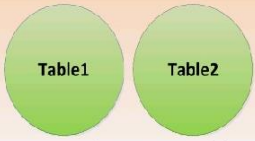


# TSQL JOIN TYPES

Created by Steve Stedman



**SELECT \***  
**FROM Table1;**

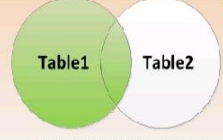
**SELECT \***  
**FROM Table2;**

**SELECT from two tables**



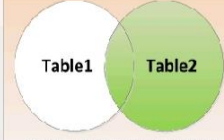
**SELECT \***  
**FROM Table1 t1**  
**INNER JOIN Table2 t2**  
**ON t1.fk = t2.id;**

**INNER JOIN**




**SELECT \***  
**FROM Table1 t1**  
**LEFT OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id;**

**LEFT OUTER JOIN**



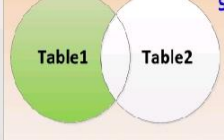
**SELECT \***  
**FROM Table1 t1**  
**RIGHT OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id;**

**RIGHT OUTER JOIN**



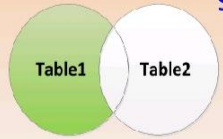
**SELECT \***  
**FROM Table1 t1**  
**WHERE EXISTS (SELECT 1**  
**FROM Table2 t2**  
**WHERE t1.fk = t2.id**  
**);**

**SEMI JOIN**



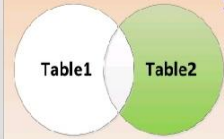
**SELECT \***  
**FROM Table1 t1**  
**WHERE NOT EXISTS (SELECT 1**  
**FROM Table2 t2**  
**WHERE t1.fk = t2.id**  
**);**

**ANTI SEMI JOIN**



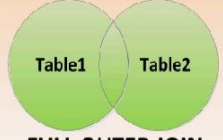
**SELECT \***  
**FROM Table1 t1**  
**LEFT OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id**  
**WHERE t2.id IS NULL;**

**LEFT OUTER JOIN with exclusion**  
– replacement for a NOT IN



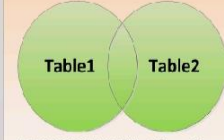
**SELECT \***  
**FROM Table1 t1**  
**RIGHT OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id**  
**WHERE t1.fk IS NULL;**

**RIGHT OUTER JOIN with exclusion**  
– replacement for a NOT IN



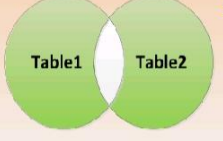
**SELECT \***  
**FROM Table1 t1**  
**FULL OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id;**

**FULL OUTER JOIN**



**SELECT \***  
**FROM Table1 t1**  
**CROSS JOIN Table2 t2;**

**CROSS JOIN, the Cartesian product**



**SELECT \***  
**FROM Table1 t1**  
**FULL OUTER JOIN Table2 t2**  
**ON t1.fk = t2.id**  
**WHERE t1.fk IS NULL**  
**OR t2.id IS NULL;**

**FULL OUTER JOIN with exclusion**

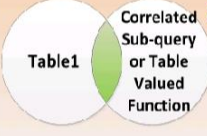


**SELECT \***  
**FROM Table1 t1**  
**INNER JOIN Table2 t2**  
**ON t1.fk >= t2.id;**

**NON-EQUI INNER JOIN**

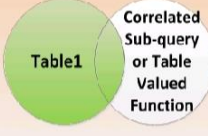
# TSQL JOIN TYPES

Created by Steve Stedman



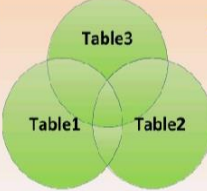
**CROSS APPLY**

```
SELECT *
FROM Table1 t1
CROSS APPLY
    [dbo].[someTVF](t1.fk)
AS t;
```



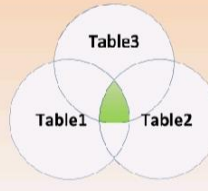
**OUTER APPLY**

```
SELECT *
FROM Table1 t1
OUTER APPLY
    [dbo].[someTVF](t1.fk)
AS t;
```



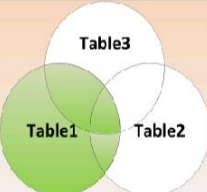
**Two FULL OUTER JOINS**

```
SELECT *
FROM Table1 t1
FULL OUTER JOIN Table2 t2
    ON t1.fk = t2.id
FULL OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



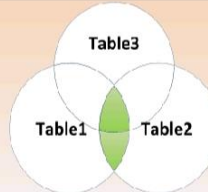
**Two INNER JOINS**

```
SELECT *
FROM Table1 t1
INNER JOIN Table2 t2
    ON t1.fk = t2.id
INNER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



**Two LEFT OUTER JOINS**

```
SELECT *
FROM Table1 t1
LEFT OUTER JOIN Table2 t2
    ON t1.fk = t2.id
LEFT OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



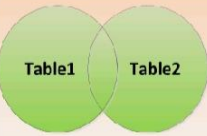
**INNER JOIN and a LEFT OUTER JOIN**

```
SELECT *
FROM Table1 t1
INNER JOIN Table2 t2
    ON t1.fk = t2.id
LEFT OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



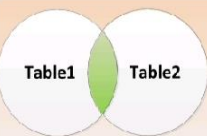
**EXCEPT**

```
SELECT fk as id
FROM Table1
EXCEPT
SELECT ID
FROM Table2;
```



**UNION**

```
SELECT fk as id
FROM Table1
UNION
SELECT ID
FROM Table2;
```



**INTERSECT**

```
SELECT fk as id
FROM Table1
INTERSECT
SELECT ID
FROM Table2;
```

**Sample Schema**

**Table 1  
(People)**

	id	Name	fk	fk_table3
1	1	Steve	1	NULL
2	2	Aaron	3	NULL
3	3	Mary	2	NULL
4	4	Fred	1	NULL
5	5	Anne	5	NULL
6	6	Beth	8	1
7	7	Johnny	NULL	1
8	8	Karen	NULL	2

**Table 2  
(Favorite Colors)**

	id	FavoriteColor
1	1	red
2	2	green
3	3	blue
4	4	pink
5	5	purple
6	6	mauve
7	7	orange
8	8	yellow
9	1	indigo

**Table 3  
(Favorite Foods)**

	id	dataValue
1	1	Pizza
2	2	Burger
3	3	Sushi

**Note:** Column names are very generic to simplify the sample queries.  
 Foreign keys are  
 Table1.fk -> Table2.id  
 Table2.fk\_table3 -> Table3.id