Barcelona 20 June 1967

Prof. Sri B.M Thirunaranan
Registrar, University of Madras
Madras

Dear Professor Thirunaranan,

I have the plasure of sending you herewith ~~my~~ Professor Azpeitia's report together with my own on the Tesis of Mr Reddy. (I enclose the invoice).

From the contents of these reports you will gathers that we are of the opinion that Mr. Reddy's Thesis is interesting and to be "HIGHLY-COMMENDED".

I am sending you by separate post the copy of the Thesis of Mr. Reddy.

I am,

Yours sincerely

F. Sunyer Balaguer
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Report on the Thesis submitted by

A.R. Reddy

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by

F. Sunyer Balaguer

The Thesis of Mr. Reddy contains a great number of extensions of results from entire power series to entire Dirichlet series (as Mr. Reddy and many other mathematiciens call the Dirichlet series absolutely convergent at every point of the complex plane).

The results of Mr. Reddy are interesting in themselves as I shall show below, but they are also interesting because in a great many of moderm papers on this subject there are incorrect proofs and also incorrect results, and hence a work with correct proofs and which point out many of the more frequent mistakes will be very useful.

Now I shall coment on some of the more interesting results contained in the Thesis.

In chapter I in the first place the author states some lemmas and then he proves theorem 1 which contain two theorems of Sugimura and Azpeita, it is interesting that with the condition of Sugimura on $\{\lambda_n\}$ there can be stated a similar theorem without the condition $\rho < \infty$. Theorem 2 is an extension of theorem 1.

In chapter II in the first place Mr. Reddy emphasize again the difference between the Ritt and Sugimura order. This is very useful because this difference had not been taken into account in some papers of other authors and this oversight has caused many mistakes. Afterwards he states some lemmes and afterwards some theorems on the relations among $M(\sigma)$, $\mu(\sigma)$, $\Lambda(\sigma)$ and $I_2(\sigma)$ for f(s) and for its derivative Many of these theorems are new and above all the parts corresponding to the lower order.

San Juan (Rev. R.Acad de Ciencia de Madrid vol XLV,) Azpeitia (Memoria del Instituto Jorge Juan nº 15) and Sato (Bull An Math. Soc vol.68) had studied a classification of the entire power series of infinite order according to its growth. In chapter III Mr. Reddy extends this classification to entire Dirichlet series of infinite order.

Then (part I) the author gives results connecting either Sugimura generalised order or Sugimura generalised type with the coefficients of the Dirichlet series. This is an interesting extensions of the results of Azpeitia and Sato using the Sugimura generalised order and type. After Mr. Reddy shows that with additional conditions on $\{\lambda_n\}$ the Sugimura generalised order has the same value as the Ritt generalised order and he obtains a similar result for the corresponding types. Therefore as $\{\lambda_n\} \equiv \{n\}$ verifies the additional condition these theorems include as particular cases the results of Azpeitia and Sato. Finally in the same part and chapter Mr. Reddy states some results connecting the generalised order and type of the Dirichlet series with the generalised order and type of its derivative.

In part II of the same chapter IIi the author obtains the analogous results but involving the inferior limits, i.e., the generalised lower order and generalised lower type These results are interesting. Some particular cases of these results were proved by other authors but some with incorrect proofs.

In chapter IV Mr. Reddy studies the entire Dirichlet series of zero order and defines ~~the logarithmic~~ Sugimura order and logarithmic Ritt order, logarithmic Sugimura oreder and logarithmic order defined by the coefficients and defined by rank of the maximum term. For these logarithmic orders Mr. Reddy states results similar to those which are contained in the former chapters.

In the totality of the Tesis the proofs are correct and presented in an orderly way, only perhaps the proof of case B of theorem 3 (capter I, p. 18-20 and the proof of lemma 4 capter II p. 37-38) are slightly imperfect but they can be corrected and the results are true.

Consecuently I think that the Thesis of Mr. Reddy has to be "HIGHLY-COMMENDED"

F. Sunyer Balaguer