In order to study the collisions, we need to integrate the field equations of motion forward in time. Without loss of generality, we can choose the initial kink-antikink configuration to be diagonal. Since equations of motion preserve the diagonal form, one only needs to consider the evolution of four functions: $a(x,t)$, $b(x,t)$, $c(x,t)$ and $d(x,t)$ defined as:

$$\Phi(x,t) = a(x,t)\lambda_3 + b(x,t)\lambda_8 + c(x,t)\tau_3 + d(x,t)Y \ ,$$

where λ_3, λ_8, τ_3 and Y are the diagonal generators of SU(5):

$$\lambda_3 = \frac{1}{2}\mathrm{diag}(1,-1,0,0,0),$$

$$\lambda_8 = \frac{1}{2\sqrt{3}}\mathrm{diag}(1,1,-2,0,0),$$

$$\tau_3 = \frac{1}{2}\mathrm{diag}(0,0,0,1,-1),$$

$$Y = \frac{1}{2\sqrt{15}}\mathrm{diag}(2,2,2,-3,-3).$$

In the plots, $a(x,t)$ is plotted as a dotted line, $b(x,t)$ as short dash, $c(x,t)$ as long dash and $d(x,t)$ as a solid line.