

THE CALCULUS OF COMPUTATION

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1. CHAPTER 1

Exercise (1.1).

(a) Assume that there is a falsifying interpretation I .

1. $I \models P \wedge Q \rightarrow P \rightarrow Q$ (assumption)
2. $I \models P \wedge Q$ (by 1 and semantics of \rightarrow)
3. $I \not\models P \rightarrow Q$ (by 1 and semantics of \rightarrow)
4. $I \models Q$ (by 2 and semantics of \wedge)
5. $I \not\models Q$ (by 3 and semantics of \rightarrow)
6. $I \models \perp$ (4 and 5 are contradictory)

There is only one branch and it is closed. Thus F is valid.