Exercise Sheet
for
"Symmetries of discrete and ultradiscrete integrable systems"

Exercise 1

(1) By applying Nakayashiki-Yamada rule, check

$$(R\otimes\mathbb{I})(\mathbb{I}\otimes R)(R\otimes\mathbb{I})(\boxed{1}\boxed{2}\boxed{2}\boxed{3}\otimes\boxed{1}\boxed{1}\otimes\boxed{2})$$
$$=(\mathbb{I}\otimes R)(R\otimes\mathbb{I})(\mathbb{I}\otimes R)(\boxed{1}\boxed{2}\boxed{2}\boxed{3}\otimes\boxed{1}\boxed{1}\otimes\boxed{2}).$$

(2) Compute (1) with the phase shift of three soliton scattering in (Example 4).

Exercise 2

Compute the image of KKR bijection:

(1) 111222112111

(2) 111111221221

(3) 11111111211222