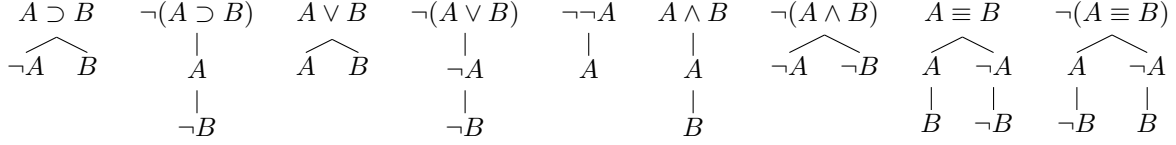


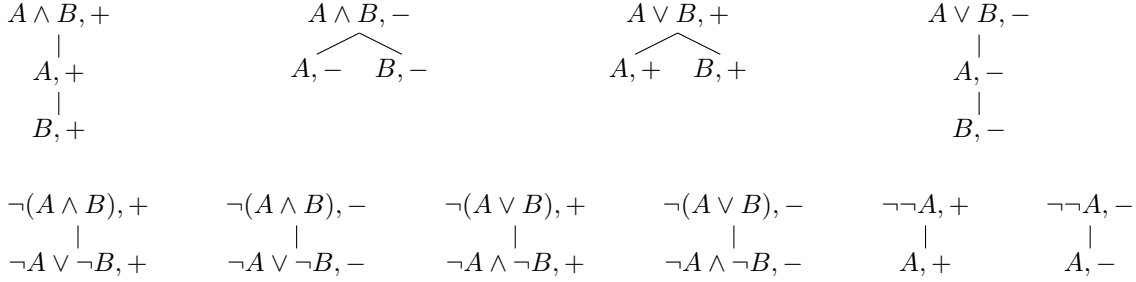
# 1 Tableaux for classical propositional logic

Initial list for  $A_1, \dots, A_n \models B$  is with  $\neg B$ . Closure condition:  $A$  and  $\neg A$  for some formula  $A$  occur on a branch.



## 2 Semantic tableaux for FDE

Initial list for  $A_1, \dots, A_n \models B$  is with all  $A_n, +$  and  $B, -$ . Closure condition:  $A, +$  and  $A, -$  for some formula  $A$  occur on a branch.



## 3 Semantic tableaux for $K_3, LP, L_3, RM_3$

### 3.1 $K_3$

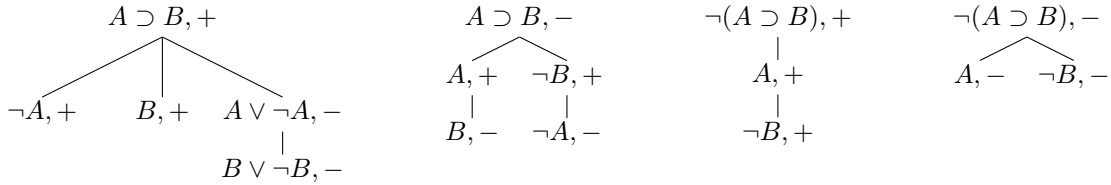
Same as for FDE with extra closure condition: A branch also closes if it contains  $A, +$  and  $\neg A, +$  for some formula  $A$ .

### 3.2 $LP$

Same as for FDE with extra closure condition: A branch also closes if it contains  $A, -$  and  $\neg A, -$  for some formula  $A$ .

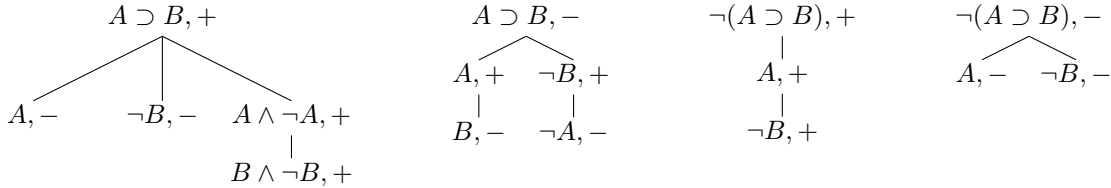
### 3.3 $L_3$

Like  $K_3$  but with the following rules for  $\supset$ :



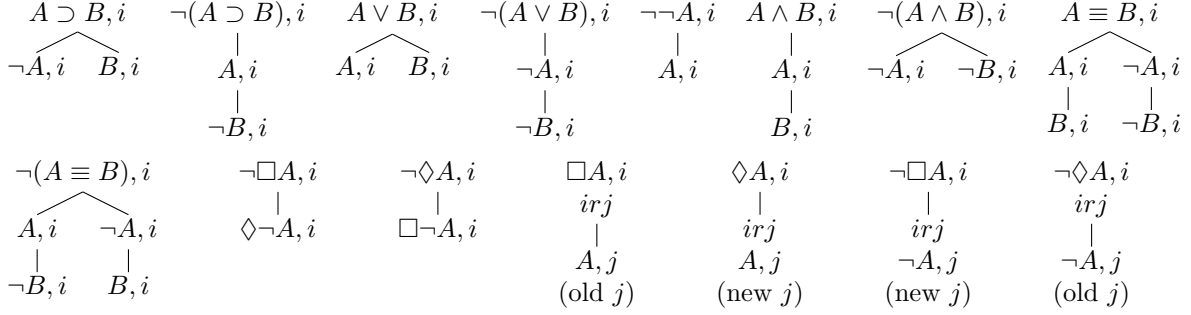
### 3.4 $RM_3$

Like  $LP$  but with the following rules for  $\supset$ :



## 4 Tableaux for modal logic

Initial list for  $A_1, \dots, A_n \models B$  is with all  $A_n, 0$  and  $\neg B, 0$ . Closure condition:  $A, i$  and  $\neg A, i$  for some formula  $A$  occur on a branch with the same number  $i$ .



### 4.1 Restrictions

Reflexive ( $\rho$ ):



Transitive ( $\tau$ )(old  $j$  and  $k$ ):



Extra rules for  $=$ :



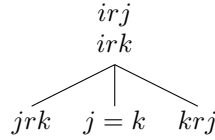
Symmetric ( $\sigma$ )(old  $j$ ):



Universal ( $\nu$ ):



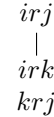
Forward convergent ( $\varphi$ ):  
(old  $j$  and  $k$ )



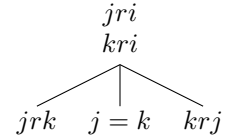
Extendable ( $\eta$ )(new  $j$ ):



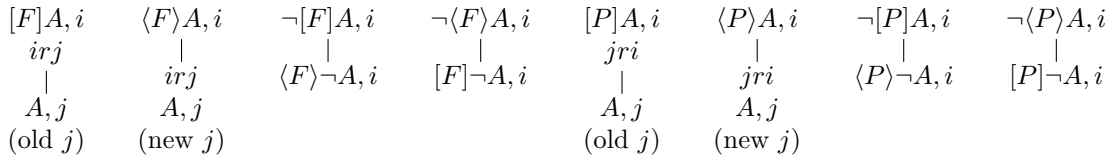
Dense ( $\delta$ )(old  $j$ ):



Backward convergent ( $\beta$ ):  
(old  $j$  and  $k$ )

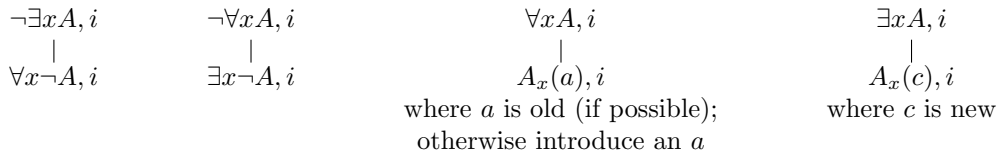


### 4.2 Tense logic



## 5 First-order modal logic

### 5.1 CK



### 5.2 VK



$a$  is old, if possible; otherwise introduce a new  $a$ .  $c$  is a new variable<sup>1</sup>

<sup>1</sup>Made by Nick Ubels, <https://github.com/nickubels/TableauOverview>