



EDBTM

NULL et
UNKNOWN

Lætitia Avrot



Lætitia Avrot



- Field CTO – EDB
- Trésorière de PostgreSQL Europe
- Fondatrice de Postgres women
- Contributrice reconnue du projet PostgreSQL

Au programme

- Définitions
- La logique booléenne
- Quizz!

Définitions

Null

Every data type includes a special value, called the null value, sometimes denoted by the keyword **NULL**.

Special value that is used to indicate the absence of any data value

Null n'est pas

- Une chaîne vide
- Une chaîne avec des espaces
- La chaîne 'NULL'
- 0

ON THE HOOK

THIS GUY GOT THE LICENSE PLATE "NULL" AND IT WAS A TOTAL DISASTER




Unknown

Value of the Boolean data type is either true or false.

The truth value of **unknown** is sometimes represented by the null value.

Donc, un booléen peut prendre 4 valeurs différentes


- vrai
- faux
- unknown
- null



```
test=> create table test (test boolean);
CREATE TABLE
test=> insert into test values
(true), (false), (unknown), (null) ;
```

```
2019-10-14 18:08:52.088 CEST [5688] ERROR: column "unknown"
does not exist at character 41
```

```
2019-10-14 18:08:52.088 CEST [5688] STATEMENT: insert into
test values (true), (false), (unknown), (null);
ERROR: column "unknown" does not exist LINE 1: insert into
test values (true), (false), (unknown), (null);
```



```
test=> insert into test values (true), (false), (null),
(null);
INSERT 0 4
```

```
test=> select * from test;
test
```

t

f



→ Psql par défaut affiche un espace pour les valeurs nulles

(4 rows)

Afficher null

```
test=# \pset null 'Ada  
Lovelace'  
Null display is "Ada Lovelace".
```

```
test=# select * from test;  
      test  
-----  
 t  
 f  
Ada Lovelace  
Ada Lovelace  
(4 rows)
```

La fonctionnalité T031 de la norme SQL

```
<boolean literal> ::=
```

```
TRUE
```

```
| FALSE
```

```
| UNKNOWN
```

Est-ce que Postgres ne serait pas conforme à la norme?

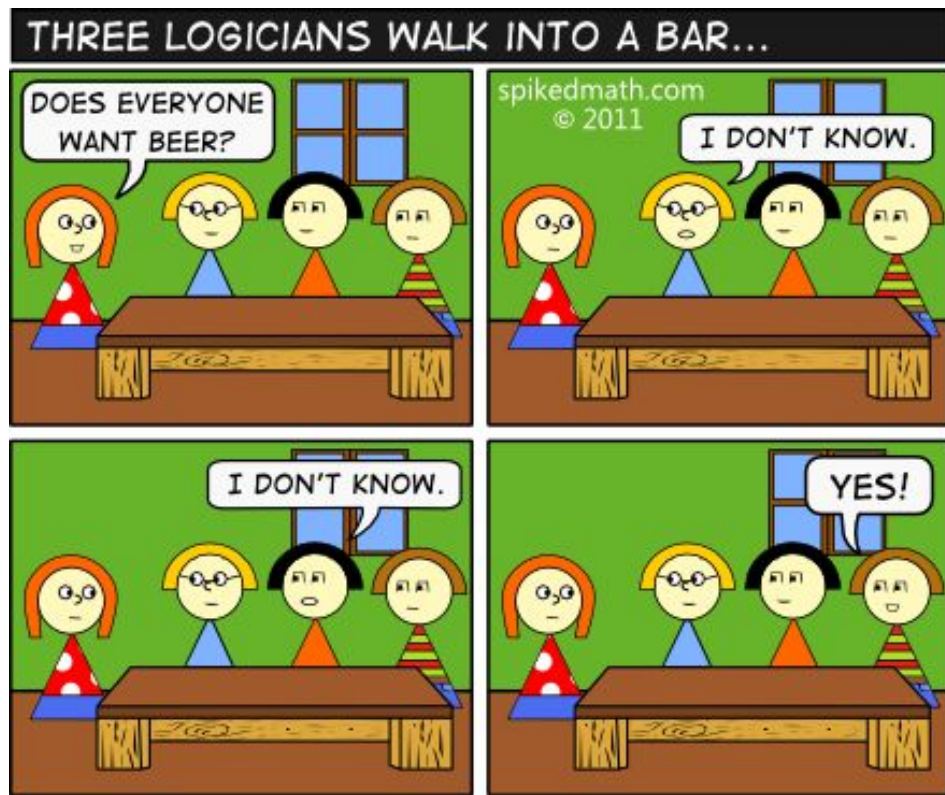
This specification **does not make a distinction** between the null value of the boolean data type and the truth value Unknown that is the result of an SQL predicate, search condition, or boolean value expression; **they may be used interchangeably to mean exactly the same thing.**

La logique à 3 valeurs

Écrire une table de vérité en SQL

```
select coalesce(ros.a::text, 'unknown') as and_truth_table,  
and_truth_table | t | f | unknown  
ros.a and cols.a as t,  
-----+-----+-----  
ros.a and cols.b as f,  
true | t | f | Ada Lovelace  
ros.a and cols.c as unknown  
false | f | f | f  
  
unknown | Ada Lovelace | f | Ada Lovelace  
from (values(true, false, null::boolean)) as cols (a,b,c),  
(3 rows)  
(values (true), (false), (null)) as ros (a)
```

3 logisticiens
rentrent dans
un bar...



Joke and Image from Mike <http://spikedmath.com>

La logique à 4 valeurs?

- La logique à 3 valeurs est mal comprise
- Voulons-nous vraiment ajouter de l'incompréhension et de la complexité?
- Que serait le résultat de `null and unknown`?

Quizz!



How many rows
will this query
return ?

```
select a, b  
from (values (1, true),  
            (2, false),  
            (3, null)) as t (a,b)  
where null;
```

```
select a, b
from (values (1, true),
            (2, false),
            (3, null)) as t (a,b)
where null;
```

a		b
-----+		
(0 rows)		

null dans une clause where est traité
comme false.



How many rows
will this query
return ?

```
select a, b  
from (values (1, true),  
            (2, false),  
            (3, null)) as t (a,b)  
where t.b <> 'aa';
```

```
select a, b
from (values (1, true),
            (2, false),
            (3, null)) as t (a,b)
where t.b <> 'aa';
```

a	b
2	bb

(1 row)

Les opérateurs d'inégalité ou d'égalité renvoient toujours null si l'un des opérandes est null.



How many rows
will this query
return ?

```
select a, b
from (values (1, true),
            (2, false),
            (3, null)) as t (a,b)
where t.b is distinct from 'aa';
```


```
select a, b
from (values (1, true),
            (2, false),
            (3, null)) as t (a,b)
where
    t.b is distinct from 'aa';
```

a		b
2		bb
3		

(2 rows)

Is distinct signifie "n'est pas identique". Et "identique" en SQL avec null est:

If V1 and V2 are both the null value, then V1 is identical to V2.



How many rows
will this query
return ?

```
select a, b
from (values (1, 'aa'),
            (2, 'bb'),
            (3, null)) as t (a,b)
where t.b in ('aa',null);
```

```
select a, b
from (values (1, 'aa'),
           (2, 'bb'),
           (3, null)) as t (a,b)
where t.b in ('aa', null);
```

a	b
1	aa

(1 row)

t.b in ('aa', null) est équivalent à
t.b = 'aa' or t.b = null



How many rows
will this query
return ?

```
select a, b
from (values (1, true),
            (2, false),
            (3, null)) as t (a,b)
where
    t.b not in ('aa', null);
```

```
select a, b
from (values (1, 'aa'),
            (2, 'bb'),
            (3, null)) as t (a,b)
where
    t.b not in ('aa', null);
```

```
  a | b
----+---
(0 rows)
```

t.b not in ('aa', null) est
équivalent à

'aa' <> 'aa' and null <> null



How many rows
will this query
return ?

```
select a  
from (values (1),  
            (2),  
            (null)) as t (a)  
where  
      t.a between 1 and null;
```

```
select a
from (values (1),
            (2),
            (null)) as t (a)
where
  t.a between 1 and null;
```

a	b
----	+

(0 rows)

X BETWEEN ASYMMETRIC Y AND Z
is equivalent to

$X \geq Y$ AND $X \leq Z$



How many rows
will this query
return ?

```
select a, b  
from (values (1, true),  
            (2, false),  
            (3, null)) as t (a,b)  
where t.b < true;
```

```
select a, b
from (values (1, true),
           (2, false),
           (3, null)) as t (a,b)
where t.b < true;
```

a	b
2	f

(1 row)

True est toujours plus grand que False et toute comparaison impliquant null est unknown.



How many rows
will this query
return ?

```
select (null=1)  
or (1=1)  
as "Annie Easley";
```

```
select (null=1)
or (1=1)
as "Annie Easley";
```

```
Annie Easley
-----
t
(1 row)
```

Null or True **est** True



How many rows
will this query
return ?

```
select null is null  
is null is null is null  
as "Margaret Hamilton";
```

```
select null is null
       is null is null is null
       as "Margaret Hamilton";
```

```
Margaret Hamilton
-----
f
(1 row)
```

Le premier est true, tous les autres sont false.



How many rows
will this query
return ?

```
select row(null) is null;
```

```
select row(null) is null;
```

```
?column?
```

```
-----
```

```
t
```

```
(1 row)
```

Let R be the row value predicand and let V be the value of R .

If the value of every field of V is the null value, then [the value of “ R IS NULL” is] True.



How many rows
will this query
return ?

```
select row(row(null))  
is null;
```

```
select row(row(null))  
is null;
```

```
?column?  
-----  
f  
(1 row)
```

Toutes les valeurs de la ligne ne sont pas la valeur null, donc ce n'est pas vrai.



How many rows
will this query
return ?

```
select nullif(null,1);
```

```
select nullif(null,1);
```

```
nullif
```

```
-----
```

```
Ada Lovelace  
(1 row)
```

`Nullif` renvoie `Null` si les deux arguments sont égaux et renvoie le premier argument sinon



How many rows
will this query
return ?

```
select 'Mary Lou ' ||  
       a ||  
       'Jepsen'  
from (  
       values (null)  
       ) as t (a);
```

```
select 'Mary Lou ' ||  
       a ||  
       'Jepsen'  
from (  
       values (null)  
       ) as t (a);
```

```
?column?  
-----  
Ada Lovelace  
(1 row)
```

La concaténation avec `null` est toujours `null`.

EDB Open Source Learning Day Paris - June 13

Marriott Champs-Élysées Hôtel



- **Time:** 8:30 - 18:00
- **Workshops:**
 - Troubleshooting Postgres
 - Running Postgres in K8s

