# Характеристики окна данных

# Окно данных — partition by

**OVER**

| ordr_date | order_time | manager | payment_method | food_name | price_usd | cnt | total |
|---|---|---|---|---|---|---|---|
| 2020-01-12 | 08:57:00 | Abbie Peters | cash | Cucumber | 1.2 | 91 | 109.2 |
| 2020-01-18 | 21:26:00 | Abbie Peters | debit | Shellfish | 15.5 | 28 | 434 |
| 2020-01-19 | 23:10:00 | Abbie Peters | credit | Coconuts | 4.05 | 46 | 186.29 |
| 2020-01-20 | 21:46:00 | Abbie Peters | credit | Bananas | 0.56 | 42 | 23.5203 |
| 2020-01-14 | 10:13:00 | Averie Graham | debit | Chicken breasts | 2.55 | 36 | 91.8 |
| 2020-01-14 | 20:53:00 | Averie Graham | credit | Chicken breasts | 2.55 | 14 | 35.606 |
| 2020-01-17 | 19:32:00 | Averie Graham | cash | Tomatoes | 1.2 | 33 | 39.6 |
| 2020-01-18 | 20:59:00 | Averie Graham | debit | Broccoli | 3.7 | 63 | 233.102 |
| 2020-01-11 | 04:04:00 | Darryl Mathis | credit | Eggs | 0.35 | 72 | 25.2 |
| 2020-01-13 | 20:52:00 | Darryl Mathis | debit | Lean beef | 3.52 | 20 | 70.4 |
| 2020-01-16 | 21:25:00 | Darryl Mathis | credit | Shellfish | 15.5 | 99 | 1534.5 |
| 2020-01-17 | 15:47:00 | Darryl Mathis | credit | Eggs | 0.35 | 23 | 8.04 |
| 2020-01-12 | 18:45:00 | Ellis Cisneros | cash | Apples | 1.2 | 56 | 67.2 |
| 2020-01-19 | 01:26:00 | Ellis Cisneros | cash | Apples | 1.2 | 37 | 44.4 |
| 2020-01-22 | 10:01:00 | Ellis Cisneros | debit | Carrots | 3.33 | 97 | 323.01 |
| 2020-01-27 | 04:21:00 | Ellis Cisneros | debit | Carrots | 3.33 | 86 | 286.38 |
| 2020-01-10 | 17:45:00 | Kaiden Wall | cash | Broccoli | 3.7 | 2 | 7.4 |
| 2020-01-14 | 16:49:00 | Kaiden Wall | cash | Cucumber | 1.2 | 40 | 48 |
| 2020-01-15 | 03:14:00 | Kaiden Wall | debit | Shellfish | 15.5 | 69 | 1069.5 |
| 2020-01-15 | 16:24:00 | Kaiden Wall | credit | Apples | 1.2 | 29 | 34.8 |

# Окно данных — partition by

row_number() over (partition by manager)

| ordr_date | order_time | manager | payment_method | food_name | price_usd | cnt | total |
|---|---|---|---|---|---|---|---|
| 2020-01-12 | 08:57:00 | Abbie Peters | cash | Cucumber | 1.2 | 91 | 109.2 |
| 2020-01-18 | 21:26:00 | Abbie Peters | debit | Shellfish | 15.5 | 28 | 434 |
| 2020-01-19 | 23:10:00 | Abbie Peters | credit | Coconuts | 4.05 | 46 | 186.29 |
| 2020-01-20 | 21:46:00 | Abbie Peters | credit | Bananas | 0.56 | 42 | 23.5203 |
| 2020-01-14 | 10:13:00 | Averie Graham | debit | Chicken breasts | 2.55 | 36 | 91.8 |
| 2020-01-14 | 20:53:00 | Averie Graham | credit | Chicken breasts | 2.55 | 14 | 35.606 |
| 2020-01-17 | 19:32:00 | Averie Graham | cash | Tomatoes | 1.2 | 33 | 39.6 |
| 2020-01-18 | 20:59:00 | Averie Graham | debit | Broccoli | 3.7 | 63 | 233.102 |
| 2020-01-11 | 04:04:00 | Darryl Mathis | credit | Eggs | 0.35 | 72 | 25.2 |
| 2020-01-13 | 20:52:00 | Darryl Mathis | debit | Lean beef | 3.52 | 20 | 70.4 |
| 2020-01-16 | 21:25:00 | Darryl Mathis | credit | Shellfish | 15.5 | 99 | 1534.5 |
| 2020-01-17 | 15:47:00 | Darryl Mathis | credit | Eggs | 0.35 | 23 | 8.04 |
| 2020-01-12 | 18:45:00 | Ellis Cisneros | cash | Apples | 1.2 | 56 | 67.2 |
| 2020-01-19 | 01:26:00 | Ellis Cisneros | cash | Apples | 1.2 | 37 | 44.4 |
| 2020-01-22 | 10:01:00 | Ellis Cisneros | debit | Carrots | 3.33 | 97 | 323.01 |
| 2020-01-27 | 04:21:00 | Ellis Cisneros | debit | Carrots | 3.33 | 86 | 286.38 |
| 2020-01-10 | 17:45:00 | Kaiden Wall | cash | Broccoli | 3.7 | 2 | 7.4 |
| 2020-01-14 | 16:49:00 | Kaiden Wall | cash | Cucumber | 1.2 | 40 | 48 |
| 2020-01-15 | 03:14:00 | Kaiden Wall | debit | Shellfish | 15.5 | 69 | 1069.5 |
| 2020-01-15 | 16:24:00 | Kaiden Wall | credit | Apples | 1.2 | 29 | 34.8 |

OVER

# Окно данных — partition by + order by

```
select *,
row_number() over
(partition by manager, payment_method
order by manager, payment_method) num
from skill_orders
```

| ordr_date | order_time | manager | payment_method | food_name | price_usd | cnt | total | num |
|---|---|---|---|---|---|---|---|---|
| 2020-01-12 | 08:57:00.0000000 | Abbie Peters | cash | Cucumber | 1.2 | 91 | 109.2 | 1 |
| 2020-01-21 | 00:21:00.0000000 | Abbie Peters | cash | Chicken breasts | 2.55 | 64 | 163.2 | 2 |
| 2020-02-07 | 12:02:00.0000000 | Abbie Peters | cash | Eggs | 0.35 | 12 | 4.1 | 3 |
| 2020-02-08 | 08:29:00.0000000 | Abbie Peters | cash | Coconuts | 4.05 | 13 | 52.65 | 4 |
| 2020-02-09 | 23:36:00.0000000 | Abbie Peters | cash | Carrots | 3.33 | 1 | 3.33 | 5 |
| 2020-02-14 | 00:34:00.0000000 | Abbie Peters | cash | Broccoli | 3.7 | 18 | 66.601 | 6 |
| 2020-02-16 | 23:43:00.0000000 | Abbie Peters | credit | Carrots | 3.33 | 4 | 13.32 | 1 |
| 2020-02-10 | 22:17:00.0000000 | Abbie Peters | credit | Cucumber | 1.2 | 73 | 87.6 | 2 |
| 2020-01-19 | 23:10:00.0000000 | Abbie Peters | credit | Coconuts | 4.05 | 46 | 186.29 | 3 |
| 2020-01-20 | 09:11:00.0000000 | Abbie Peters | credit | Coconuts | 4.05 | 48 | 194.39 | 4 |
| 2020-01-20 | 21:46:00.0000000 | Abbie Peters | credit | Bananas | 0.56 | 42 | 23.5203 | 5 |
| 2020-01-25 | 05:33:00.0000000 | Abbie Peters | credit | Broccoli | 3.7 | 87 | 321.903 | 6 |
| 2020-01-27 | 05:42:00.0000000 | Abbie Peters | credit | Eggs | 0.35 | 56 | 19.5 | 7 |
| 2020-01-31 | 02:21:00.0000000 | Abbie Peters | credit | Lean beef | 3.52 | 81 | 285.12 | 8 |
| 2020-02-05 | 18:36:00.0000000 | Abbie Peters | credit | Cucumber | 1.2 | 45 | 54 | 9 |
| 2020-01-26 | 20:35:00.0000000 | Abbie Peters | debit | Lean beef | 3.52 | 70 | 246.4 | 1 |
| 2020-01-25 | 16:04:00.0000000 | Abbie Peters | debit | Bananas | 0.56 | 25 | 14.02 | 2 |
| 2020-01-18 | 21:26:00.0000000 | Abbie Peters | debit | Shellfish | 15.5 | 28 | 434 | 3 |
| 2020-02-15 | 22:26:00.0000000 | Abbie Peters | debit | Broccoli | 3.7 | 69 | 255.3 | 4 |
| 2020-02-07 | 06:40:00.0000000 | Averie Graham | cash | Eggs | 0.35 | 53 | 18.54 | 1 |
| 2020-01-17 | 19:32:00.0000000 | Averie Graham | cash | Tomatoes | 1.2 | 33 | 39.6 | 2 |
| 2020-01-23 | 04:39:00.0000000 | Averie Graham | cash | Coconuts | 4.05 | 28 | 113.3 | 3 |

# Окно данных — задание диапазонов

```
select *,
    Название функции ([параметры])
        over(
            [partition by столбцы для группировки]
            order by столбцы для сортировки
            [rows/range настройка границ окна]
            )
from ...
```

# Окно данных — задание диапазонов



```
<ROW or RANGE clause> ::=
{ ROWS | RANGE } <window frame extent>

<window frame extent> ::=
{   <window frame preceding>
  | <window frame between>
}
<window frame between> ::=
  BETWEEN <window frame bound> AND <window frame bound>

<window frame bound> ::=
{   <window frame preceding>
  | <window frame following>
}

<window frame preceding> ::=
{
    UNBOUNDED PRECEDING
  | <unsigned_value_specification> PRECEDING
  | CURRENT ROW
}

<window frame following> ::=
{
    UNBOUNDED FOLLOWING
  | <unsigned_value_specification> FOLLOWING
  | CURRENT ROW
}
```



```
frame_clause:
    frame_units frame_extent

frame_units:
    {ROWS | RANGE}

frame_extent:
    {frame_start | frame_between}

frame_between:
    BETWEEN frame_start AND frame_end

frame_start, frame_end: {
    CURRENT ROW
  | UNBOUNDED PRECEDING
  | UNBOUNDED FOLLOWING
  | expr PRECEDING
  | expr FOLLOWING
}
```
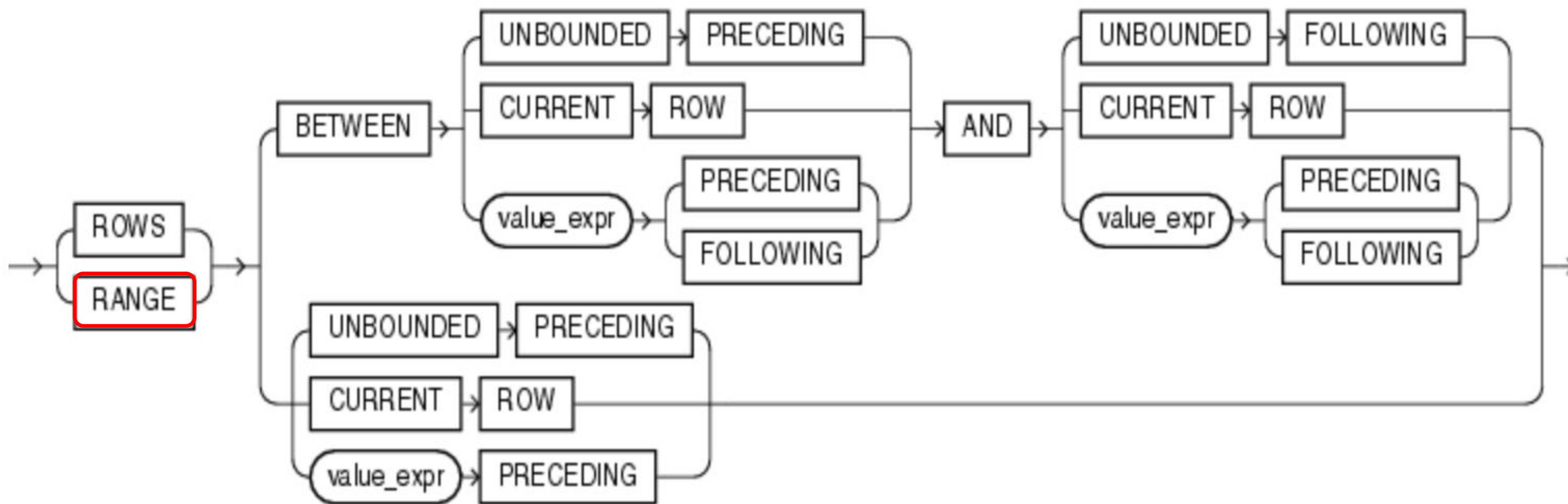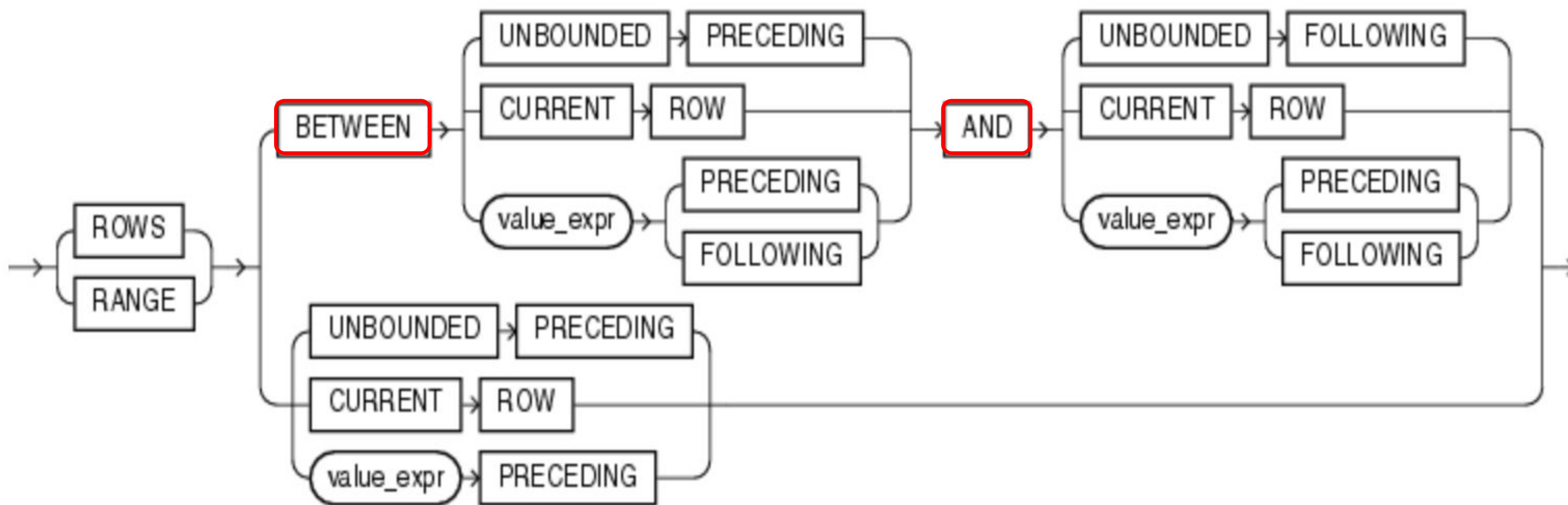
# Окно данных — задание диапазонов
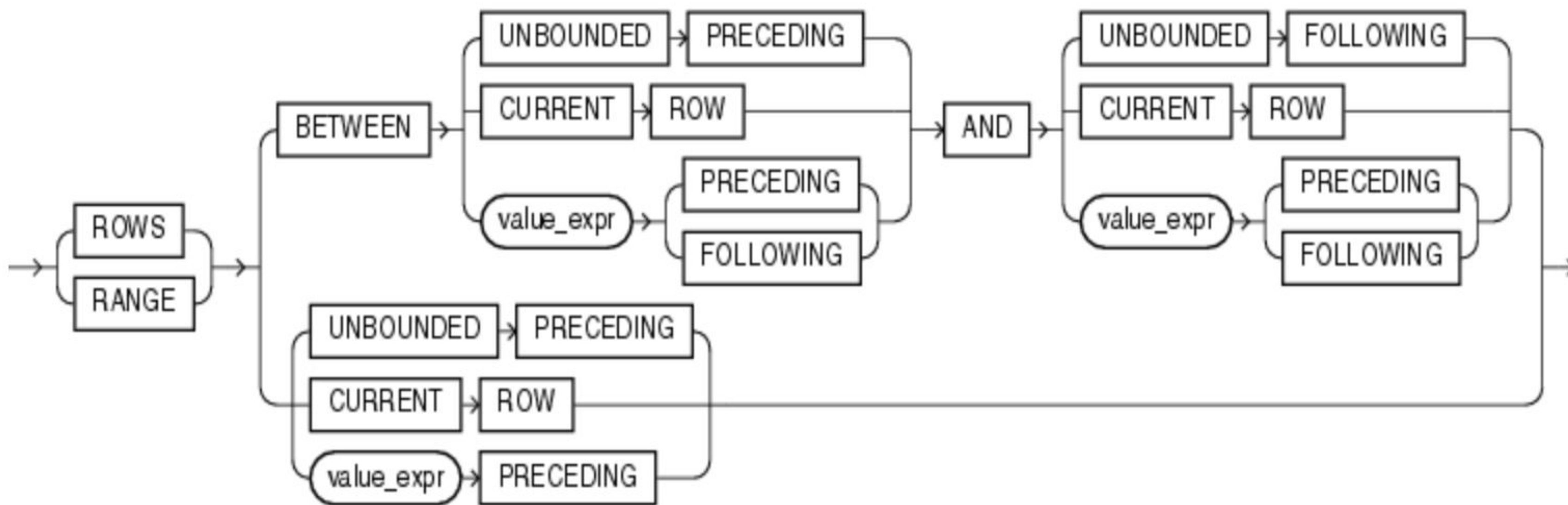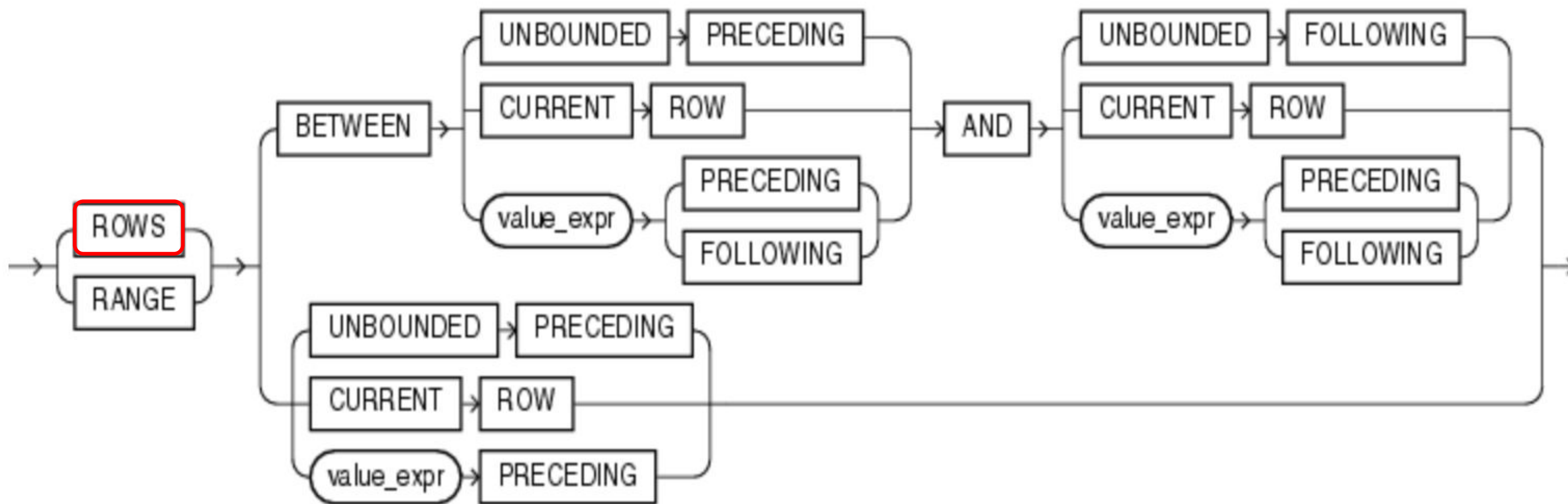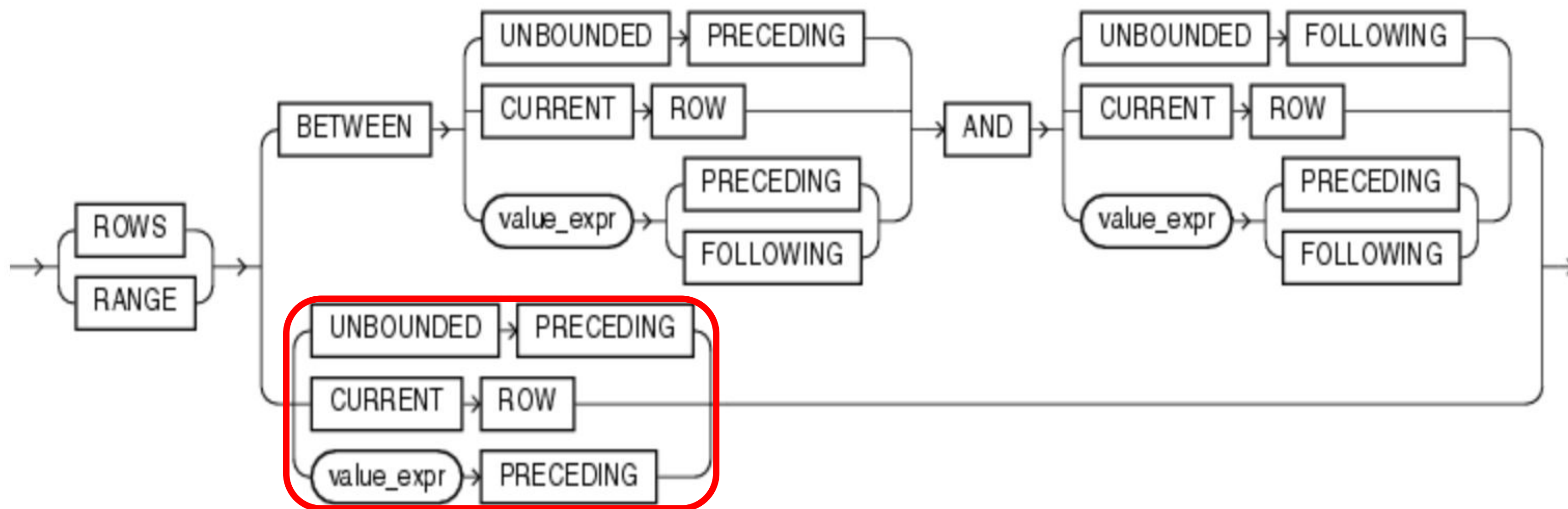
# Окно данных — задание диапазонов

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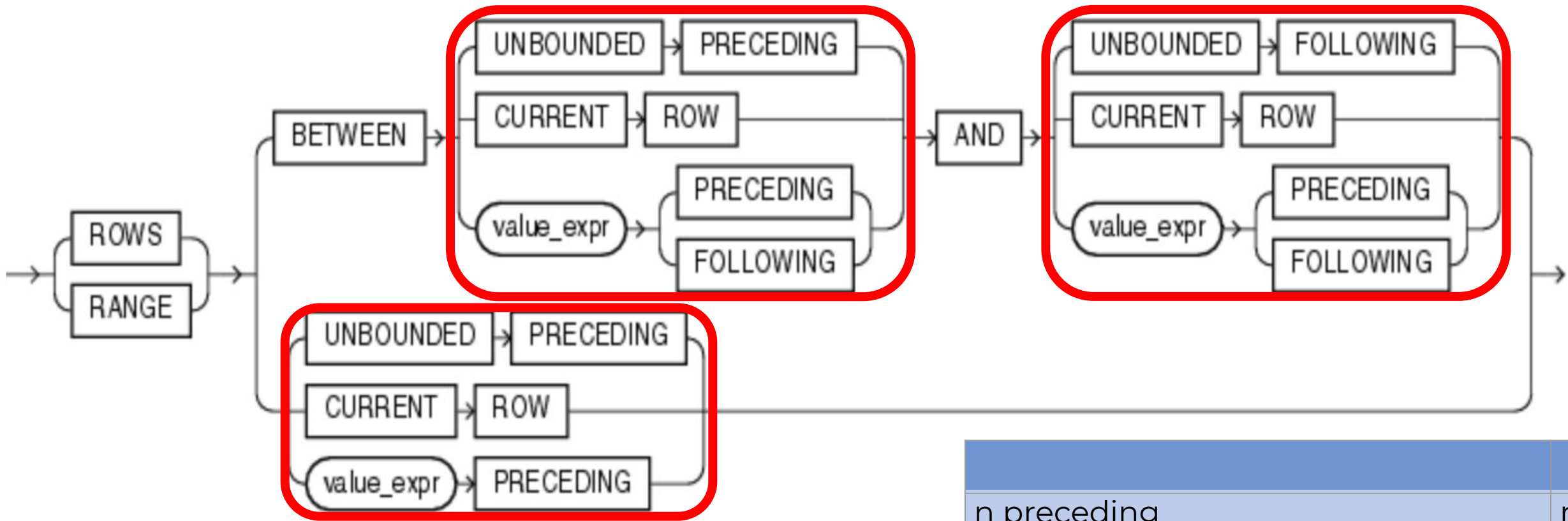


| | |
|---|---|
| n preceding | n строк до текущей строки |
| current row | Текущая строка |
| unbounded preceding | Все строки, предшествующие текущей |
| unbounded following | Все последующие строки |
| n following | n строк после текущей строки |

# Практика к уроку

Напишите SQL-запрос, возвращающий все строки и все колонки таблицы
с продажами **skill_sales**

К набору колонок добавьте две вычисляемые колонки:

| Название колонки | Содержимое |
|---|---|
| **N_by_category** | Нумерация строк по группам. Строки разбиваются на группы по категориям товара (колонка **product_category**). В каждой группе нумерация начинается с единицы. Порядок не имеет значения |
| **N_by_product** | Нумерация строк по группам. Строки разбиваются на группы по категориям товара и наименованию товара (колонки **product_category** и **product_name**). В каждой группе нумерация начинается с единицы. Порядок не имеет значения |