### Encryption with the RSA Algorithm

Encrypting a message with RSA is done as follows:

2.1. that the numbers must all be smaller than the RSA module We now encode each individual number can, for example, use the table from the previous section. The only thing to note isapplying the formulaFirst we form a sequence of numbers from the sequence of letters of the plaintext. Wez of this sequence of numbers in turn byM.

3. We string the numbers coded in this way together again to form a sequence of num-zemodM bers and thus obtain the ciphertext.

The following example illustrates this procedure.

Let (e, M) = (23, 143) be the public key we calculated in the key generation example Example: Encryption with the RSA algorithm

above. Please note that we do not need the private key for encryption (which is the very purpose of a public key cryptosystem).

We want to encrypt the text “Hallo” with the RSA algorithm. To this end we proceed as follows:

First we translate the text using the table from the previous section Hallo

other by calculating We now encode the individual numbers ze mod M = z072323232323mod143 = 2mod143 = 0mod143 = 110mod143 = 11023 mod 143z of this sequence of numbers one . This results in the following values:after the into a sequence of numbers. The result is: 7 0 11 11 14

111114 mod143 = 27

The ciphertext is thus:

2 0 110 110 27