Q LANGUAGE - JOINS

In **q** language, we have different kinds of joins based on the input tables supplied and the kind of joined tables we desire. A join combines data from two tables. Besides foreign key chasing, there are four other ways to join tables −

- Simple join
- Asof join
- Left join
- Union join

Here, in this chapter, we will discuss each of these joins in detail.

Simple Join

Simple join is the most basic type of join, performed with a comma ‘,’. In this case, the two tables have to be **type conformant**, i.e., both the tables have the same number of columns in the same order, and same key.

```
table1,:table2 / table1 is assigned the value of table2
```

We can use comma-each join for tables with same length to join sideways. One of the tables can be keyed here,

```
Table1, `Table2
```

Asof Join *aj*

It is the most powerful join which is used to get the value of a field in one table asof the time in another table. Generally it is used to get the prevailing bid and ask at the time of each trade.

General format

```
aj[joinColumns;tbl1;tbl2]
```

For example,

```
aj[`sym`time;trade;quote]
```

Example

```
q)tab1:([]a:(1 2 3 4);b:(2 3 4 5);d:(6 7 8 9))

q)tab2:([]a:(2 3 4);b:(3 4 5); c:( 4 5 6))

q)show aj[`a`b;tab1;tab2]

 a  b  d  c
-------------
 1  2  6
 2  3  7  4
 3  4  8  5
 4  5  9  6
```

Left Join*lj*

It’s a special case of aj where the second argument is a keyed table and the first argument

contains the columns of the right argument's key.

General format

```
table1 lj Keyed-table
```

Example

```
q)/Left join- syntax table1 lj table2 or lj[table1;table2]

q)tab1:([]a:(1 2 3 4);b:(2 3 4 5);d:(6 7 8 9))

q)tab2:([a:(2 3 4);b:(3 4 5)]; c:( 4 5 6))

q)show lj[tab1;tab2]

 a  b  d  c
-------------
 1  2  6
 2  3  7  4
 3  4  8  5
 4  5  9  6
```

Union Join *uj*

It allows to create a union of two tables with distinct schemas. It is basically an extension to the simple join ,

```
q)tab1:([]a:(1 2 3 4);b:(2 3 4 5);d:(6 7 8 9))

q)tab2:([]a:(2 3 4);b:(3 4 5); c:( 4 5 6))

q)show uj[tab1;tab2]

 a  b  d  c
------------
 1  2  6
 2  3  7
 3  4  8
 4  5  9
 2  3     4
 3  4     5
 4  5     6
```

If you are using uj on keyed tables, then the primary keys must match.