

1. Alice sends two standard transactions to Bob, generating one-time tx-keys:  $P_2 = \mathcal{H}_s(r_1A)G + B$  and  $P_1 = \mathcal{H}_s(r_2A)G + B$ .
2. Bob recovers corresponding one-time private tx-keys  $x_1$  and  $x_2$  and spends the outputs with valid signatures and images keys  $I_1 = x_1G_2$  and  $I_2 = x_2G_2$ .
3. Now Alice can link these signatures, checking the equality  $I_1 - I_2 \stackrel{?}{=} (\mathcal{H}_s(r_1A) - \mathcal{H}_s(r_2A))G_2$ .

The problem is that Alice knows the linear correlation between public keys  $P_1$  and  $P_2$  and in case of fixed base  $G_2$  she also gets the same correlation between key images  $I_1$  and  $I_2$ . Replacing  $G_2$  with  $\mathcal{H}_p(xG_2)$ , which does not preserve linearity, fixes that flaw.

For constructing deterministic  $\mathcal{H}_p$  we use algorithm presented in [37].