```
1 ┌─────────────────────── MODULE OT ───────────────────────┐
   Specification of OT (Operational Transformation) functions.

5  EXTENDS OpOperators, SetUtils

6 ├──────────────────────────────────────────────────────────┤
7  OTII(lins, rins) ≜   lins is transformed against rins
8        IF lins.pos < rins.pos
9          THEN lins
10         ELSE  IF lins.pos > rins.pos
11                 THEN [lins EXCEPT !.pos = @ + 1]
12                 ELSE  IF lins.ch = rins.ch
13                         THEN Nop
14                         ELSE  IF lins.pr > rins.pr
15                                 THEN [lins EXCEPT !.pos = @ + 1]
16                                 ELSE  lins

18 OTID(ins, del) ≜   ins is transformed against del
19        IF ins.pos ≤ del.pos
20          THEN ins
21          ELSE [ins EXCEPT !.pos = @ − 1]

23 OTDI(del, ins) ≜   del is transformed against ins
24        IF del.pos < ins.pos
25          THEN del
26          ELSE [del EXCEPT !.pos = @ + 1]

28 OTDD(ldel, rdel) ≜   ldel is transformed against rdel
29        IF ldel.pos < rdel.pos
30          THEN ldel
31          ELSE  IF ldel.pos > rdel.pos
32                  THEN [ldel EXCEPT !.pos = @ − 1]
33                  ELSE  Nop

35 OT(lop, rop) ≜   lop is transformed against rop
36        CASE lop = Nop ∨ rop = Nop → lop
37          □ lop.type = "Ins" ∧ rop.type = "Ins"  → OTII(lop, rop)
38          □ lop.type = "Ins" ∧ rop.type = "Del"  → OTID(lop, rop)
39          □ lop.type = "Del" ∧ rop.type = "Ins"  → OTDI(lop, rop)
40          □ lop.type = "Del" ∧ rop.type = "Del"  → OTDD(lop, rop)
41 └──────────────────────────────────────────────────────────┘
```

* Modification History
* Last modified Sat *Jan* 12 20:23:45 *CST* 2019 by *hengxin*
* Created Sun *Jun* 24 15:57:48 *CST* 2018 by *hengxin*