$$A' = \begin{pmatrix} T' & K' \\ L' & M' \end{pmatrix}, \quad B' = \begin{pmatrix} \omega T' & H' \\ P' & Q' \end{pmatrix},$$

and from $A_s = B_s$ it follows that $A_s' = B_s'$. If

$$T' = (t_{ij}), \quad K' = (k_{iq}), \quad H' = (h_{iq}),$$
$$(i, j = 1, 2, \cdots, s;\ q = 1, 2, \cdots, n - s),$$

and T_{ij} denote the cofactor of t_{ij} in T', then

$$\sum_{i=1}^{s} T_{ij} k_{iq} = \sum_{i=1}^{s} \omega^{s-1} T_{ij} h_{iq}, \qquad \text{or} \qquad \sum_{i=1}^{s} T_{ij}(k_{iq} - \omega^{s-1} h_{iq}) = 0.$$

But, since $|T_{ij}| \neq 0$, $k_{iq} - \omega^{s-1} h_{iq} = 0$ or $H' = \omega K'$. Similarly it may be shown that $P' = \omega L'$. Let T'' be a submatrix of T' of order $s-1$ which is non-singular. If m_{ij} is any element of M' and q_{ij} the corresponding element of Q', the determinant of order s formed from A' of the $s-1$ rows and columns of which T'' is composed and the row and column in which m_{ij} lies is equal to the corresponding determinant formed from B'. But from the equality of these two determinants it follows that $m_{ij}|T''| = \omega^{s-1} q_{ij} |T''|$ and therefore, since $|T''| \neq 0$, it follows that $Q' = \omega M'$, $A' = \omega B'$, and $A = \omega B$. This completes the proof of the theorem.

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REMARKS ON PROPOSITIONS $*1\cdot 1$ AND $*3\cdot 35$ OF PRINCIPIA MATHEMATICA†

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1. *Object.* Among the propositions of the theory of deduction underlying Whitehead and Russell's *Principia Mathematica* are the two following:

$*1\cdot 1$. *Anything implied by a true elementary proposition is true.*

$*3\cdot 35$. $\vdash : p \cdot p \supset q \cdot \supset \cdot q$.

The authors interpret $*3\cdot 35$ as "if p is true, and q follows from it, then q is true," and they remark that $*3\cdot 35$ "differs

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