

# The Design Of Rijndael – Errata

Version: 30 July 2009

- p5, l-3: remove second that
- p11, (2.10): replace second  $(a \odot v)$  by  $(b \odot v)$
- p12, l19: replace te by the
- p18, l-12: replace  $(n - k) \times k$  by  $(n - k) \times n$
- p22, (2.44): left bracket is missing in  $b_{(i,m)}$  and  $a_{(i,m)}$
- p32, l-7: replace  $k_{4,1}$  by  $k_{0,2}$
- p36, l-2 and l-1: Replace the text on these lines by: The affine transformation  $f$  can also be described as a linearized polynomial over  $\text{GF}(2^8)$ , followed by the addition (in  $\text{GF}(2^8)$ ) with a constant. This is explained in Appendix C,
- p51, Fig 3.12: also in the second round, SubBytes should be depicted before ShiftRows
- p56, l14: remove that after they
- p60, l-10: remove a before self-inverse
- p64, l7: remove storage after memory
- p65, l-8: remove the before Sect.
- p67, l-1: replace  $a_{0,i-j}$  by  $a_{0,j-i}$
- p69, l-1: remove in before modulo
- p72, l18: replace efficiently generating by to generate efficiently
- p75, l-16: replace  $n$ th by  $r$ th
- p78, l-8: replace  $i + 1$  by  $i - 1$
- p82, l-4: replace  $a_1 + 2a_6$  by  $2a_1 + a_6$  and replace  $a_2 + 2a_3 + 4a_4 + 8a_5$  by  $8a_2 + 4a_3 + 2a_4 + a_5$
- p93, l8: remove the
- p96, l9: replace  $C_{u,v}^{(h^{(2)})}$  by  $C_{\mathbf{u},\mathbf{v}}^{(h^{(2)})}$
- p96, (7.28): change the order of  $h^{(1)}$  and  $h^{(2)}$
- p97, l-9 and l-7: matrix C is in the wrong font
- p97, l-11 and l-9 and l-5: replace  $n$  by  $2^n$
- p97, (7.33): replace  $(-1)^{\mathbf{w}^T \mathbf{a}}$  by  $(-1)^{\mathbf{w}^T \mathbf{a}}$
- p107, l2: replace  $U_i \oplus U_j^T$  by  $(U_i \oplus U_j)^T$
- p116, (8.14): replace  $C^{u,w^2}$  by  $C_{\mathbf{u},\mathbf{w}}^2$
- p116, (8.15): replace  $C$  by  $\mathbf{C}$ , replace  $w$  by  $\mathbf{w}$ , replace  $u$  by  $\mathbf{u}$
- p118, l11: replace "the differential steps of a linear trails" by "the steps of a differential trail"
- p124, l17: replace trial by trail
- p128, l-4: replace not need not by need not
- p128, l-1: third element of the vector should be  $a_1 \oplus a_3 \oplus a_4 \oplus a_5$
- p131, l17: remove each before permutations
- p132, equation (9.9):  $\mathcal{B}(\phi) = \dots$
- p134, Fig 9.3: in the second round, replace  $k^{(1)}$  by  $k^{(2)}$
- p136, l4: second matrix is  $C_{\xi(1)}$
- p144, l2: replace A by  $A^T$
- p144, l4: replace two times  $A^t$  by A
- p144, l17: replace "all sets of two columns in  $H = [-A^t \ I]$  are independent, but no set of three independent columns exists" by "all columns in but two  $H = [-A \ I]$  are independent, but two columns are equal, hence dependent.
- p144, l-5:  $[I \ A^T]$  is a generator matrix for  $\mathcal{C}_\theta$  and  $[A \ I]$  is a generator matrix for the dual.

p144, l-3: replace  $[A^T \ I]$  by  $[A \ I]$   
p150, l7: replace byte transposition MixColumns by byte transposition ShiftRows  
p153, l-9 and l-4: replace ciphertxts by plaintexts  
p168, l11: remove and before is defined  
p177, (A.3): replace  $\oplus$  by  $+$   
p178, l-5: replace  $2^{1-n_r}$  by  $2^{1-n_r} - 1$   
p180, (A.28): replace two times Tr by  $f$   
p196, l-4: replace "by  $x_\xi$ " by "by  $x_\xi$ "  
p206, l12: replace the by The  
p206, l-3: replace trails a with of weight by trails with weight  
p212, l-15: replace polynomials by polynomial  
p227, l-8: replace Encrypt by Decrypt  
p227, l-7: replace 4 by BC

### Acknowledgements

These errata were contributed by Dave, Nicolas T. Courtois, Praveen Gauravaram, Jorge Nakahara Jr., Ralph Wernsdorf, Shengbo Xu, Uyama Yasumasa.