CHANGE OF DIMENSION IN SEQUENCE TRANSFORMATIONS

By Hugh J. Hamilton

In[1] H_1 were derived conditions on the $2n$-dimensional matrix of complex numbers $|| a_{m_1 m_2 \cdots m_n k_1 k_2 \cdots k_n} ||$ (n arbitrary) necessary and sufficient for the transforming of all n-dimensional sequences $\{s_{k_1 k_2 \cdots k_n}\}$ of class U into n-dimensional sequences $\{\sigma_{m_1 m_2 \cdots m_n}\}$ of class V, by means of the relation

$$\sigma_{m_1 m_2 \cdots m_n} = \sum_{k_1, k_2, \cdots, k_n = 1}^{\infty} a_{m_1 m_2 \cdots m_n k_1 k_2 \cdots k_n} s_{k_1 k_2 \cdots k_n},$$

for each U and each V of a set of 16 classes of sequences of complex numbers. It is the purpose of this note to point out that no use is made, in the course of the proofs in H_1, of equality between the dimension of the s-sequence and that of the σ-sequence, and consequently that the results, if properly interpreted, are quite valid for $(n + l)$-dimensional matrices $|| a_{m_1 m_2 \cdots m_l k_1 k_2 \cdots k_n} ||$ associated with transformations of the type

$$\sigma_{m_1 m_2 \cdots m_l} = \sum_{k_1, k_2, \cdots, k_n = 1}^{\infty} a_{m_1 m_2 \cdots m_l k_1 k_2 \cdots k_n} s_{k_1 k_2 \cdots k_n},$$

where l and n are independently arbitrary.

The only alterations which need to be made in H_1 to permit this interpretation follow.

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Line 1. Replace "n-tuple" by "multiple".

Line 4. Replace n by l.

Line 5. Replace "another such, homologous to m", by "an ordered set of n positive, integral variables".

Line 16. Replace m^1, m^2 by k^1, k^2.

Line 18. Replace "The corresponding" by "A single".

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Line 15. Before $\pi(m)$, insert "$l = n$, and"; and before "then", insert "μ being the homologue in m of κ in k".

Line 23. Before "under", insert "and $l = n$".

Line 26. Before "under", insert "and $l = n$".

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Line 19. Before "and", insert "in all, $l = n$".

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[1] In this note H_1 will denote the paper, *Transformations of multiple sequences*, by Hamilton, this Journal, vol. 2(1936), pp. 29–60.