

22. On the Proposition $C\delta CpqC\delta p\delta q$ with a Variable Functor

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In this note, we shall prove that $C\delta CpqC\delta p\delta q$ implies

- 1) $CpCqp$,
- 2) $CCpCqrCCpqCpr$,
- 3) $CCCpqpp$.

As the substitution rules for δ are well-known, we omit them. (For example, see [1] Lukasiewicz, [2] Meredith or [3] Prior.) For the details on the propositional calculus with a variable functor δ , see [1]-[3].

Proof.

- 1 $C\delta CpqC\delta p\delta q$.
1 $\delta / '-2$,
- 2 $CCpqCpq$.
1 $\delta / C'' * C2-3$,
- 3 $CCppCqq$.
3 $p / Cpq * C2-4$,
- 4 Cqq .
1 $\delta / Cp', p / q, q / r-5$,
- 5 $CCpCqrCCpqCpr$.
5 $p / Cpq, q / p, r / q * C2-6$,
- 6 $CCCpqppCCpqq$.
1 $\delta / C'Cpq * C2-7$,
- 7 $CCpCpqCqCpq$.
1 $\delta / C'r-8$,
- 8 $CCCpqrCCprCqr$.
8 $q / Cpq, r / CqCpq, * C7-9$,
- 9 $CCpCqCpqCCpqCqCpq$.
1 $\delta / CCpCq'C'Cq' * C9-C4 \quad q / CpCqp-10$,
- 10 $CCpCqqCqCqq$.
10 $p / Cpp, q / p * C4 \quad q / Cpp-11$,
- 11 $CpCpp$.
8 $p / Cpq, q / p, r / CCpqq * C6-12$,
- 12 $CCCpqCCpqqCpCCpqq$.
1 $\delta / CC'C'qCpC'q * C12-C4 \quad q / CpCpq-C11 \quad p / q-13$,
- 13 $CpCqq$.
1 $\delta / CCpC'qC'Cpq * C13 \quad p / CpCCpqq, q / Cpq-C4 \quad q / CpCpq$
-C13-14,