QUASI-INVARIANCE OF ANALYTIC MEASURES ON COMPACT GROUPS[1,2]

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1. Introduction. The study of analytic measures on compact groups with ordered duals has been the subject of several papers on Fourier Analysis in recent years (see W. Rudin [12] for references). In their papers [5], [6], H. Helson and D. Lowdenslager have used a new method to study the properties of analytic functions on the Bohr group. In his subsequent works [3], [4], Helson has emphasized the connection of this problem to the Weyl-Von Neumann operator equations ([8], [10]). In the meantime, K. de Leeuw and I. Glicksberg [2] have given an extension of the classical theorem of F. and M. Riesz to compact groups. They obtain as its consequence refinements of some theorems of Helson-Lowdenslager [5] and S. Bochner [1].

Our purpose here is to use Helson's method in [4] to obtain a simple proof of the de Leeuw-Glicksberg theorem basing ourselves entirely on the Hilbert space geometry. We think that the interest of this proof, aside from its simplicity and clarity, lies in unifying the ideas of the above two approaches. This unity may eventually lead to a deeper knowledge of analytic measures on groups with ordered duals. Such a study has been made in the special case of the Bohr group by M. G. Nadkarni [9]. A complete study may also give an extension of the work of G. Kallianpur and V. Mandrekar [7] to the situation considered by Helson-Lowdenslager [6].

Professors K. de Leeuw and I. Glicksberg have brought to our notice the yet unpublished work, *Analytic and quasi-invariant measures* by Frank Forelli, where he defines analytic measures on an arbitrary locally compact Hausdorff space and studies their quasi-invariance. His work has points of contact with our work; however, it being more general, he needs elaborate techniques in the theory of Abelian group algebras.