

Title: BMA-019: GROUP BY ALL and window functions
Date: 2026-05-10
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Status: change proposal

References:

[Foundation IWD] 9075_9IWD19-02-Foundation_2026-05-10.pdf
[GRU-058] "GROUP BY ALL vs. subqueries"; Peter Eisentraut; 2026-02-27

Abstract

Clarify and improve behavior of GROUP BY ALL with respect to window functions.

Revision history

BMA-019 is a copy of the discussion paper W31-040, recast as a change proposal.

1 Introduction

Consider these statements:

```
CREATE TABLE t1 (a int, b int, c int);  
SELECT a, COUNT(a) OVER (PARTITION BY a) FROM t1  
GROUP BY ALL;
```

By the letter of the text in [Foundation IWD], the query is syntactically transformed to

```
SELECT a, COUNT(a) OVER (PARTITION BY a) FROM t1  
GROUP BY a, COUNT(a) OVER (PARTITION BY a);
```

But this is not syntactically valid (window functions not permitted in GROUP BY clause; see subclause 6.10, "<window function>", SR 2).

So maybe this query is not supposed to be valid, but:

- a) Some implementations process this query by omitting window functions from the GROUP BY ALL expansion, and some don't, so it would be good to make the standard more precise about this.
- b) This kind of query might be useful. Since window functions are processed after grouping, it makes some kind of sense that window functions bypass the GROUP BY ALL expansion.

So arguably, the syntactic transformation should be to

```
SELECT a, COUNT(a) OVER (PARTITION BY a) FROM t1  
GROUP BY a;
```

This would require making some adjustments to subclause 7.13, "<group by clause>", syntax rule 3, similar to [GRU-058], while also giving consideration to the scoping and nesting issues discussed in that paper. At the moment, there does not appear to be a defined term like "aggregation query" that could be used for this, but we can make one.

2 Proposal for [Foundation IWD]

2.1 Changes to subclause 6.10, "<window function>"

1. Add a new syntax rule:

2.1) *QSS is the windowing query of OF.*

[Note: Analogous to "aggregation query" defined in subclause 6.9, "<set function specification>".]

2.2 Changes to subclause 7.13, "<group by clause>"

1. Change syntax rule 3) a) as shown here:

3) a) Let *NGBS* be the number of <derived column>s in *SL1* that do not contain a <set function specification> whose aggregation query is *QS* and that do not contain a <window function> whose windowing query is *QS*.

3 Disposition of CD ballot comments

This paper addresses comment #205, P02-WG3-999.

4 Checklist

1.	Interactions with other concurrent proposals identified and editorial assistance given	none
2.	Concepts	n/a
3.	Access Rules	n/a
4.	Conformance Rules, including the Annex A for rules not in a Conformance Rules section and the "Implied feature relationships" table	n/a
5.	Check that any removed non-terminals, subclauses, defined terms, and the like are no longer referenced.	n/a
6.	BNF production split affecting immediate containment	n/a
7.	Lists of statements by category	n/a
8.	Collation coercibility determination for changes related to character strings	n/a
9.	Closing Possible Problems or Language Opportunity when a proposal resolves them	yes
10.	Any new Possible Problems clearly identified	none
11.	Reserved and non-reserved keywords	n/a
12.	Implementation-defined and –dependent features clearly identified, and descriptions provided	n/a
13.	Information and Definition Schemata	n/a
14.	Incompatibilities Annex (for 2nd and subsequent editions of the document)	n/a
15.	Table of identifiers used by diagnostics statements	n/a

16.	Embedded SQL bindings and host language implications	n/a
17.	Dynamic SQL issues: including Dynamic descriptor areas	n/a
18.	CLI impact	none
19.	PSM impact	none
20.	MED impact	none
21.	OLB impact	none
22.	Schemata impact	none
23.	JRT impact	none
24.	XML impact	none
25.	MDA impact	none
26.	PGQ impact	none
27.	Impact on GQL for PGQ changes	n/a

— end of the paper —