ERRATA

for

Algebraic Combinatorics, second ed., Springer, 2018

(26 May 2023)

I am grateful to Benjamin Sambale for most of these corrections.

- page 6, line 10. Change $p(p-1)^\ell$ to $p(p-1)^{\ell-1}$.

- page 9, Exercise 13. While this exercise is correct, it is not so interesting because no such graphs exist! It is a nice exercise to find a proof. See MathOverflow 431083.

- page 16, line 1–. Change this line to

$$= \frac{1}{2^n} \left[\sum_{i=0}^{n-1} \binom{n-1}{i} \frac{(n-2i)^{\ell+1}}{n-i} - (-n)^\ell \right].$$

  The expression after the $=$ sign can be written in the simpler form

$$\frac{1}{n2^n} \sum_{i=0}^{n} \binom{n}{i} (n-2i)^{\ell+1}.$$

- page 30, line 2. The right-hand side is missing a factor $1+x$. It should be
$$(1+x)\left((I_{p-1} - (x+1)\boldsymbol{M}[v])^{-1} T[v] \right)_u.$$

- page 36, Lemma 4.6. It should be noted that we set $U_{-1} = 0$ and $D_{n+1} = 0$.

- page 49, line 17–. It should be assumed that $m \geq 3$ in the statement that G is isomorphic to $\mathfrak{S}_m$.

- page 70, proof of Theorem 6.14. It was not shown before that $M(n)$ is rank-symmetric, though this is immediate from the last line on page 68.

- page 83, Theorem 7.7, line 2. We should take X to have t elements, not n, since n is used for the number of colors. In the proof on page 84 it is correctly assumed that $\#X = t$.

- page 95, line 5. Change r to "at most $r - 1$".

- page 95, line 8. Change "at most r" to "at most $r - 1$".

- page 105, lines 15– to 14–. The letter n is used in two different ways. We should let $\lambda \vdash m$, for instance.

- page 139, line 1–. Change the $(1, 1)$ entry of $\boldsymbol{L}(G)$ from 4 to 5.

- page 151, line 8–. Change e_2 to v_2.

- page 151, line 6–. Change e_j ot e_i.

- page 151, line 5– (third bullet). This line is superfluous.

- page 173, line 18. Change $V_q = 1$ to $V_q = -1$.

- page 174, line 11–. Change $V_q = 1$ to $V_q = -1$.

- page 187, line 6–. We neglected to define (though hopefully the definition is obvious) the *dimension* of Δ to be the maximum dimension of a face of Δ.

- page 194, line 10. Change "the set of" to "the set Y of".

- page 194, line 12. Change "$X =$" to "$Y =$".

- page 194, line 1–. Change 13 to 12.

- page 198, Example 12.14(a). The f-vector should be $(4, 3)$, not $(3, 2)$. Hence line 3 becomes

$$(x - 1)^2 + 4(x - 1) + 3 = x^2 + 2x,$$

and the h-vector is $(1, 2, 0)$.

- page 204, line 7. Earlier there should have been defined the *Hilbert function* of $K[\Delta]$ by

$$H(K[\Delta], i) = \dim_K K[\Delta]_i.$$

- page 204, lines 9– and 7–. Change $j - 1$ to j.

- page 205, line 1. Change k to j (three times).

- page 210, line 18–. Change d to h_i (twice). Also, the notation $\beta_1, \ldots, \beta_{h_i}$ for both the concatenation of the sequences b_j and the list of these sequences is confusing. It would be better to either delete the first $\beta_1, \beta_2, \ldots, \beta_{h_i}$ or to introduce new notation for concatenation, such as $\mathrm{concat}(\beta_1, \ldots, \beta_{h_i})$.