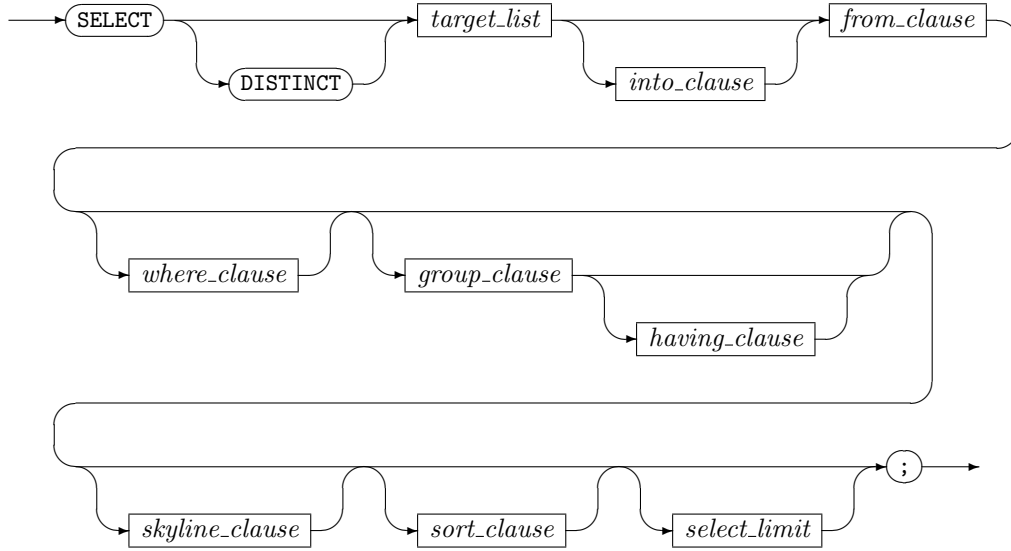


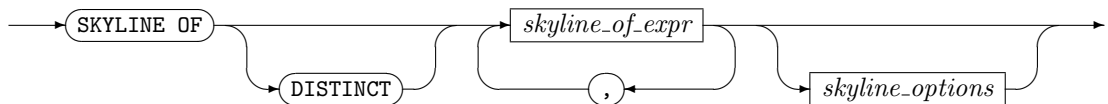
BY/HAVING-clause and the optional ORDER BY-clause, denoted by *group_clause* / *having_clause* and *sort_clause*. We omit some details here but it should be clear from the context that *target_list*, *into_clause*, *from_clause*, *where_clause*, *group_clause*, *having_clause*, *sort_clause*, and *select_limit* have their usual meaning. We refer the readers to the corresponding SQL standard and especially to the PostgreSQL documentation on SQL *SELECT*¹. For the non-terminals that we omitted here we selected the same name as in the implementation (see `src/backend/parser/gram.y`), in order to easily find the exact definition.

select_clause



The *skyline_clause* itself is prelude by the keywords **SKYLINE OF**, followed by an optional **DISTINCT**. The essential part is the comma separated list of *skyline_of_expr*, and it is closed by the optional *skyline_options* part. For the semantics of **DISTINCT** see section 2.5. For the entire skyline clause we introduced just a single new reserved keyword (**SKYLINE**), see section 4.1.2.

skyline_clause



A *skyline_of_expr* specifies how to treat a single dimension of a skyline query. This includes the specification of the column or even an expression (*c_expr*) and the specification of **MIN**, **MAX**, **DIFF**, and **USING qualOp**. We call the last specification *skyline direction* or just *direction* for short, this is because a similar concept (**ASC/DESC**) in the **ORDER BY**-clause is also called direction. Furthermore the treatment of null values can be specified using **NULLS FIRST** and **NULLS LAST**. We have the same concept for the **ORDER BY**-clause. This special treatment of null values was introduced in PostgreSQL 8.3.0 (see *SQL SELECT/ORDER BY*²). For the semantics of this see section 4.2.2.

The introduction of **USING qualOp** in skyline queries is our idea, but as for the treatment of null values it was inspired by a PostgreSQL extension to the **ORDER BY**-clause. See section 4.2.1 for more details.

¹<http://www.postgresql.org/docs/8.3/static/sql-select.html>

²<http://www.postgresql.org/docs/8.3/static/sql-select.html#SQL-ORDERBY>