of lexicographical products of graphs. In the classical case, the representation theory of a wreath product is well-know (see for example [8], Part 1, Annex B) and the Haar measure has a straightforward expression. It is for example easy to prove that the fundamental character of a wreath product with the symmetric group S_n converges toward a compound

any straightforward expression. For instance Banica and Bichon conjectured in [1] that in some cases, the fundamental character of a free wreath product is distributed as the free multiplicative convolution of the law of the two initial fundamental characters.

In the second part of the thesis, we study the free wreath product. First, we more

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