

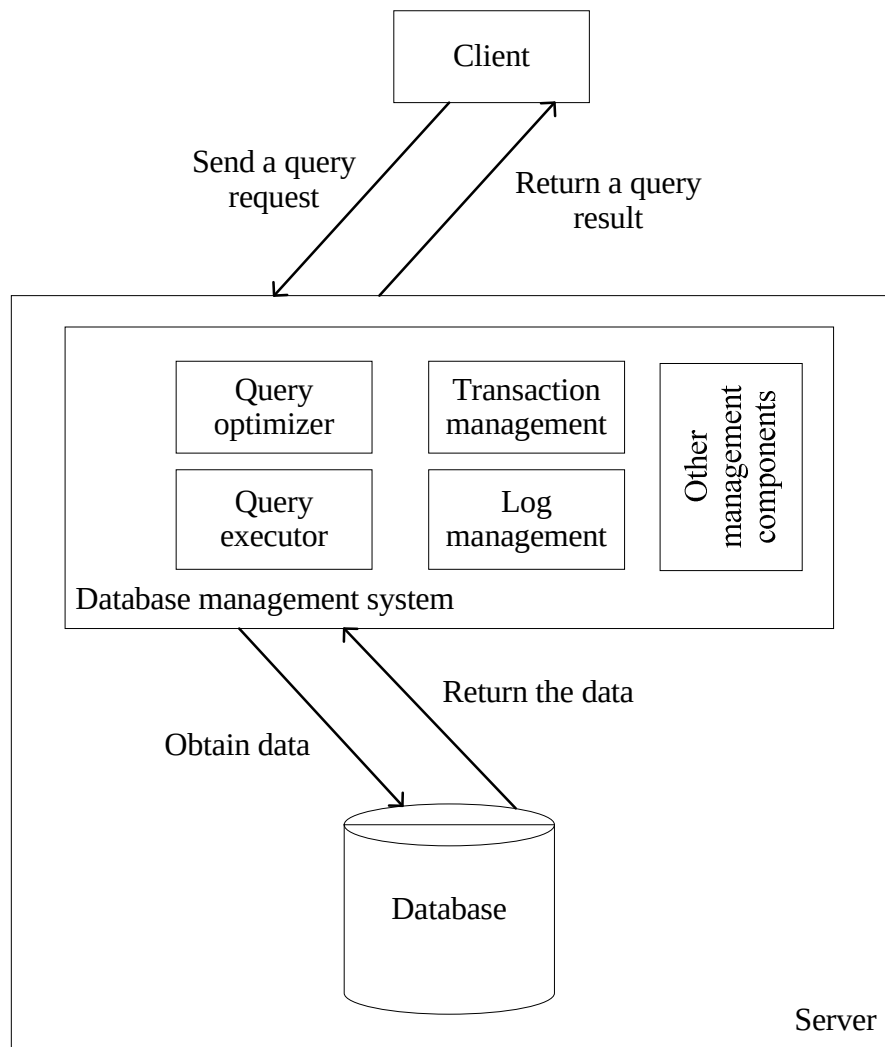


FIG. 1a

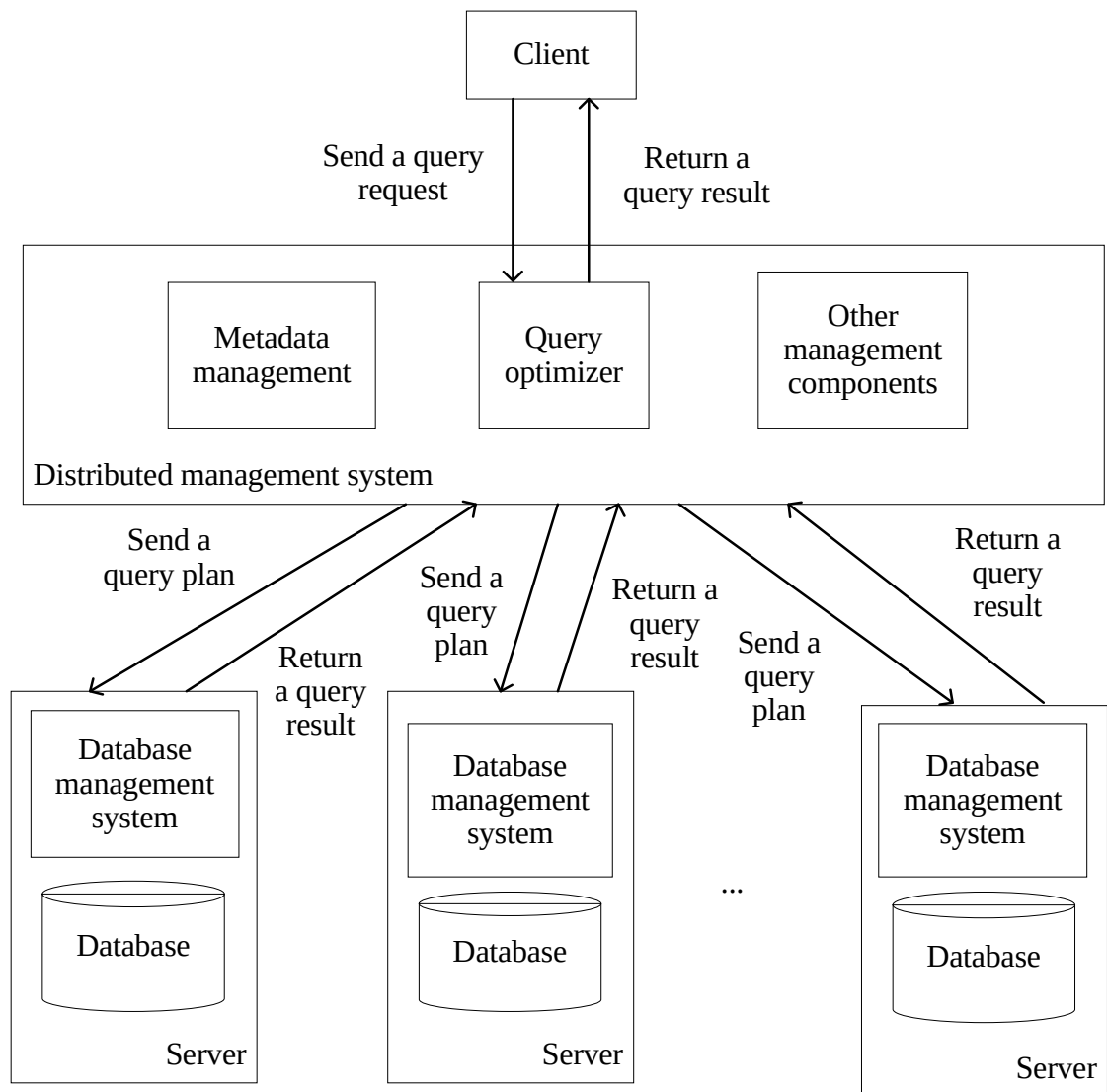


FIG. 1b

a	b
1	2
1	5

R

c	d
2	1
2	6
3	4

S

Join predicate P: R.b=S.c

a	b	c	d
1	2	2	1
1	2	2	6

Result of an inner join between R and S

a	b	c	d
1	2	2	1
1	2	2	6
1	5	null	null

Result of a left outer join between R and S

a	b	c	d
1	2	2	1
1	2	2	6
null	null	3	4

Result of a right outer join between R and S

a	b	c	d
1	2	2	1
1	2	2	6
1	5	null	null
null	null	3	4

Result of a full outer join between R and S

a	b
1	2

Result of a left semi-join between R and S

c	d
2	1
2	6

Result of a right semi-join between R and S

a	b
1	5

Result of a left anti-join between R and S

c	d
3	4

Result of a right anti-join between R and S

null: null

FIG. 1c

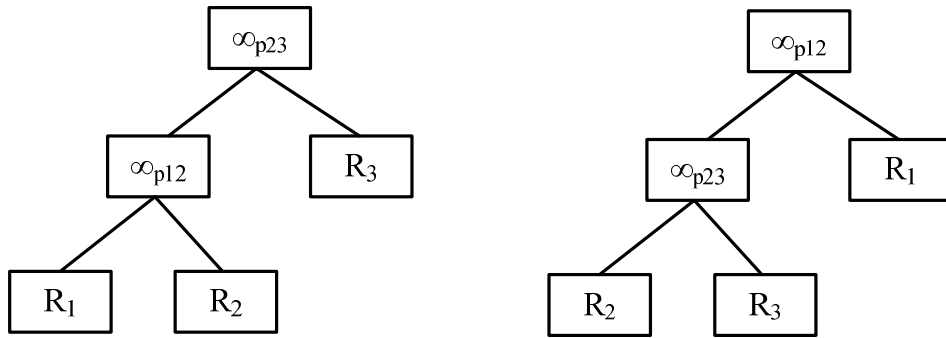


FIG. 2

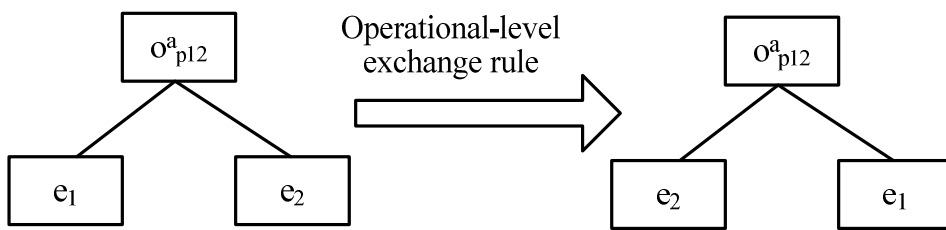


FIG. 3

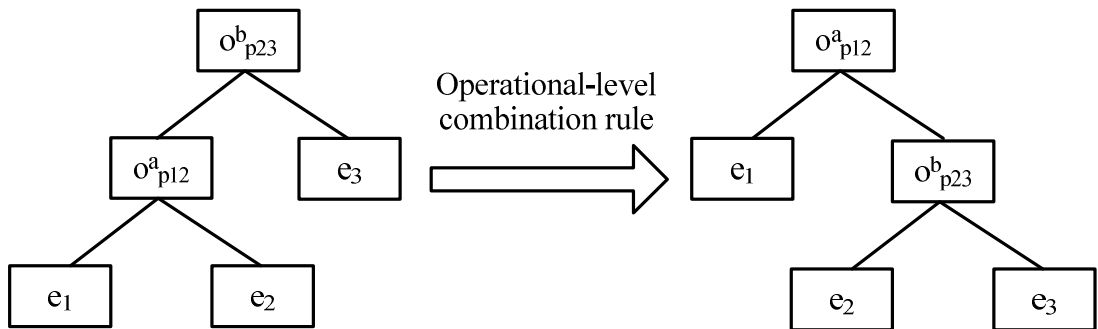


FIG. 4

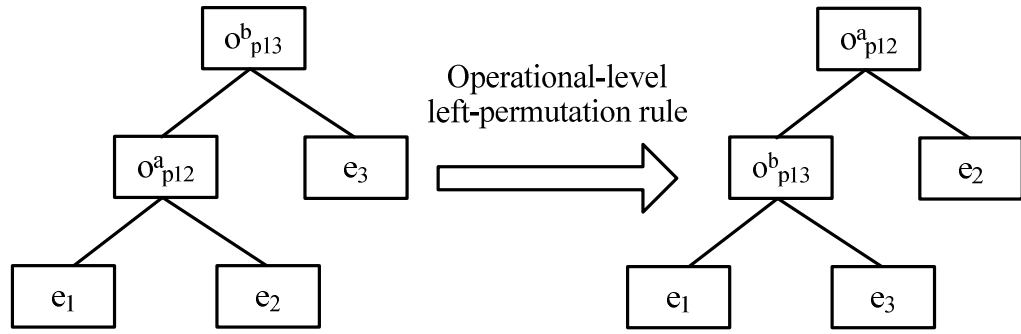


FIG. 5

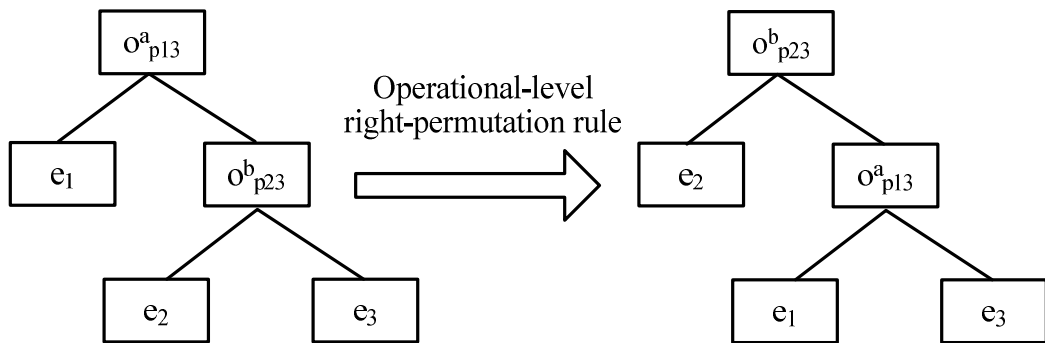


FIG. 6

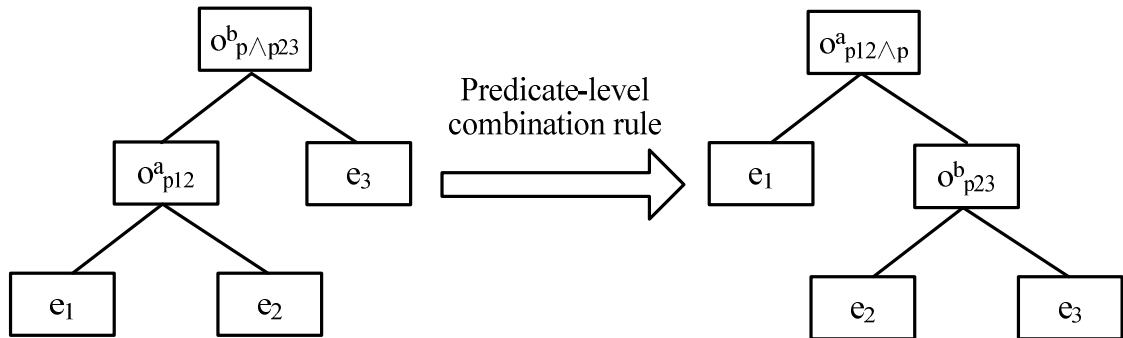


FIG. 7

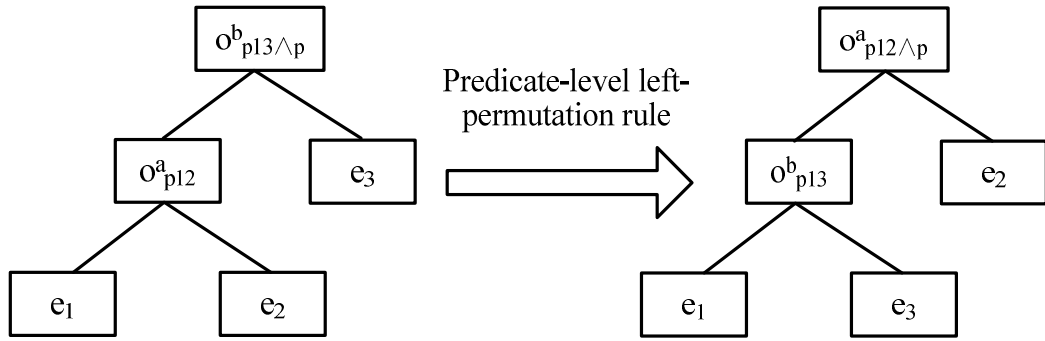


FIG. 8

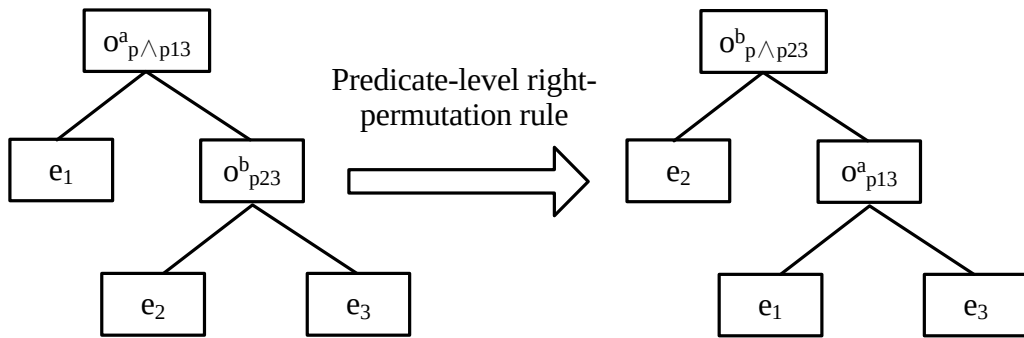


FIG. 9

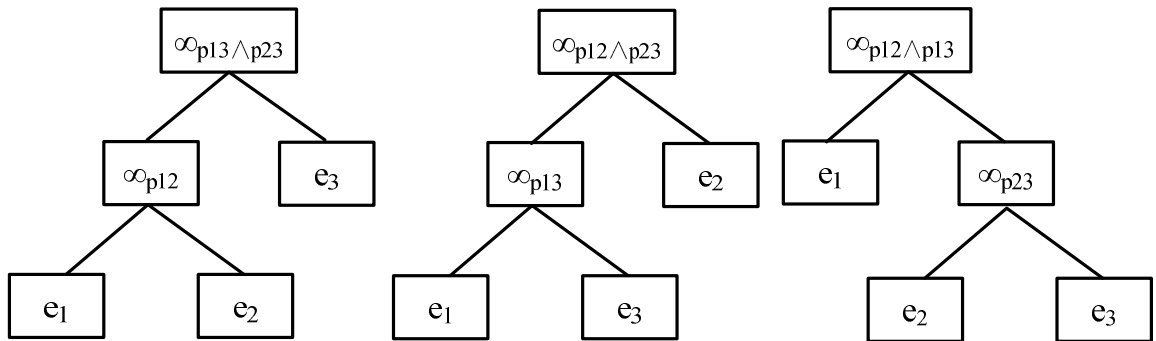


FIG. 10

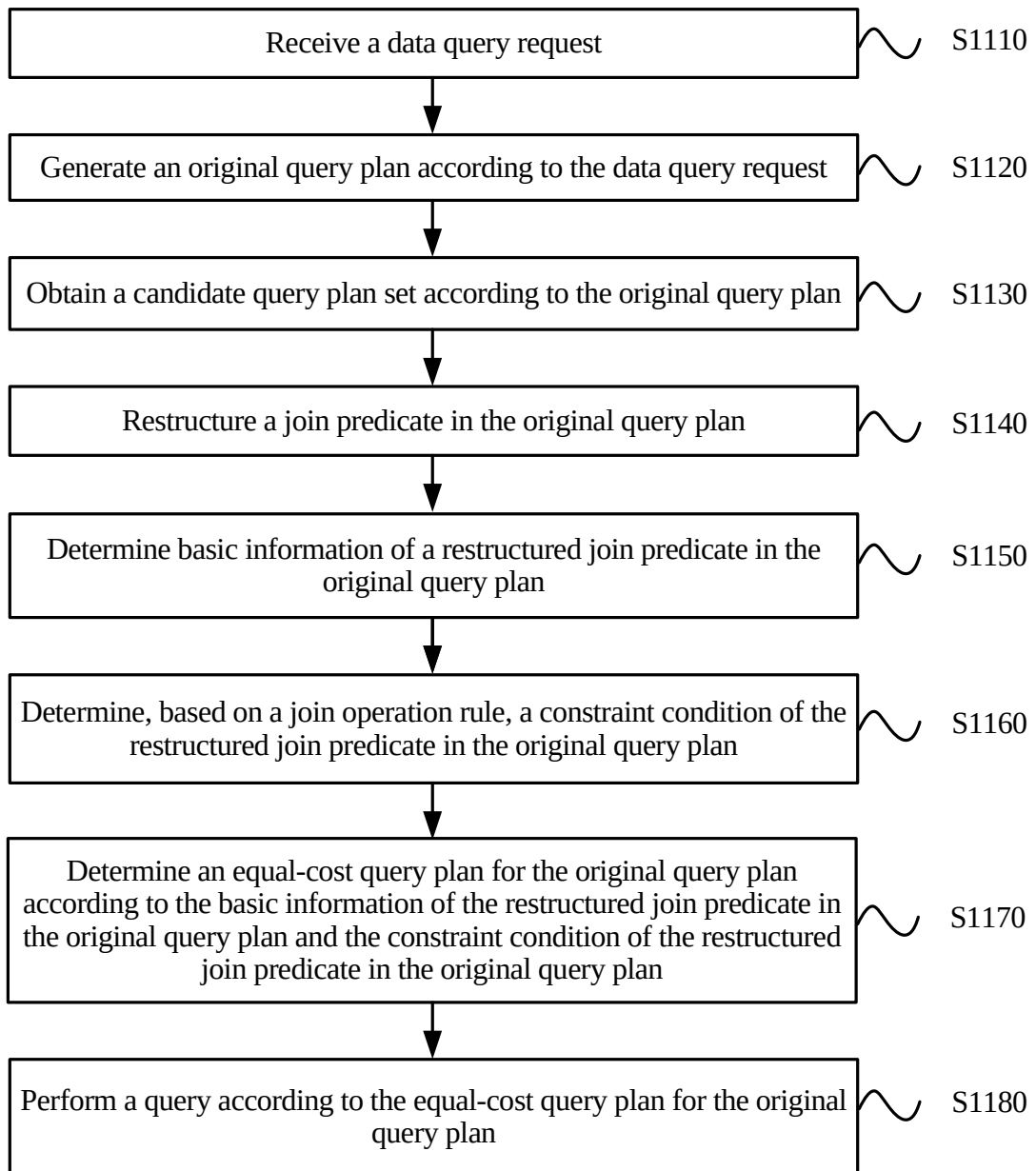
1100

FIG. 11

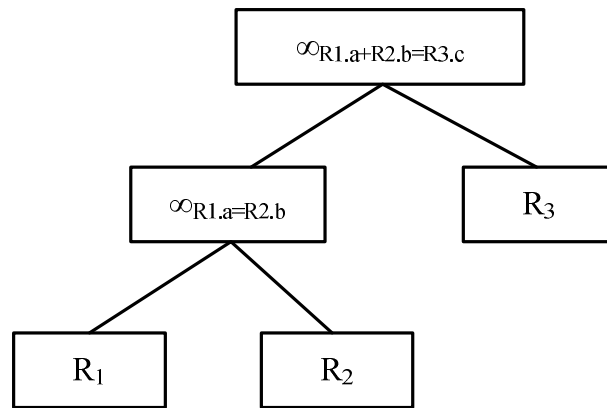


FIG. 12

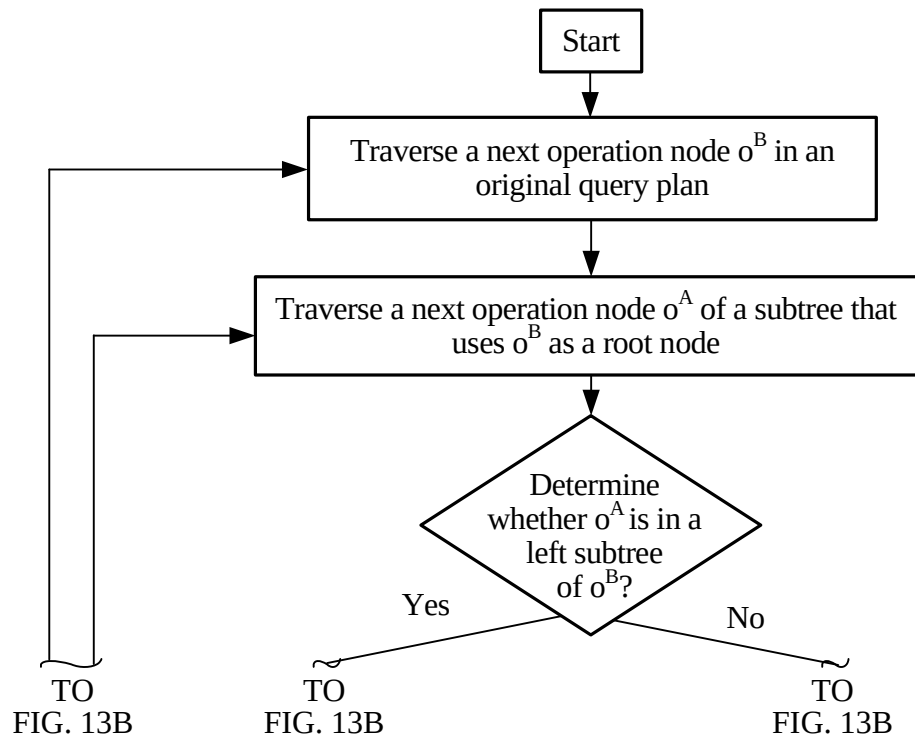


FIG. 13A

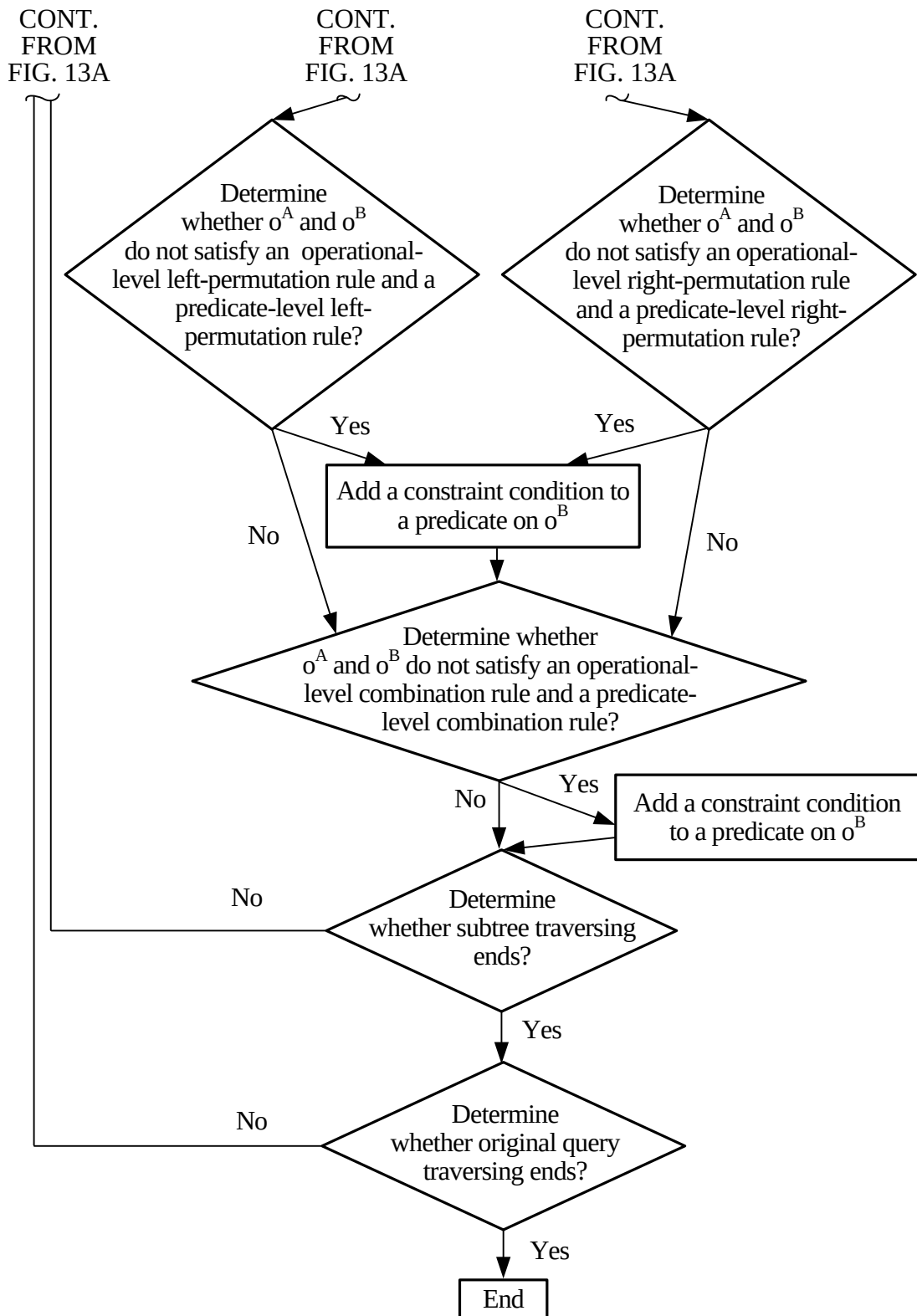


FIG. 13B

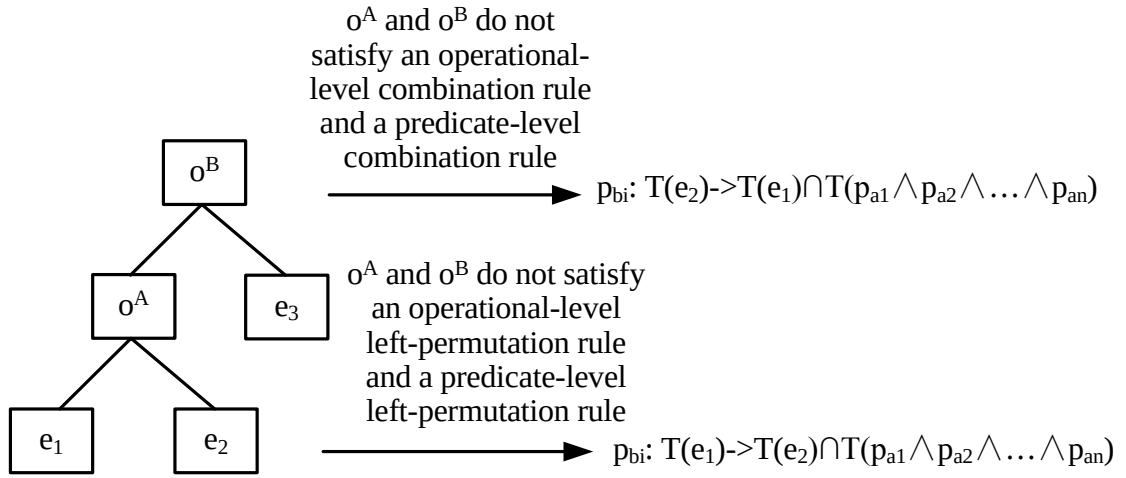


FIG. 14

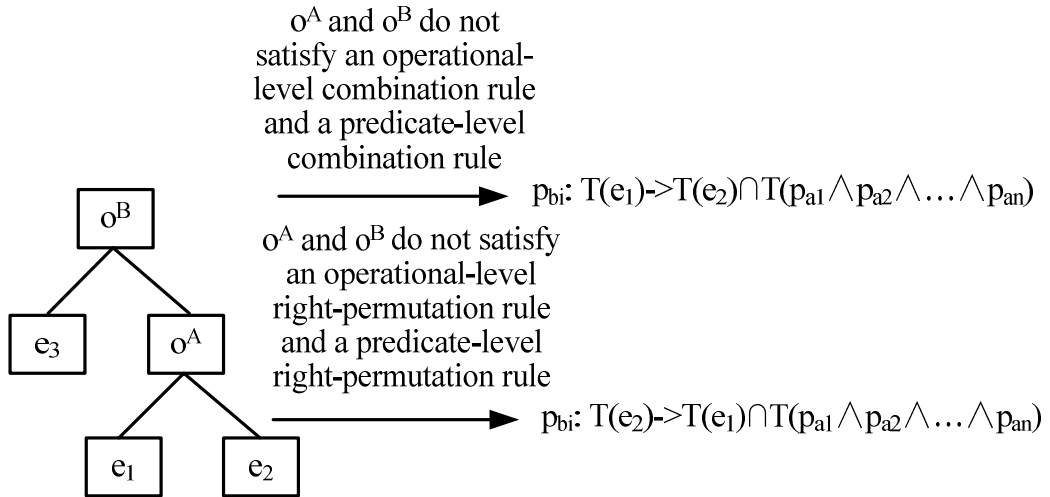


FIG. 15

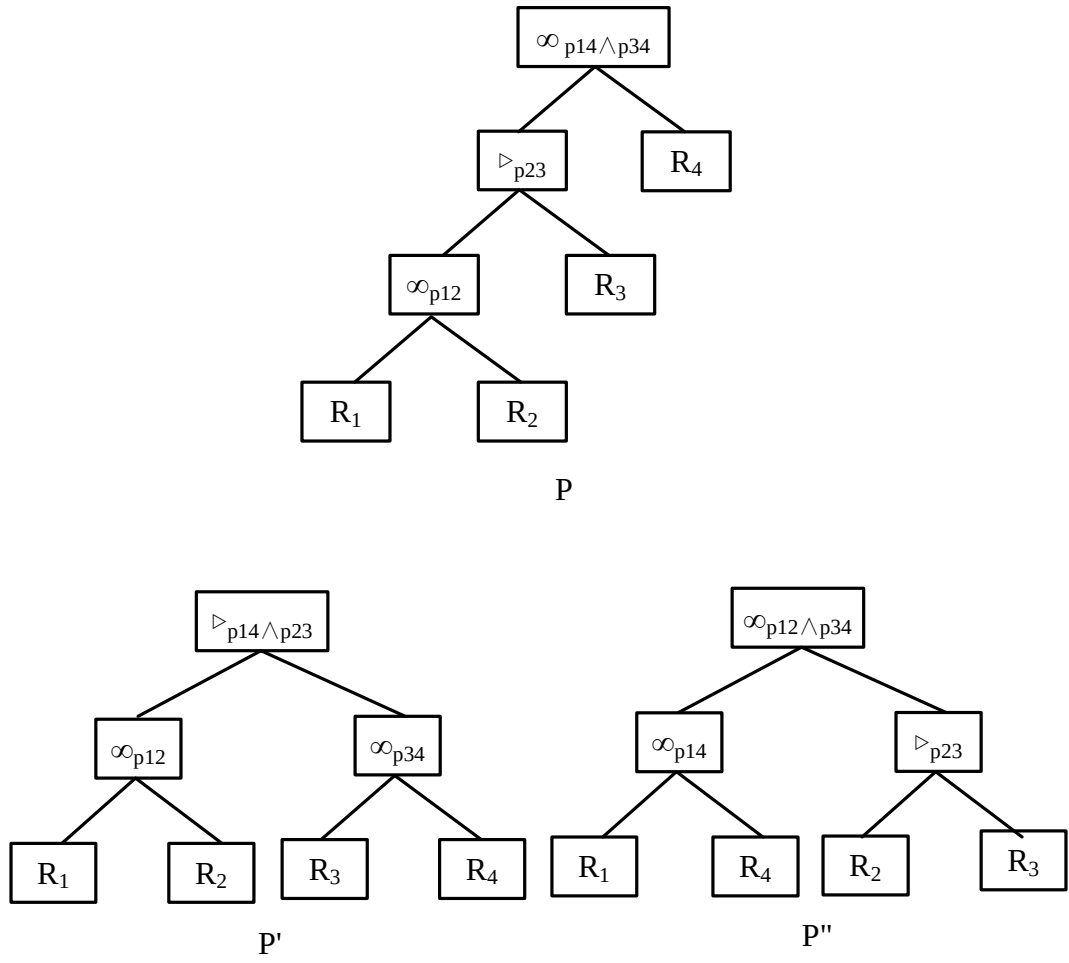


FIG. 16

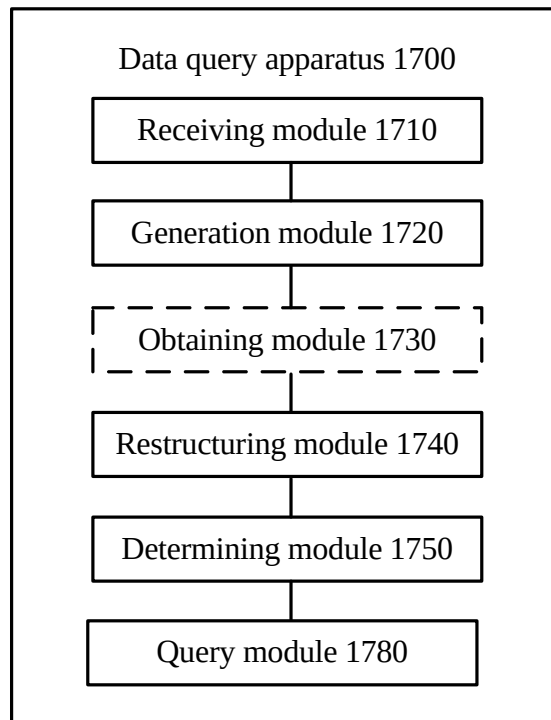


FIG. 17

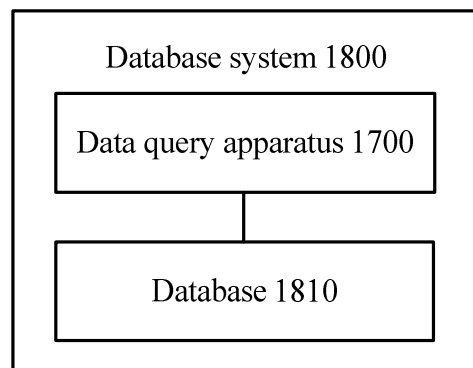


FIG. 18

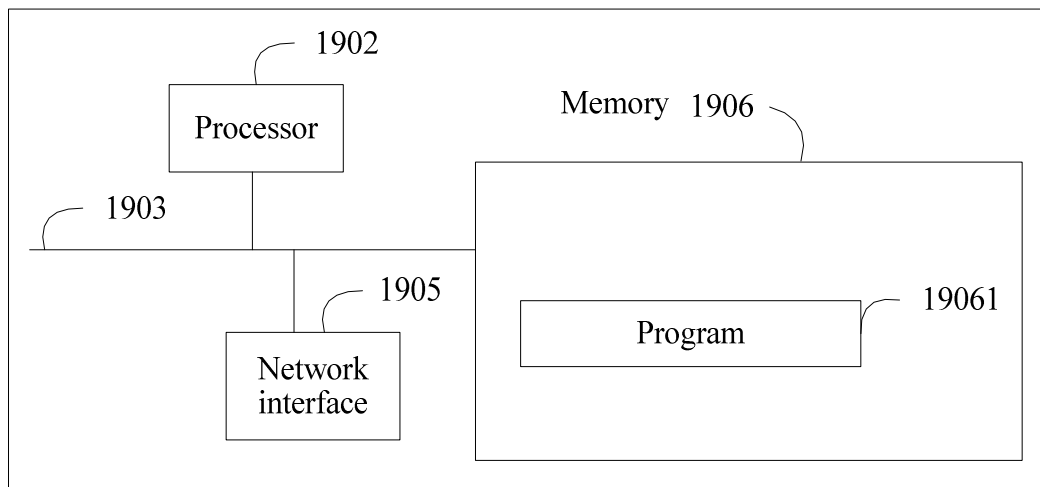


FIG. 19