

Algebraic independence over function fields

W. Dale Brownawell (wdb@math.psu.edu)

Penn State University

Mathematics Department

University Park, PA 16802

USA

Abstract. Transcendence developments for function fields in those (e.g. non-automaton) settings which have classical analogues have followed in the classical footsteps remarkably closely. In the past few years, powerful new techniques have been developed in some cases which extend well beyond what is known in the classical case. The underlying strategy is the familiar one: construct objects (certain t -modules in this case) which produce the values in question as coordinates of periods, establish the semi-simple nature of these objects, determine and compare their endomorphisms, and finally apply the transcendence machine to show linear independence of the coordinates in question. In particular we show that the already known algebraic relations on Gamma values with rational function arguments are in fact the only ones.

