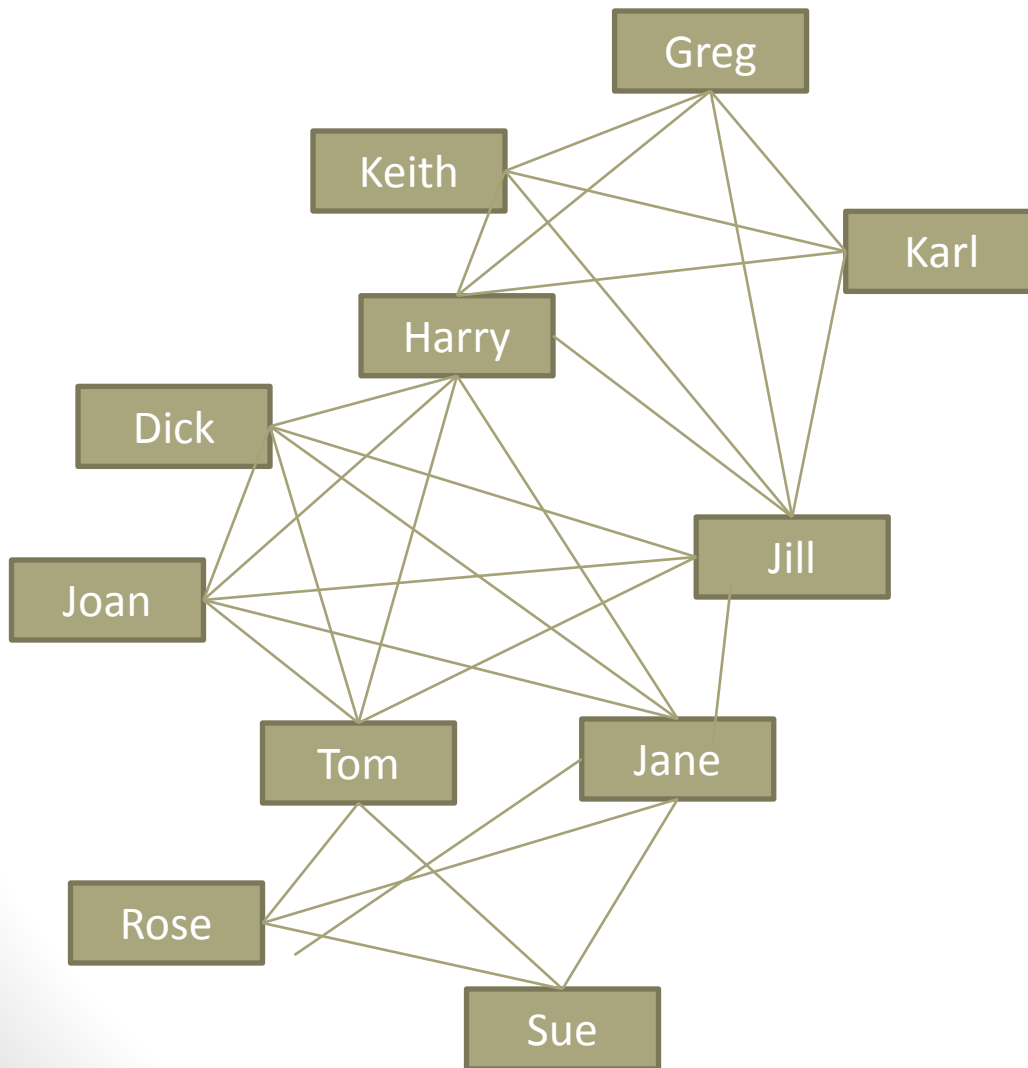
Item

Nested Table to Association

Transaction ID		Item	
Party		Person	
Halloween		Dick	
		Harry	
		Jane	
		Jill	
		Joan	
		Tom	
Labor Day		Jane	
		Rose	
		Sue	
		Tom	
Salmon Days		Carl	
		Greg	
		Harry	
		Jill	
		Keith	

Nested Table

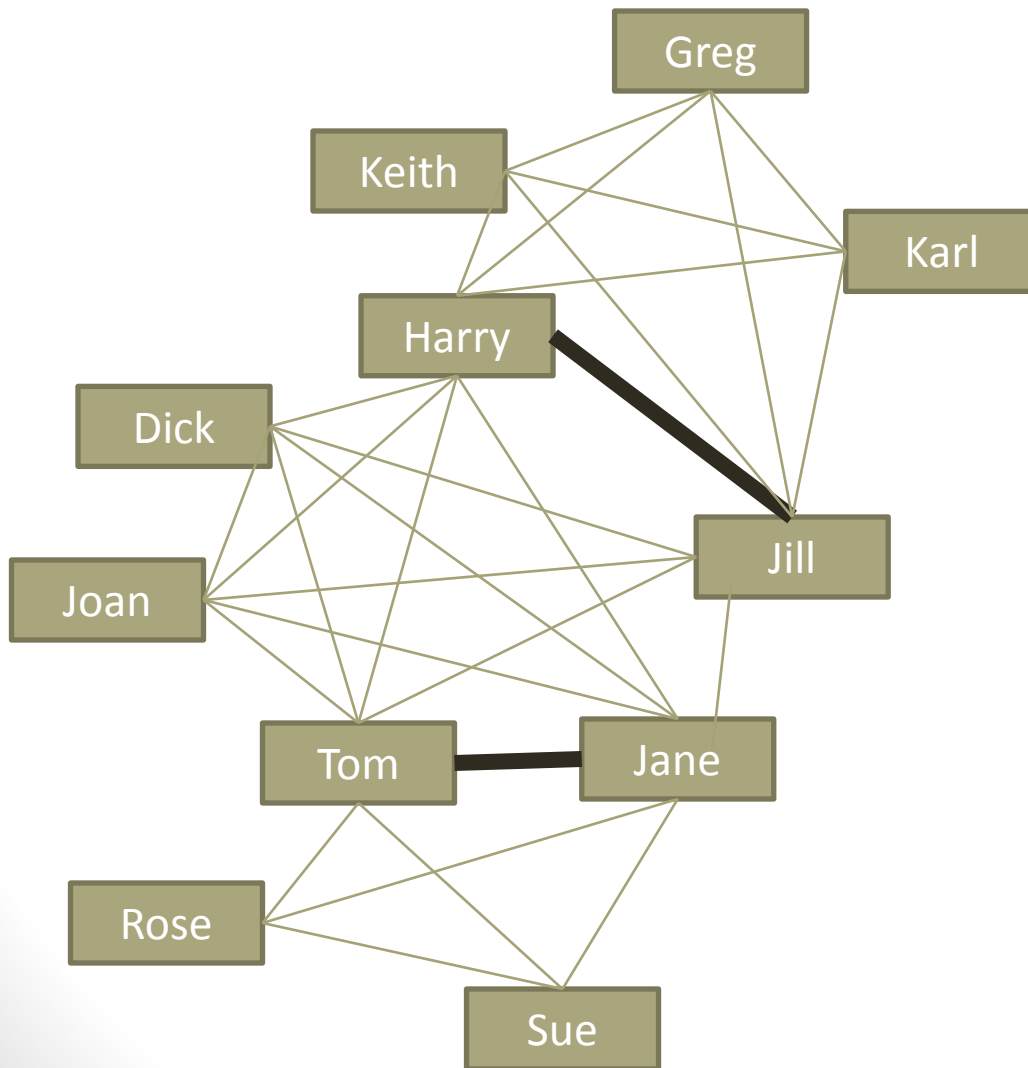
Nested Table to Association



Transaction ID		Item
Party		Person
Halloween		Dick
		Harry
		Jane
		Jill
		Joan
		Tom
Labor Day		Jane
		Rose
		Sue
		Tom
Salmon Days		Carl
		Greg
		Harry
		Jill
		Keith

Nested Table

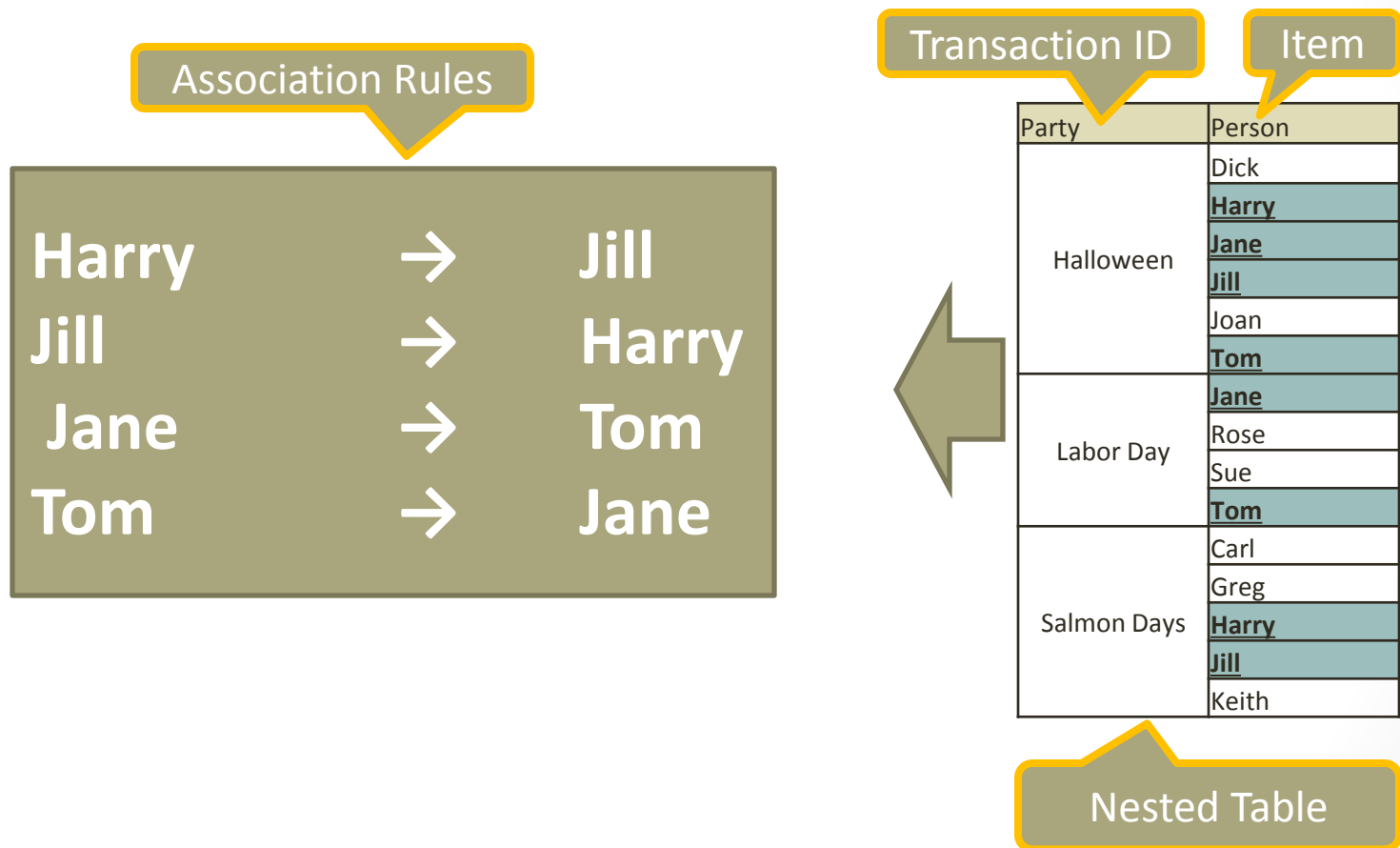
Nested Table to Association



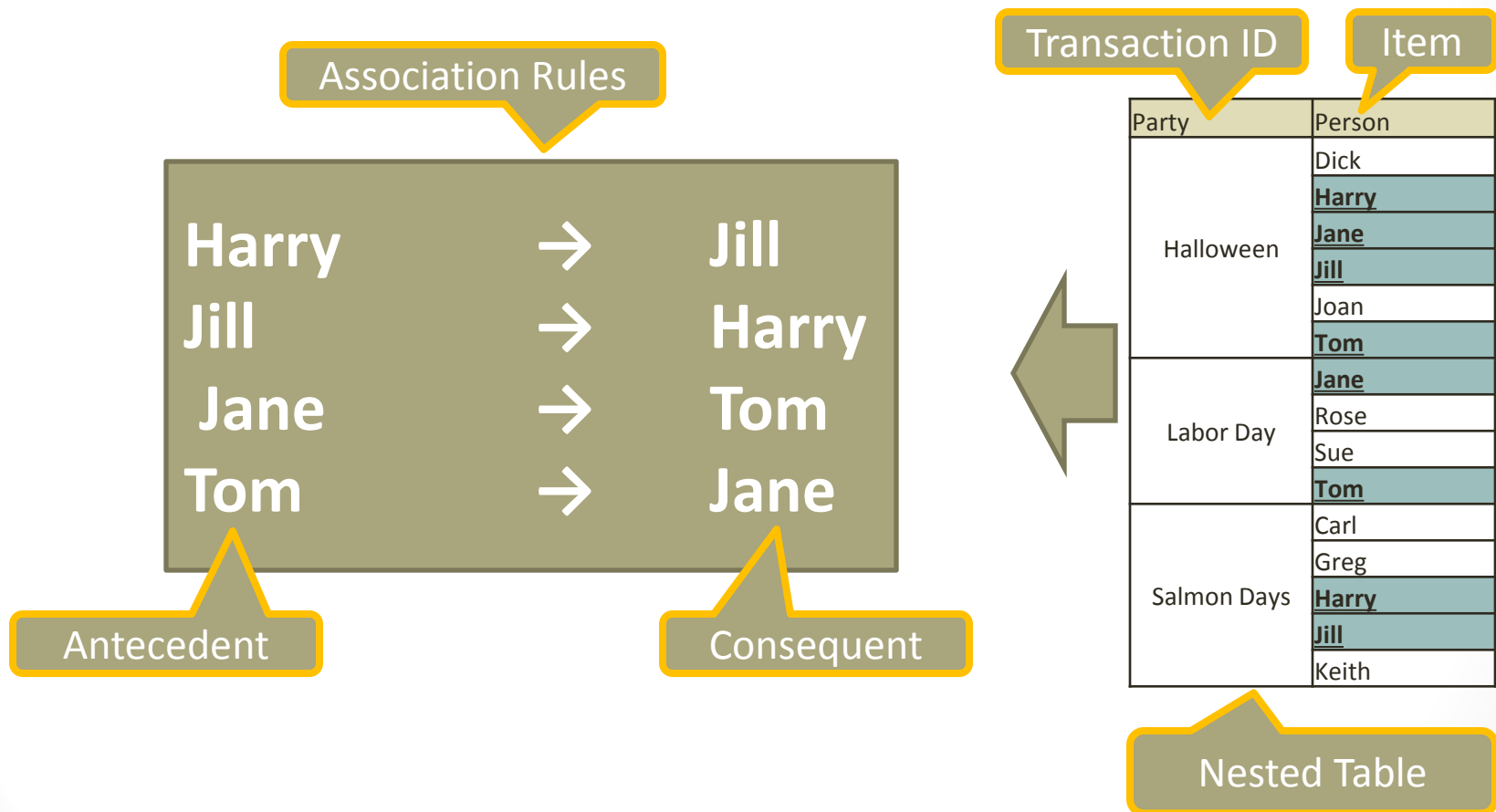
Transaction ID	Item
Party	Person
Halloween	Dick
	Harry
	Jane
	Jill
	Joan
	Tom
Labor Day	Jane
	Rose
	Sue
	Tom
Salmon Days	Carl
	Greg
	Harry
	Jill
	Keith

Nested Table

Nested Table to Association



Nested Table to Association



Links

- Association rule learning:
http://en.wikipedia.org/wiki/Association_rule_learning
- Association Rule Learning and the Apriori Algorithm:
<http://www.r-bloggers.com/association-rule-learning-and-the-apriori-algorithm/>
- R-package: <http://cran.r-project.org/web/packages/arules/arules.pdf>

Quiz Nested Table

- See the presented slide titled “Quiz Nested Tables Questions”



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