

$$(7.81) \quad p(w|x, X, \alpha, \beta) = N(w|m, \Sigma)$$

$$(7.76) \quad p(\tau|x, w, \beta) = N(\tau|\beta(1), \beta^{-1}) = N(\tau|w^T \phi(x), \beta^{-1}) = N(\tau|\phi(x)^T w, \beta^{-1})$$

(7.81), (7.76) と (2.113), (2.114), (2.115) に当てはめると

$$p(\tau|x, X, \tau, \beta, \alpha) = N(\tau|\phi(x)^T m, \beta^{-1} + \phi(x)^T \Sigma \phi(x))$$

新しいパラメータ
 β^* α^*

つまり、 β^*, α^* に変えては

.. (7.90)

$$p(\tau|x, X, \tau, \beta^*, \alpha^*) = N(\tau|\phi(x)^T m, (\beta^*)^{-1} + \phi(x)^T \Sigma^* \phi(x)), \quad \Sigma^* \text{ は } \Sigma \text{ かつ } \alpha, \beta \text{ を } \alpha^*, \beta^* \text{ に変えて}$$

を得る。