

# CI2355 – Almacenes de datos y OLAP



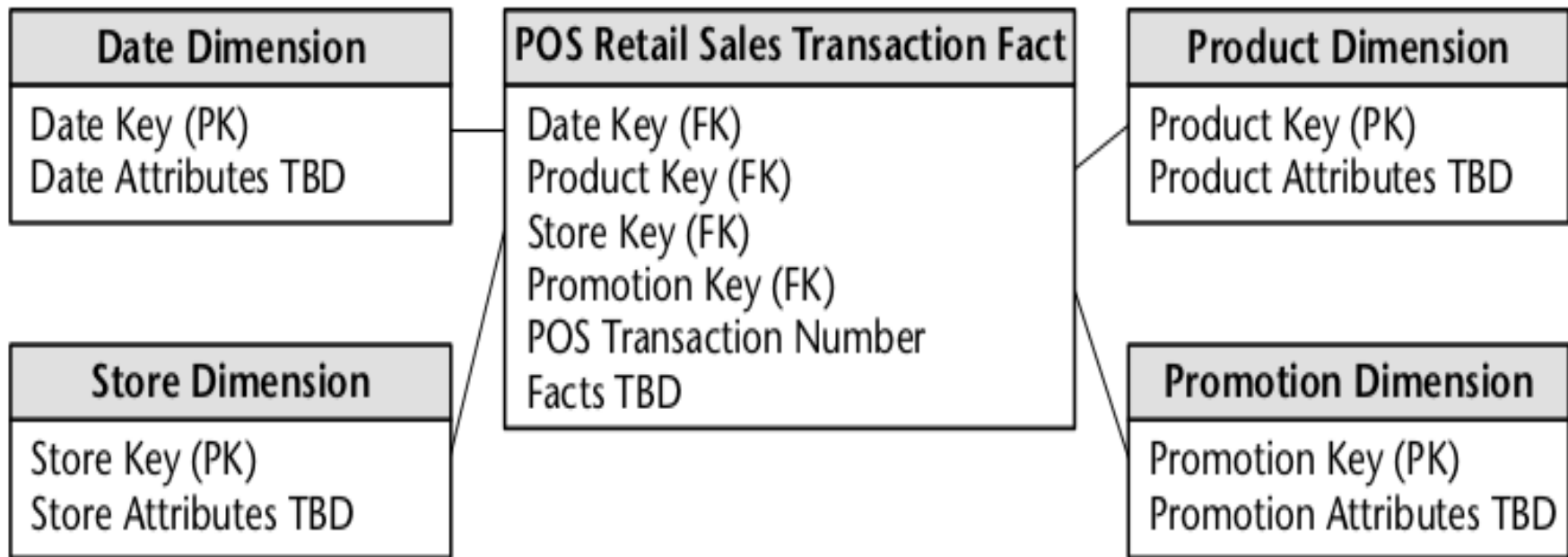
**UNIVERSIDAD DE  
COSTA RICA**

# Estudio de caso: ventas al detalle

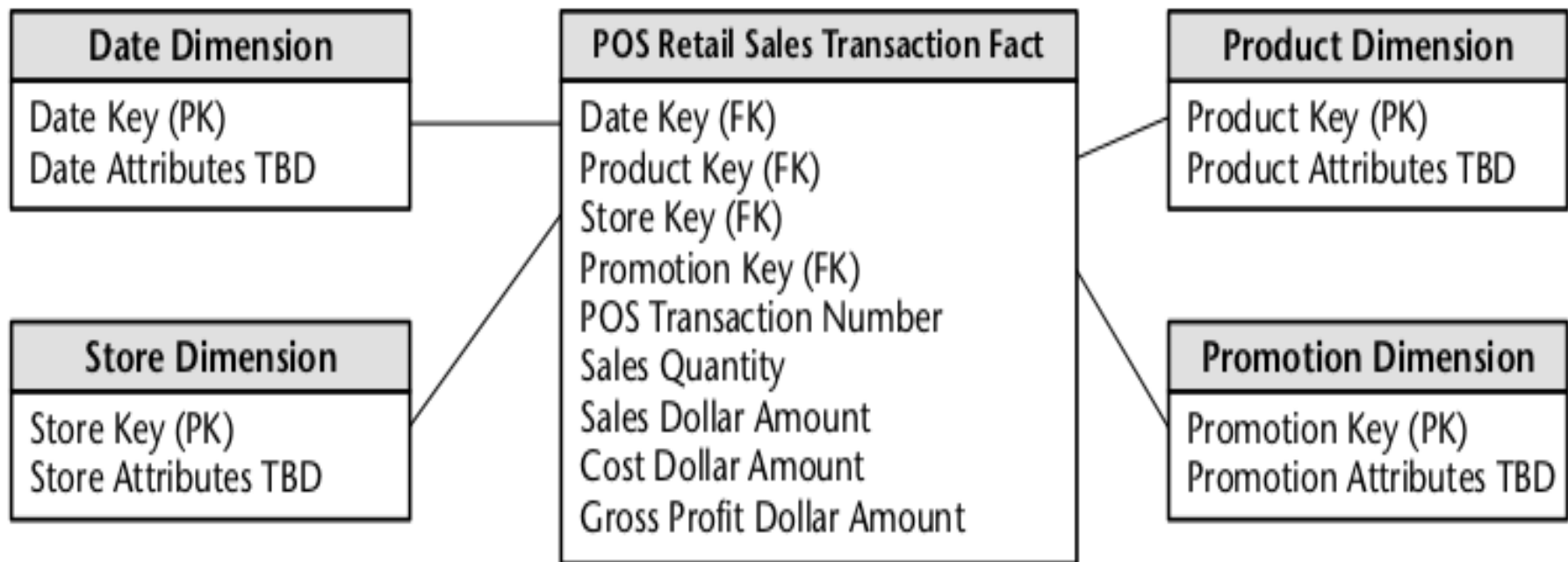
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- Procesos
- Granularidad
- Dimensiones
- Hechos

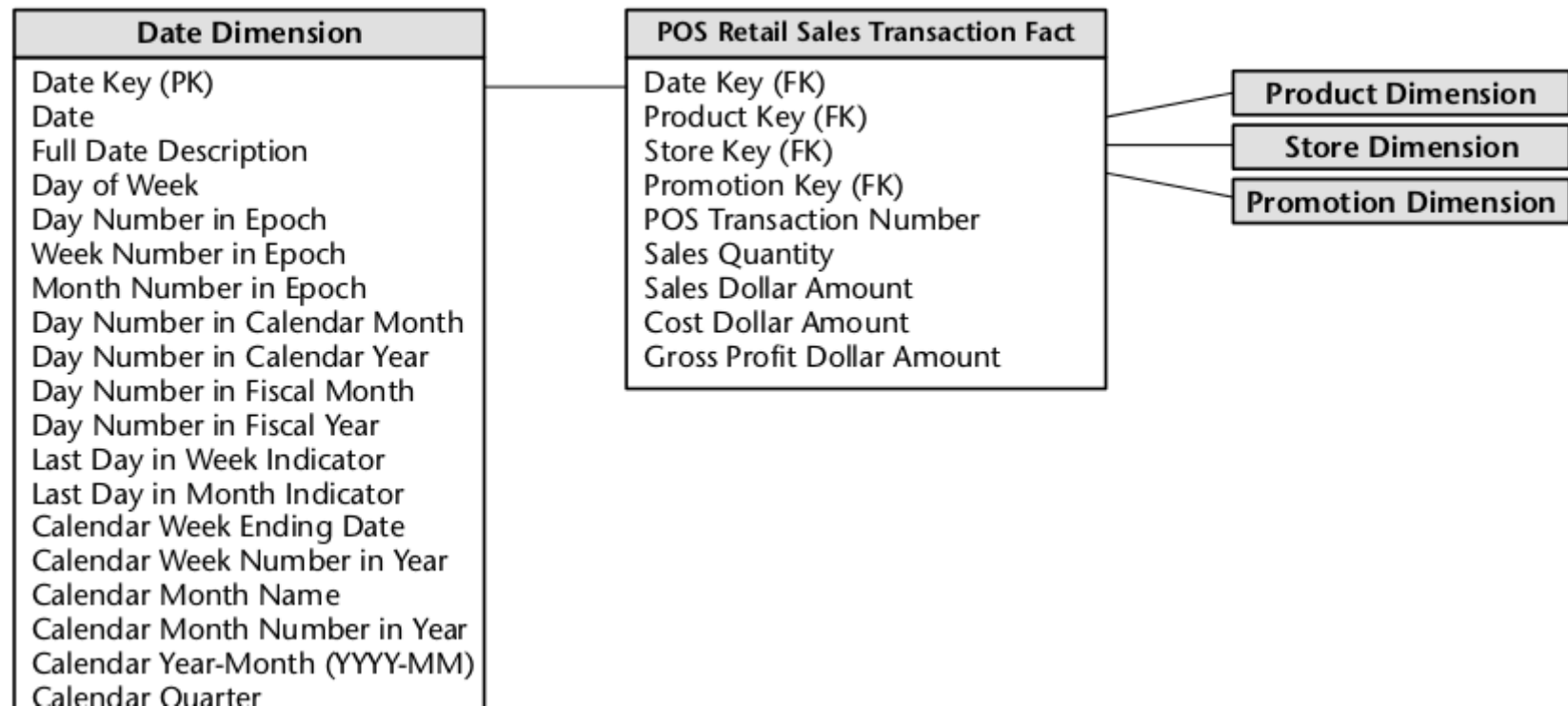
# Esquema preliminar



# Hechos



# Dimensión Fecha



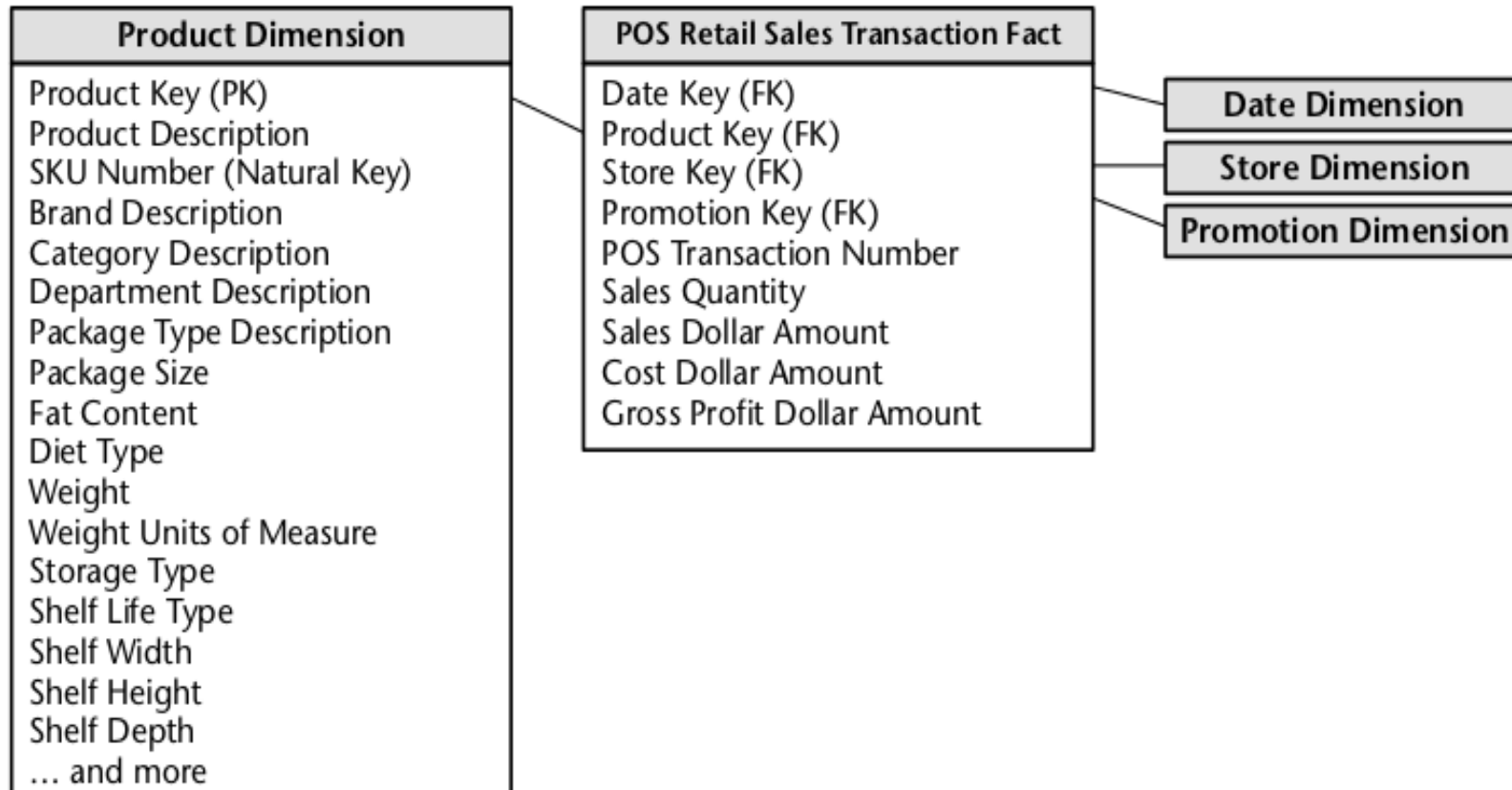
# Dimensión Fecha (cont.)

Calendar Year-MONTH (YYYY-MM)  
Calendar Quarter  
Calendar Year-Quarter  
Calendar Half Year  
Calendar Year  
Fiscal Week  
Fiscal Week Number in Year  
Fiscal Month  
Fiscal Month Number in Year  
Fiscal Year-Month  
Fiscal Quarter  
Fiscal Year-Quarter  
Fiscal Half Year  
Fiscal Year  
Holiday Indicator  
Weekday Indicator  
Selling Season  
Major Event  
SQL Date Stamp  
... and more

# Detalle tabla Fecha

Date Key	Date	Full Date Description	Day of Week	Calendar Month	Calendar Year	Fiscal Year-Month	Holiday Indicator	Weekday Indicator
1	01/01/2002	January 1, 2002	Tuesday	January	2002	F2002-01	Holiday	Weekday
2	01/02/2002	January 2, 2002	Wednesday	January	2002	F2002-01	Non-Holiday	Weekday
3	01/03/2002	January 3, 2002	Thursday	January	2002	F2002-01	Non-Holiday	Weekday
4	01/04/2002	January 4, 2002	Friday	January	2002	F2002-01	Non-Holiday	Weekday
5	01/05/2002	January 5, 2002	Saturday	January	2002	F2002-01	Non-Holiday	Weekend
6	01/06/2002	January 6, 2002	Sunday	January	2002	F2002-01	Non-Holiday	Weekend
7	01/07/2002	January 7, 2002	Monday	January	2002	F2002-01	Non-Holiday	Weekday
8	01/08/2002	January 8, 2002	Tuesday	January	2002	F2002-01	Non-Holiday	Weekday

# Dimensión Producto





# Detalle tabla Producto

Product Key	Product Description	Brand Description	Category Description	Department Description	Fat Content
1	Baked Well Light Sourdough Fresh Bread	Baked Well	Bread	Bakery	Reduced Fat
2	Fluffy Sliced Whole Wheat	Fluffy	Bread	Bakery	Regular Fat
3	Fluffy Light Sliced Whole Wheat	Fluffy	Bread	Bakery	Reduced Fat
4	Fat Free Mini Cinnamon Rolls	Light	Sweeten Bread	Bakery	Non-Fat
5	Diet Lovers Vanilla 2 Gallon	Coldpack	Frozen Desserts	Frozen Foods	Non-Fat
6	Light and Creamy Butter Pecan 1 Pint	Freshlike	Frozen Desserts	Frozen Foods	Reduced Fat
7	Chocolate Lovers 1/2 Gallon	Frigid	Frozen Desserts	Frozen Foods	Regular Fat
8	Strawberry Ice Creamy 1 Pint	Icy	Frozen Desserts	Frozen Foods	Regular Fat
9	Icy Ice Cream Sandwiches	Icy	Frozen Desserts	Frozen Foods	Regular Fat

# Ventas por departamento

<b>Department Description</b>	<b>Sales Dollar Amount</b>	<b>Sales Quantity</b>
Bakery	\$12,331	5,088
Frozen Foods	\$31,776	15,565

# Drill down por jerarquía

<b>Department Description</b>	<b>Brand Description</b>	<b>Sales Dollar Amount</b>	<b>Sales Quantity</b>
Bakery	Baked Well	\$3,009	1,138
Bakery	Fluffy	\$3,024	1,476
Bakery	Light	\$6,298	2,474
Frozen Foods	Coldpack	\$5,321	2,640
Frozen Foods	Freshlike	\$10,476	5,234
Frozen Foods	Frigid	\$7,328	3,092
Frozen Foods	Icy	\$2,184	1,437
Frozen Foods	QuickFreeze	\$6,467	3,162

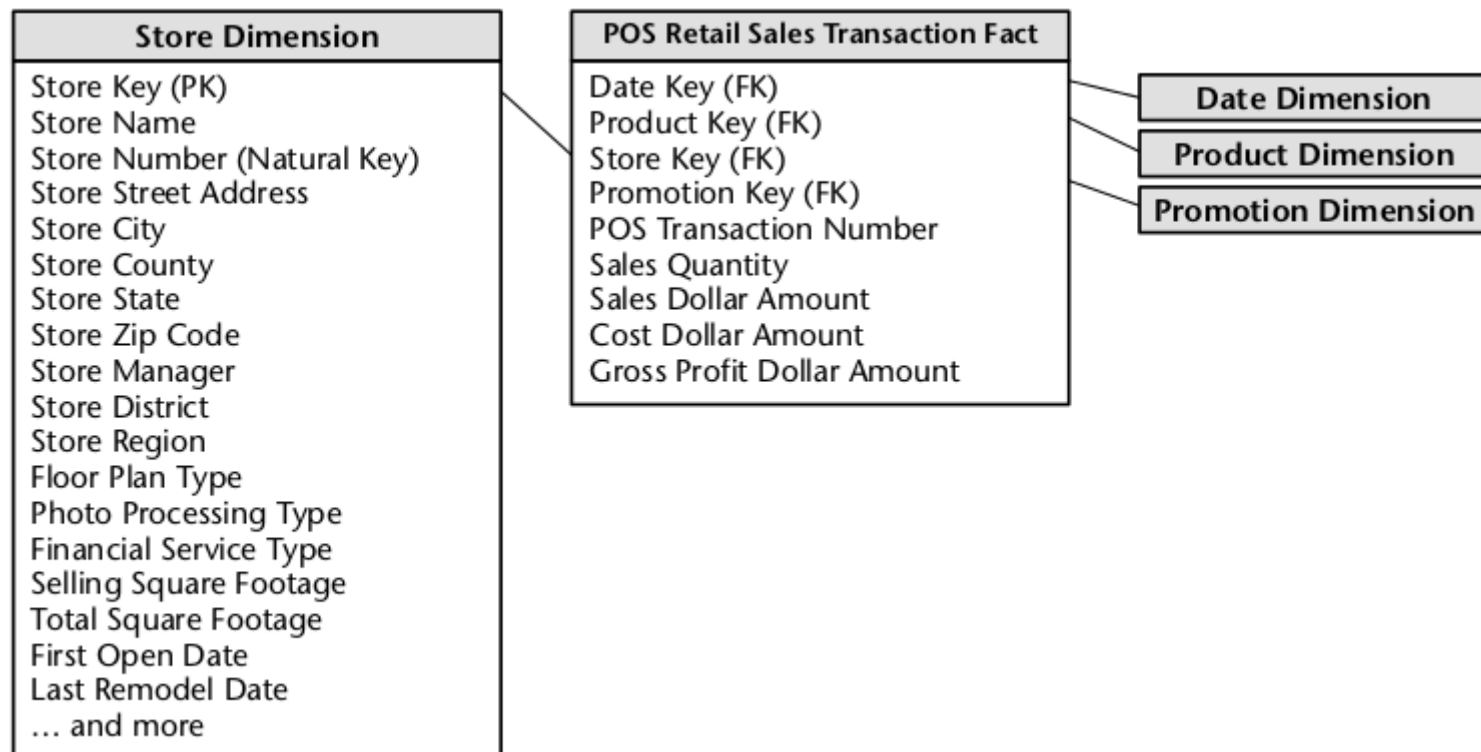
# Drill down sin usar jerarquía

<b>Department Description</b>	<b>Fat Content</b>	<b>Sales Dollar Amount</b>	<b>Sales Quantity</b>
Bakery	Non-Fat	\$6,298	2,474
Bakery	Reduced Fat	\$5,027	2,086
Bakery	Regular Fat	\$1,006	528
Frozen Foods	Non-Fat	\$5,321	2,640
Frozen Foods	Reduced Fat	\$10,476	5,234
Frozen Foods	Regular Fat	\$15,979	7,691

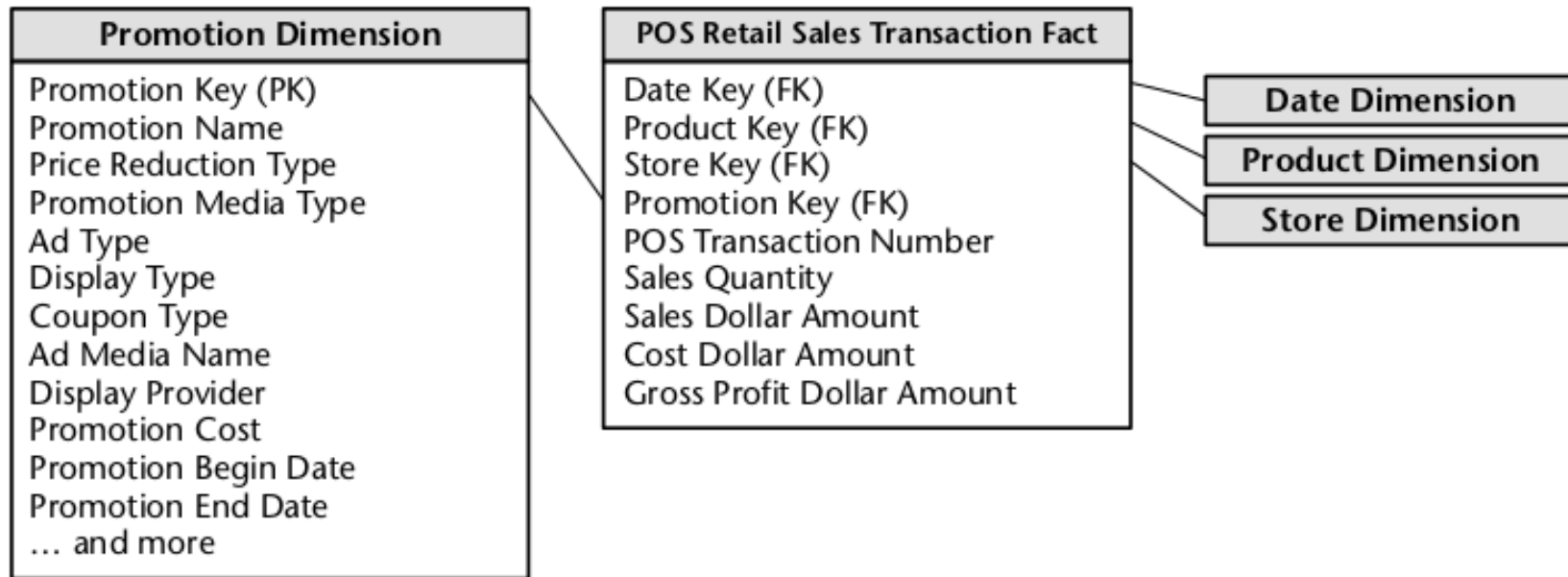
# Principio de diseño

- Drilling down es agregar encabezados obtenidos de las tablas de dimensiones
- Drilling up es quitar encabezados
- Lo podemos hacer con atributos que son parte o no de una jerarquía

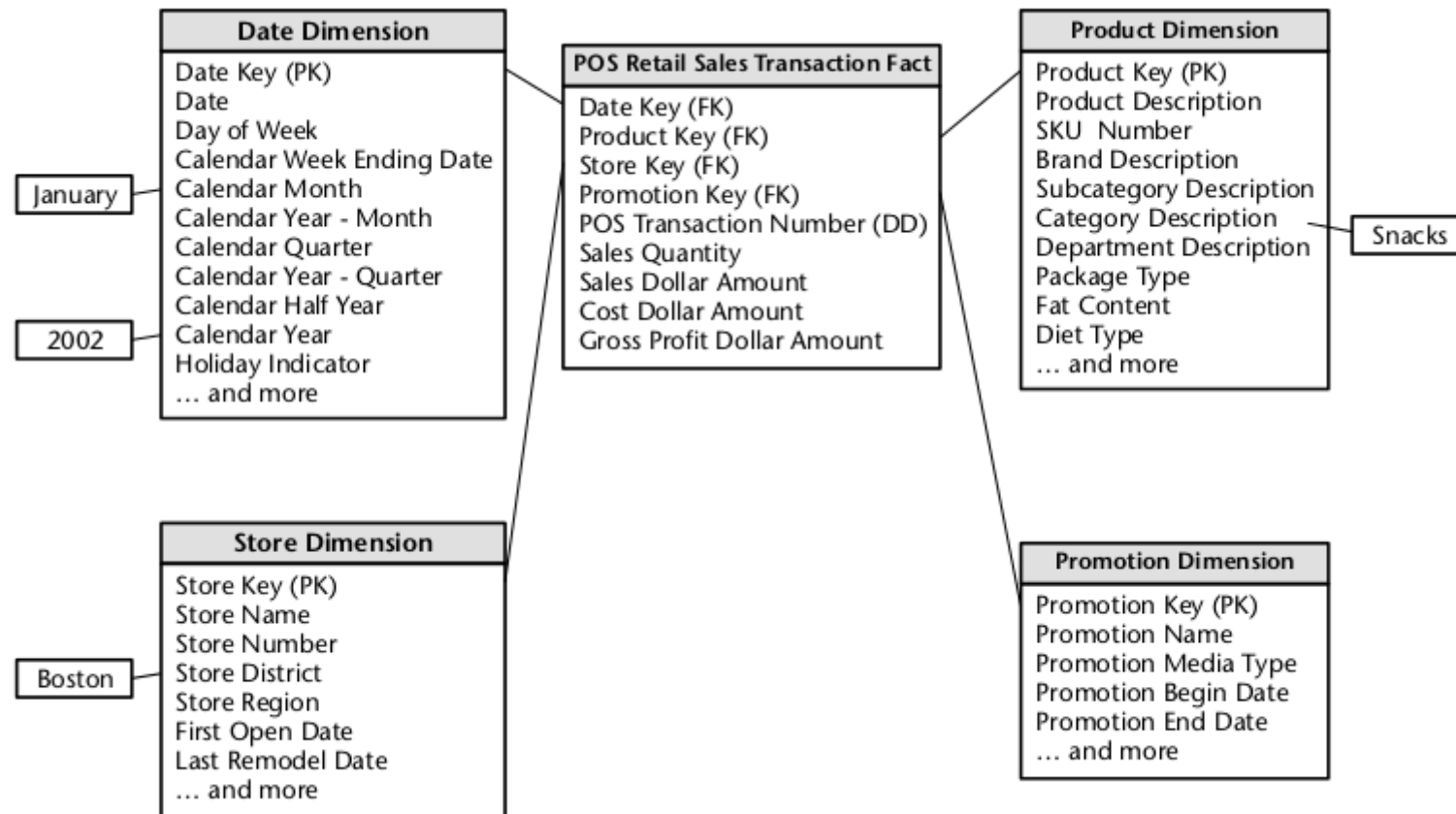
# Dimensión Tienda



# Dimensión Promoción



# Consultas





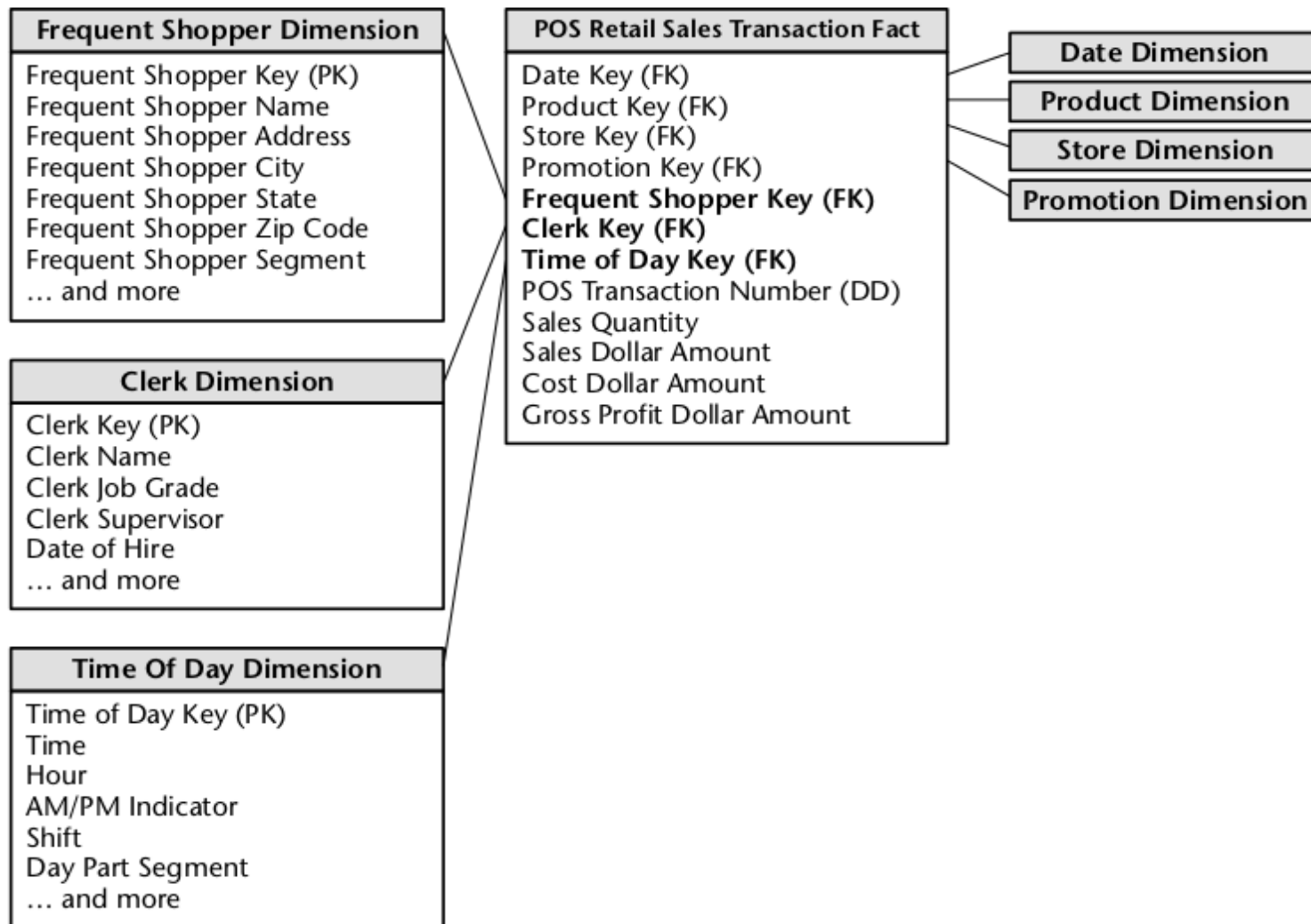
# Resultados

<b>Calendar Week Ending Date</b>	<b>Promotion Name</b>	<b>Sales Dollar Amount</b>
January 6, 2002	No Promotion	22,647
January 13, 2002	No Promotion	4,851
January 20, 2002	Super Bowl Promotion	7,248
January 27, 2002	Super Bowl Promotion	13,798

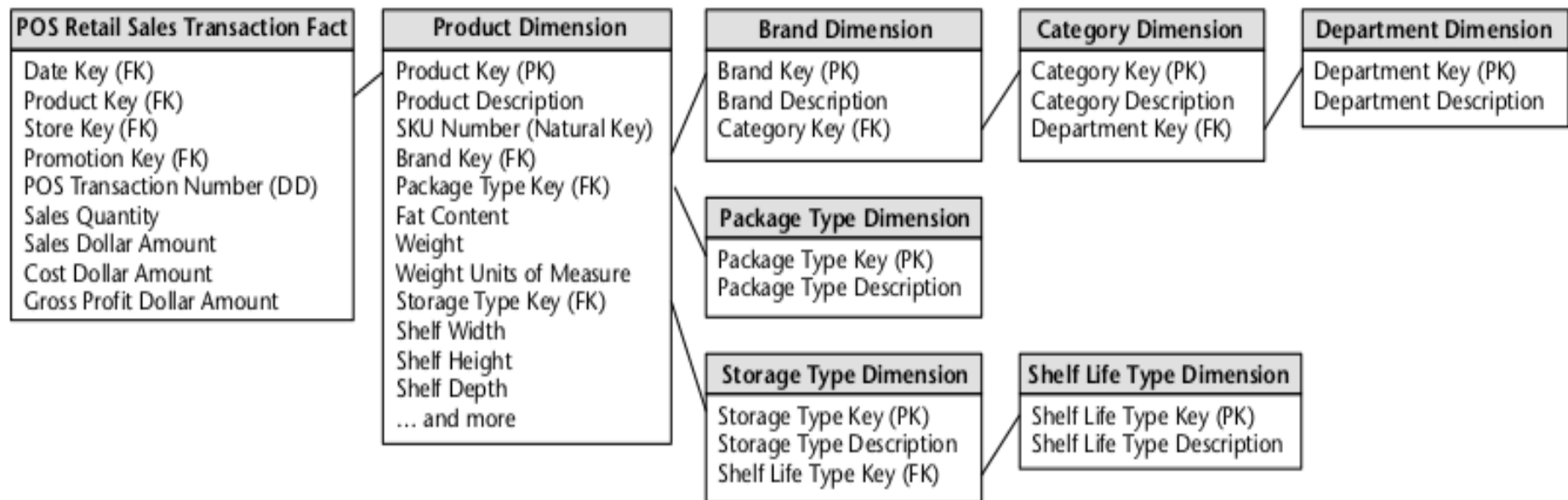
# Resultados

<b>Calendar Week Ending Date</b>	<b>Super Bowl Promotion Sales Dollar Amount</b>	<b>No Promotion Sales Dollar Amount</b>
January 6, 2002	0	22,647
January 13, 2002	0	4,851
January 20, 2002	7,248	0
January 27, 2002	13,793	0

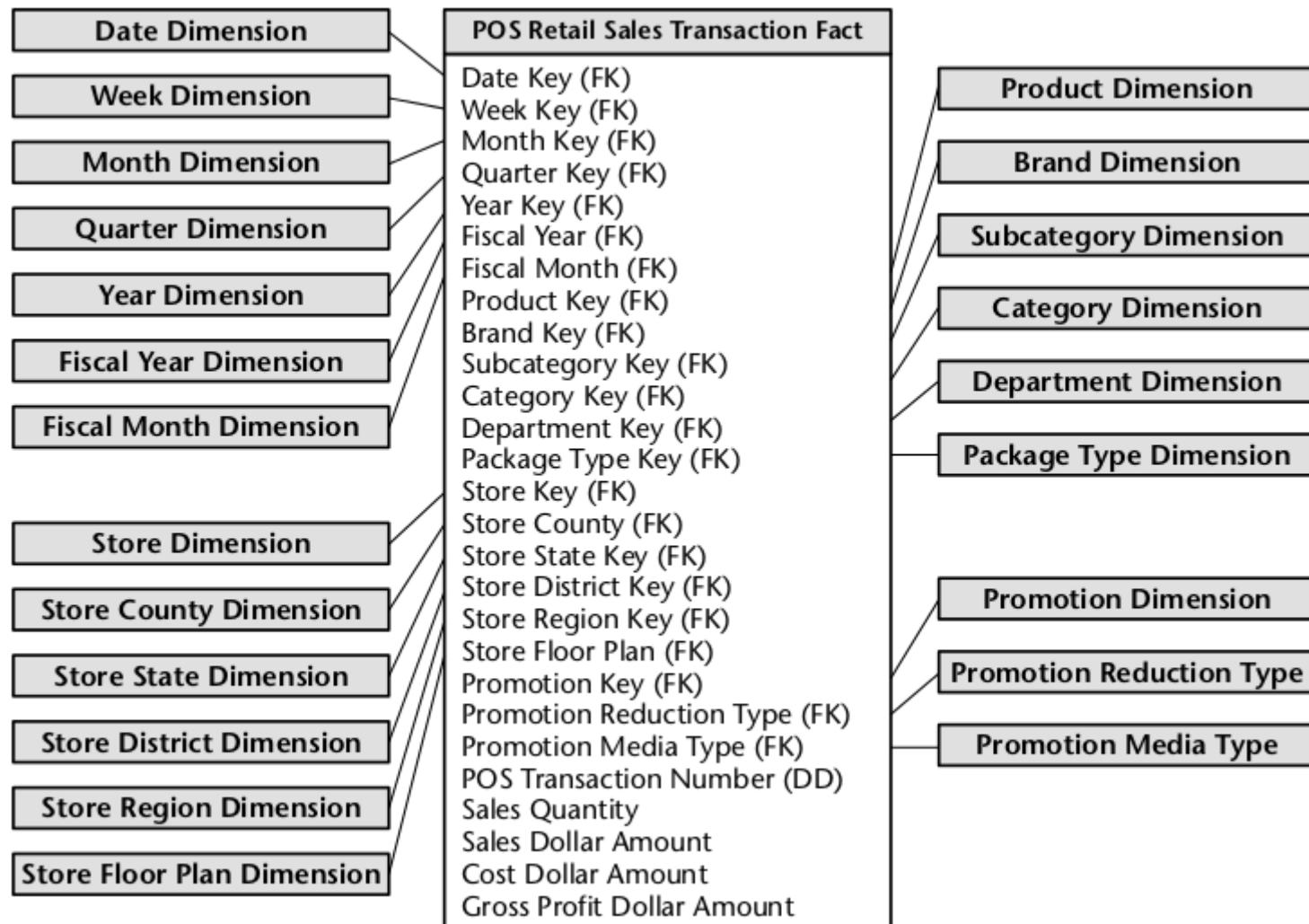
# Embelliendo el esquema



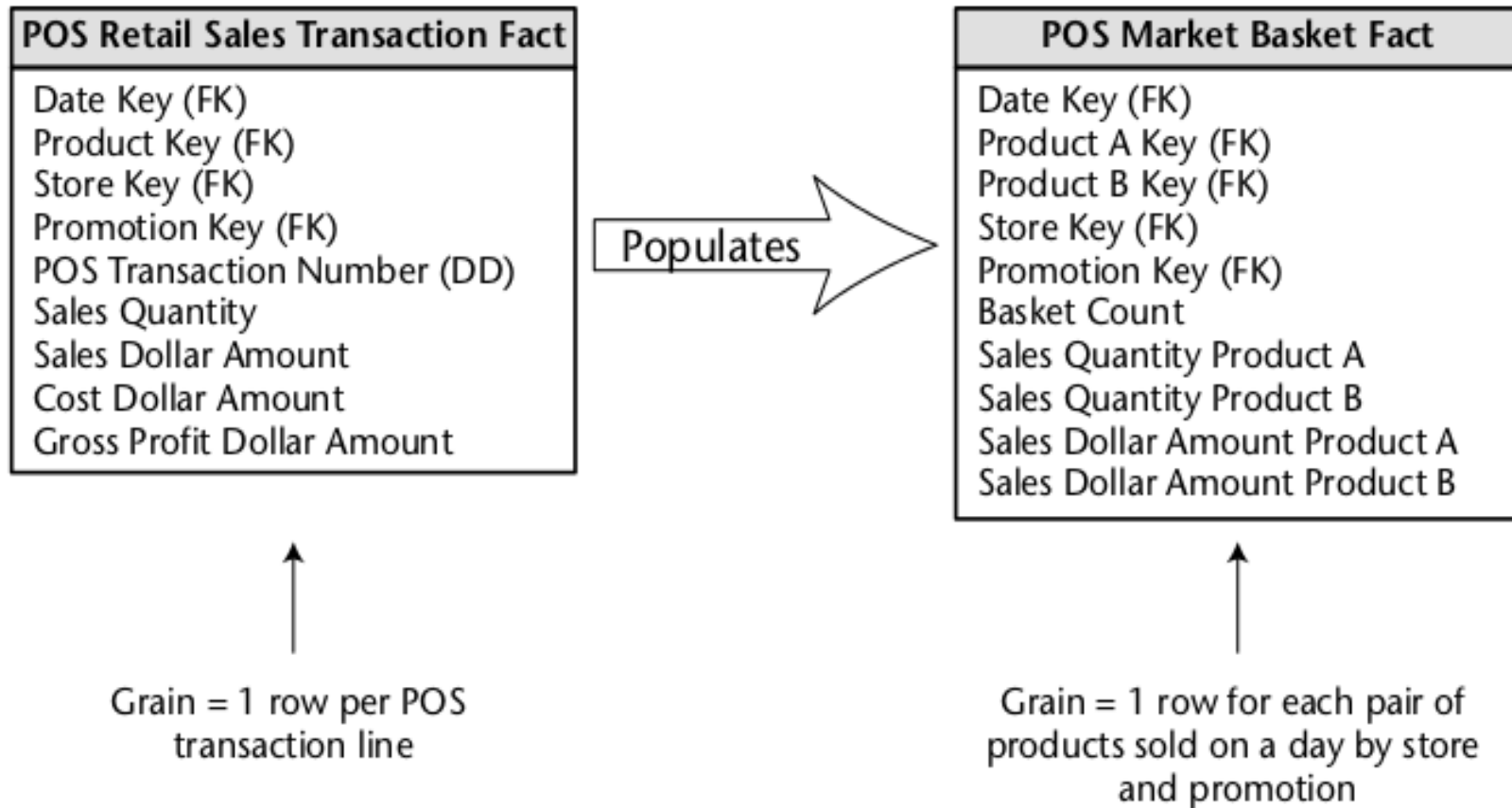
# Snowflaking



# Demasiadas dimensiones



# Análisis de carrito de supermercado



# Referencias

- Golfarelli, M., Rizzi, S. *Data Warehouse Design: Modern Principles and Methodologies*. McGraw-Hill, 2009
- Jiawei, H., Kamber, M. *Data Mining: Concepts and Techniques (Second Edition)*. Morgan-Kaufmann, 2006
- Kimball, R., Ross, M. *The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling (Second Edition)*. John Wiley & Sons, 2002