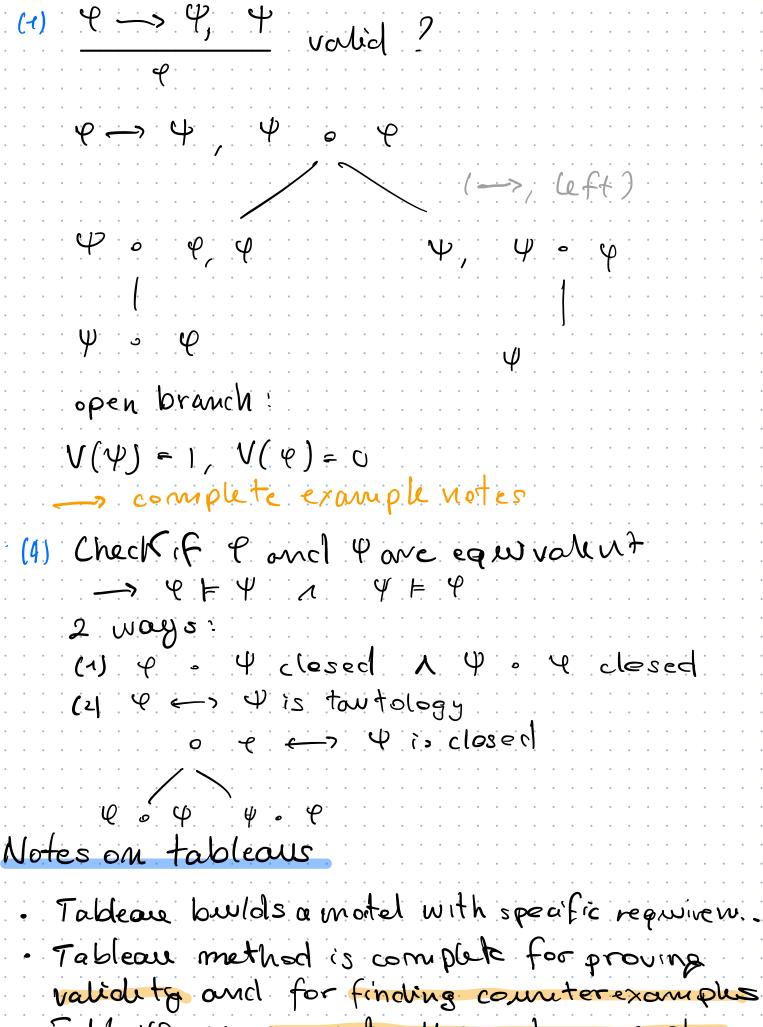
Class notes Exercises volto ? (touto loge y) (a) 12 (ap ~ (p -> ap)) > 21 (a) remove ->, wght (we need to have 2 91(p->9)0 p 7, P→9 0 P -> om LHS If we have the son statement we can ignore it 9,90p Tableau is open -> formula is not valid Ly it would be false if V(q) = 1, V(p) = 0, flow (((q x (p->q)) → p)=0 _, thes is a counterexample. -, if the question osks if a statement is a toutology, it is enough to expand en a single branch that leads to

a counter example

Terminology of tableaus
· sequent - reach mode of the tree
· Closed branch -> on the end sequent there is the same formula on this & RHS · Closed tobleau -> all the branches are closed · Open branch
· Open tableau - at least 1 open branc
General tableau method
(+, 42, 4n) -> 4 varid
9, 1, 42 2 9n 0 U
Tf tableau spen -> find counter ex.
Takeou use cases (1) Check if a formula is valid (2) Check if formula is satisfiable er contraddiction

(3) Check if a set efformulas is satisfiable (4) Check if 2 formulas are equivalent



· Tableau method is complete for proving validates and for finding counterexamples. Tablows can generate all counterexamples. Tableaus can be used with quantifiers too is problems with checking completeness.

Exercises in class De Morgan la (1) Is 7A A 7B = 7(A VB) volid)? TANTBOTANB) = Is it closed? why ording A 17B o 7 (A v B) Don't do them
at one;

(7, 6ft) 7 A, 7B, AVB. 7B, AVG 6 A steps doesn't the V splets -7 AuBo A, B We CAN Sont (But only with the NOT genetor) wwy? B. A.B Tableau & dosed -> volid inference 7 (ANB) F 7A N7B (2) 7 (AVB) = 7A 1 7B 7 (AVB) 0 7A 1 1B (7, left and want) 1. 1. 7A. 1. -B., A, B My did 0 7B, A, B 07A, A, B the OB not sput, but 8. A, B Ite AND dal A o A, B