PROOF METHOD & PROPOTIONAL RESOLUTION

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(1)	Promite	: 2

- 1) malas A bolos -> ~ lulus
- 2) ~ lulus morah
- 3) bolos A ~ marah

Conclution : ~ malas

Proof :

- 4) Hygothetical Tyllogism 1,2

 malas A bolos ~ lulus

 ~ lulus marah

 malas A bolos marah
- 5) Simplification 3'
 bolos A ~ marah
 ~ marah
- Modus Tollens 1,5

 maias A bolos → marah

 marah

 (maias A bolos)
- 7) De Morgan's Law 6
 ~ (malas A bolos) \leftrightarrow ~ malas V ~ bolos
- 8) Simplification 3

 bolos A ~ marah

 bolos
- 9) Oujunctive syllogism 7,8

 ~ malas V ~ bolos

 bolos

 ~ malas
 - proven that the conclusion is correct, ~ malas.

@ prove {p + q, q + r } + (q + r) -> ((p + r) -> ~p)

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a) Validity thecking

 $((p \rightarrow q) \land (q \rightarrow r)) \rightarrow ((q \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p))$

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7	F	1	F	F	T	1	1	T	f	1	F
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F	T	T	T	T	T	1	T.	T	T	T	7

valid

Karena hatil ((p \rightarrow q) \rightarrow (q \rightarrow r) \rightarrow (p \rightarrow r) \rightarrow \rightarrow p) bernilai trie remud dan menggunakan validation checking, maka dirimpulkan reatement trib valid.

b) Unratisfiability Checking

 $((p \rightarrow q) \land (q \rightarrow r)) \land \sim ((q \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p))$ Final

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F	τ	Т	T	1	T	F	1	F	T	T	T	1

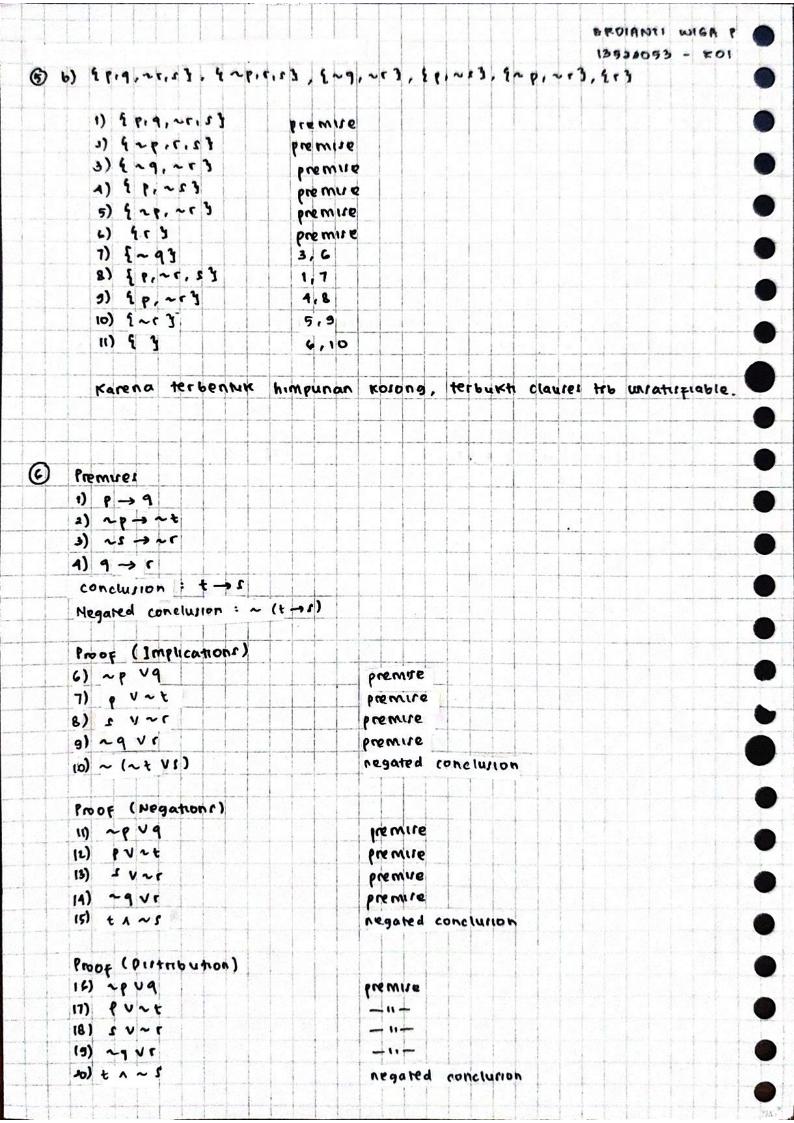
& unratingiable

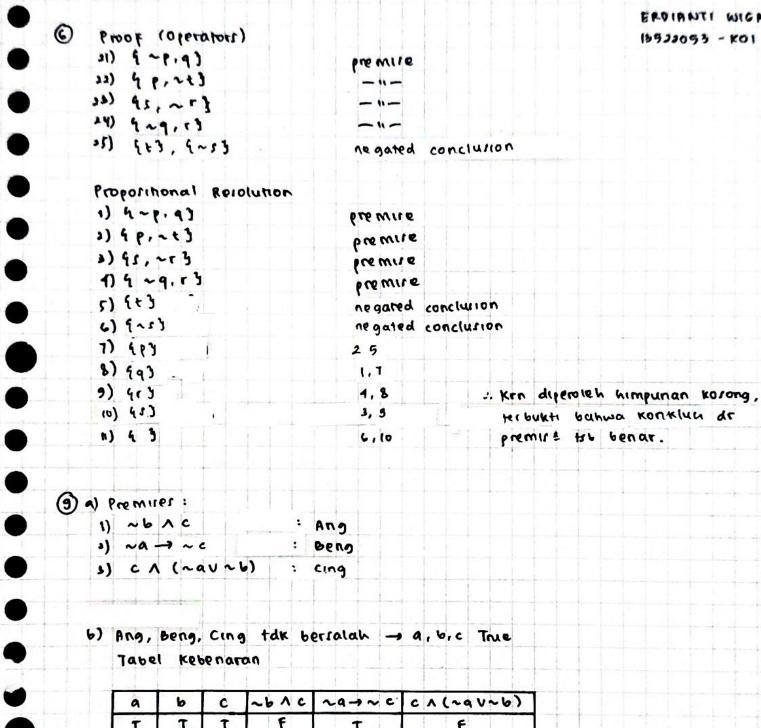
statement tib unsatisfiable. $((q \rightarrow r) \rightarrow ((q \rightarrow r) \rightarrow \sim p))$ beinilar

(2) c) Axiom schemata, Rule of Inference (without peduction Theorems) $\{p \rightarrow q, q \rightarrow r\} \not\models (q \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p)$ Premues: 1) P-9 2) 9 -> F Conclusion: $(q \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p)$ Proof " Premise 1) P - 9 2) q -> r premue Implication introduction 2 3) $(q \rightarrow r) \rightarrow (p \rightarrow (q \rightarrow r))$ Wegar bouch 3'3 4) P -> (q -> r) implication distribution 4 5) (p→(q→c)) → ((p→q) → (p→r)) Modus Ponen 415 6) (p→q) → (p→r) Modus Ponen 1, 6 7) P-5 Contradiction Realization 7 8) $(p \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p)$ 2) (p-> ~ r) -> ~ p Bit nonog tubom 10) ((p-> ~1) - ~ ((q - +1) - ((p - ~1) - ~p) implication introduction 9 11) (q → r) → ((p → ~r) → ~p) Modus Ponen 9.10 $\therefore \{p \rightarrow q, q \rightarrow r3 + (q \rightarrow r) \rightarrow ((p \rightarrow \sim r) \rightarrow \sim p)$ (3) His buboritours to inom that the tollowing rest of claries are unsatufiable. a) { p, 93 , 4 ~ p, 5 3 , 6 ~ p, ~ 53 , 6 p, ~ 93 1) { 9.93 buswice 2) 4~P, 53 SLE WILE 2) 1~9,~53 premire 4) 1 Pi~ 93 butune 5) { P3 1,4 6) {~P} 2,3 7) { 3 9,6

karena terbentuk himpunan kovong, maka terbukti clauses tib

unratur flable.





Perkataan Ang & Ling faire, maka Ang & cing berbohong.

Beng True, maka Beng Jujur.

