Entanglement Entropy in 1-D integrable chains FABIO FRAN-
CHINI, Massachusetts Institute of Technology/SISSA/INFN, STEFANO EVAN-
GELISTI, Oxford University/University of Bologna/INFN, ELISA ERCOLESSI,
FRANCESCO RAVANINI, University of Bologna/INFN, ANDREA DE LUCA,
SISSA/INFN — We study analytically the Renyi entropy of a bipartite lattice in
the limit of two semi-infinite chains joined at the origin, for a few integrable 1-
dimensional models, by using the techniques of Corner Transfer Matrices of the
corresponding 2-D classical systems, namely the 8-vertex model and the RSOS. In
the scaling limit, close to a conformal point, we reproduce the leading behavior
expected from CFT prediction. The sub-leading corrections, however, differ from
naïve expectations and we show that lattice effect can give rise to additional rele-
vant terms in any numerical approach. Moreover, in the vicinity of a non-conformal
(ferromagnetic) point, we observe a violation of universality and a behavior of the
entropy characteristic of an *essential singularity*.

Fabio Franchini
MIT/SISSA