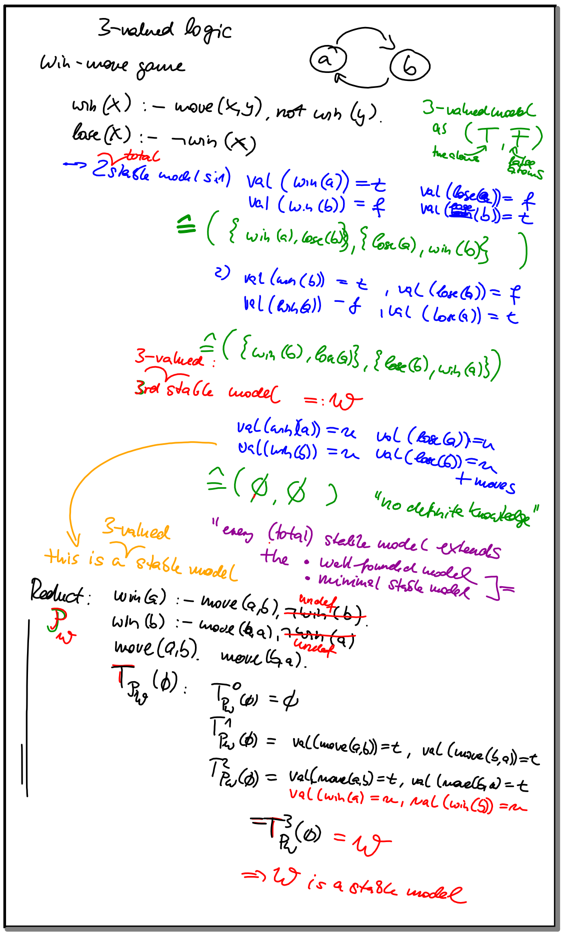
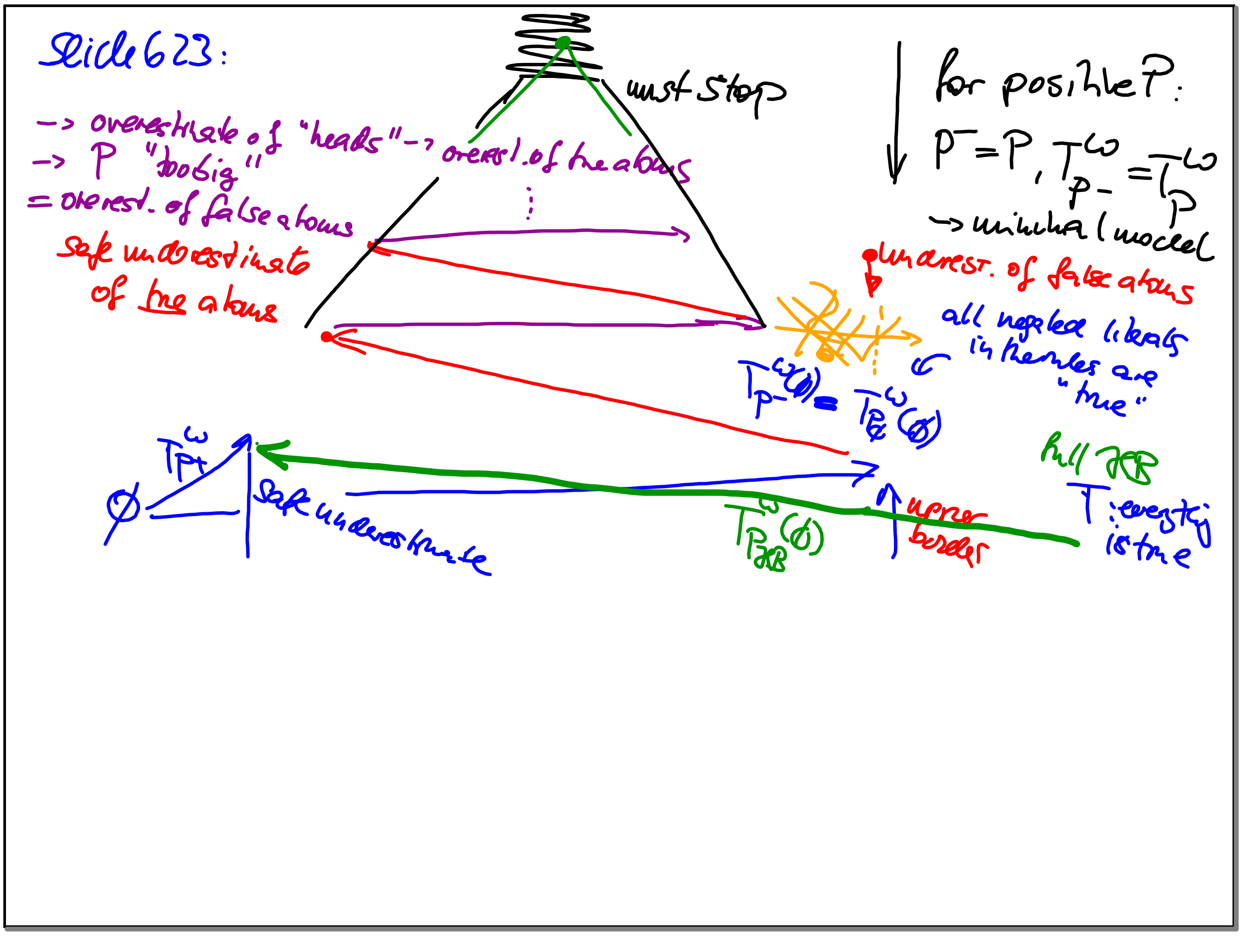

3-valued logic
Win-move game
win(X) :- move(X,Y), not win(Y).
lose(X) :- ¬win(X)
3-valued model as (T, F)
true atoms
false atoms
→ 2 total stable model(s)
1) val(win(a)) = t, val(win(b)) = f, val(lose(a)) = f, val(lose(b)) = t
≙ ({win(a), lose(b)}, {lose(a), win(b)})
2) val(win(b)) = t, val(lose(b)) = f, val(win(a)) = f, val(lose(a)) = t
≙ ({win(b), lose(a)}, {lose(b), win(a)})
3-valued: 3rd stable model =: W
val(win(a)) = u, val(lose(a)) = u
val(win(b)) = u, val(lose(b)) = u
+ moves
≙ (∅, ∅)
"no definite knowledge"
3-valued: this is a stable model
"every (total) stable model extends the • well-founded model • minimal stable model"
Reduct: P_W
win(a) :- move(a,b), ¬win(b).
win(b) :- move(b,a), ¬win(a)
move(a,b). move(b,a).
undef
T_P_W(∅):
T^0(∅) = ∅
T^1(∅) = val(move(a,b)) = t, val(move(b,a)) = t
T^2(∅) = val(move(a,b)) = t, val(move(b,a)) = t
val(win(a)) = u, val(win(b)) = u
T^3(∅) = W
⇒ W is a stable model


Slide 623:
must stop
for positive P:
P⁻ = P, T^ω_P⁻ = T^ω_P
→ minimal model
→ overestimate of "heads" → overest. of true atoms
→ P "too big"
= overest. of false atoms
safe underestimate of true atoms
underest. of false atoms
all negated literals in bodies are "true"
T^ω_P⁻(∅) = T^ω_P(∅)
Safe underestimate
upper border
T^ω_HB(∅)
full HB
T: everything is true