73. *On the Product of Some Quasi-Hausdorff and Logarithmic Methods of Summability*

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1. O. Szász [11] discussed the following problem concerning the product of two summability methods for sequences: If a sequence $\{s_n\}$ is summable by a regular T_1 method then is the T_2 transform of $\{s_n\}$, where T_2 is a regular sequence-to-sequence method, also summable by the T_1 method to the same sum as before? In what follows we denote $T_1 \cdot T_2$ as the iteration product of these two methods, that is the T_1 transform of the T_2 transform of a sequence. He answered this problem in the affirmative in the cases when

(a) Abel and Hausdorff summability,
(b) Laplace and Riesz summability,
(c) Borel and Hausdorff summability,
(d) Abel summability and the circle method,
(e) Abel summability and the S_α method.

He also gave an example of two regular methods, where T_1 does not imply $T_1 \cdot T_2$. (See [11, 12].) Here we denote "method A implies method B", when any sequence summable A is summable B to the same sum.

M. S. Ramanujan [9, 10] also answered this problem in the affirmative in the cases when

(f) Abel and quasi-Hausdorff summability for a bounded sequence.

(g) Borel and quasi-Hausdorff summability for a bounded sequence.

(h) Abel summability and the (S^*, μ) method for the sequence which satisfies some condition.

M. R. Parameswaran [4] answered this problem in the affirmative in the case when

(i) Nörlund summability and a method of the Nörlund type.

C. T. Rajagopal [5] and T. Pati [3] also proved several theorems concerning this problem.

D. Borwein [1] answered this problem in the affirmative in the case when

(j) logarithmic and Hausdorff summability.

The purpose of this note is to prove a theorem in the case when

(k) logarithmic and quasi-Hausdorff summability with some con-