

**251. On the Propositional Calculus with a  
Variable Functor,  $C\delta pC\delta Np\delta q$**

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(Comm. by Kinjirô KUNUGI, M.J.A., Dec. 12, 1966)

In this note, we shall prove that  $C\delta pC\delta Np\delta q$  implies

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

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

**Proof.**

- 1  $C\delta pC\delta Np\delta q$ .  
1  $\delta/C'r$  \*2,
- 2  $CCprCCNpqr$ .  
1  $\delta/'$  \*3,
- 3  $CpCNpq$ .  
1  $\delta/CpCNp', q/Np$  \*C3  $q/p$ —4,
- 4  $CCpCNpNpCpCNpNp$ .  
3  $p/CpCNpNp, q/NCpCNpNp$  \*C3  $q/Np$ —5,
- 5  $CNCpNpNpNCpNpNp$ .  
1  $\delta/C''$ ,  $p/CpCNpNp, q/p$  \*C4—C5—6,
- 6  $Cpp$ .  
1  $\delta/C''$  \*C6—7,
- 7  $CCNpNpCqq$ .  
1  $\delta/CC''Cqq, p/Np, q/r$  \*C7—C7  $p/Np$ —8,
- 8  $CCrrCqq$ .  
3  $p/Cpp$  \*C8—9,
- 9  $CNCppq$ .  
1  $\delta/C'Cqq, p/Cpp, q/r$  \*C8  $r/p$ —C9  $q/Cqq$ —10,
- 10  $CrCqq$ .  
1  $\delta/CrC'r, p/r$  \*C10  $q/r$ —C3  $p/r, q/r$ —11,
- 11  $CrCqr$ .  
1  $\delta/Cr'$  \*12,
- 12  $CCrpCCrNpCrq$ .  
12  $p/Np, q/p, r/Np$  \*C6  $p/Np$ —13,
- 13  $CCNpNNpCNpp$ .  
1  $\delta/CCNpN'C'p$  \*C8  $r/Np, q/p$ —C13—14,
- 14  $CCNpNqCqp$ .