



Stanislaw GOLDSTEIN (goldstei@math.uni.lodz.pl),
Faculty of Mathematics, University of Łódź, ul. Ba-
nacha 22, 90-238 Łódź, Poland, *On a measure in-
dependent construction of noncommutative L^p
spaces.*

ABSTRACT. There are two well known construc-
tions of noncommutative L^p spaces that enable us to
conveniently deal with their multiplicative structure: a
spatial one due to Connes and Hilsun and a non-spatial
one due to Haagerup and described in detail by Terp.
The spatial L^p spaces over a von Neumann algebra M
acting in a Hilbert space H depend on the choice of
a weight on the commutant M' of M . The Haagerup
spaces, on the other hand, should be 'measure independent'. Unfortunately,
they are realized as spaces of measurable operators affiliated to the crossed
product of the algebra M by a modular automorphism group, so a choice of
a specific state or weight on M seems unavoidable. We show how to amend
the situation by constructing, for each von Neumann algebra M , a semifinite
algebra N which plays a role of the crossed product but does not depend on
any particular choice of 'measure' on M .