Errata

Page 27: second line in E.1.3.11.
from the message space $F^{n-1}$ by adding a parity check bit $c_{n-1} := - \sum_{i=0}^{n-2} c_i$.

Page 55: 1.6.5 Lemma.
Let $\chi$ be a nontrivial one-dimensional character.

Page 56: third line.
$$\chi(h) \sum_{g \in G} \chi(g) = \sum_{g \in G} \chi(h + g) = \sum_{g \in G} \chi(g),$$

Page 59: Example 1.6.11.
$$W_C(x, y) = \ldots = y^7 + 7x^3y^4 + 7x^4y^3 + x^7.$$

Page 93: E.2.1.3.
Characterize perfect codes by a suitable relation between $\rho(C)$ and $\text{dist}(C)$.

If there exists an $(n, k, d, q)$-code, then there exists an

Page 102: second line in E.2.2.2.
of codewords $c \in C$ whose parity sum $\sum_{i \in n} c_i$ equals $a$. Prove that either

Page 103: first line in 2.3.3.
Any linear $(n, k, d, q)$-code $C$ is linearly isometric to a code

Page 104: third line in the proof of 2.3.9.
$$\phi: C_0 \to C_2 : v \cdot \Gamma_0 \mapsto v \cdot \left( \frac{\Gamma_2}{0} \right), \quad v \in F_q^{k_0},$$

Page 108: 2.3.15 The tensor product.
We recall from Multilinear Algebra (cf. exercise 2.3.4) that the tensor product $C_0 \otimes C_1$ of two linear codes $C_0, C_1$ can be defined as follows: It consists of all linear combinations of tensors
$$c \otimes c' := (c_0c_0', \ldots, c_0c_{n_1-1}', \ldots, c_{n_0-1}c_0', \ldots, c_{n_0-1}c_{n_1-1}'),$$
where $c \in C_0$ and $c' \in C_1$. In other words, if $C_i$ is an $(n_i, k_i, d_i, q)$-code with generator matrix $\Gamma_i$ for $i = 0, 1$, then the generator matrix of $C_0 \otimes C_1$ is the Kronecker product
$$\Gamma := \Gamma_0 \otimes \Gamma_1 := \begin{pmatrix}
\gamma_{00}\Gamma_1 & \cdots & \gamma_{0,n_0-1}\Gamma_1 \\
\vdots & \ddots & \vdots \\
\gamma_{k_0-1,0}\Gamma_1 & \cdots & \gamma_{k_0-1,n_0-1}\Gamma_1
\end{pmatrix}.$$
By Exercise 2.3.5 the parameters of $C_0 \otimes C_1$ are

$$(n_0 n_1, k_0 k_1, d_0 d_1, q).$$

**Page 110:** line 16.

$LB(n, k, q) := \max \{ d \mid (Lb, n, k, d, q) \}$, $UB(n, k, q) := \min \{ d \mid (Ub, n, k, d, q) \}$.

**Page 117:** second item in E.2.3.14.

$(A \otimes B)^T = A^T \otimes B^T$.

**Page 240:** in the middle of the page.

$h = \frac{x^2 - 1}{8} = (x - 3^0)(x - 3^5) = x^2 + x + 5$

**Page 334:** second line in E.4.10.4.

RM$_{m,t}$ for $0 \leq t < m(p - 1)$.

**Page 351:** sixth line in Theorem 4.14.3.

where $c_i = (y, h^{(i)})$ for $i \in r$.

**Page 403:** fourth line in the proof of 5.3.5.

length at most $\ell$, the vector $0 + e'$ is decoded into 0, and $c - e$ is decoded into $c$.

**Page 643:** third line of the second part of Theorem 8.4.3.

$$\mathcal{X} = \bigcup_{i : x_i > 0} \bigcup_{j = 1}^{x_i} \omega_{ij},$$

**Page 669:** second line from the bottom.

For $x, y \in X$ with ...