Errata for the book *Many Variations of Mahler Measures. A Lasting Symphony* by François Brunault and Wadim Zudilin

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We are grateful to Mista Boisan and Chris Smyth for having spotted mistakes. If you find a typo or an error in the book, or have further remarks, feel free to send us an email. Thank you in advance!

- p. 14, Theorem 2.1:
  The final sentence of statement should read as follows: "Furthermore, if $\mathrm{M}(P) \le c = x_0 + 10^{-4}$, then either $P(x)$ has a zero $\pm x_0^{1/m}$ for some $m \in \mathbb{Z} \setminus \{0\}$ or $P(x)$ is reciprocal."

- p. 19, Lemma 2.6:
  The part "is the result of application of the differential operator $\frac{1}{(k-1)!}\frac{\mathrm{d}^k}{\mathrm{d}x^k}$ to the first one" should refer to the operator $\frac{1}{(k-1)!}\frac{\mathrm{d}^{k-1}}{\mathrm{d}x^{k-1}}$ instead.

- p. 26, Exercise 2.7:
  In parts (b) and (c) of the exercise, the word "irreducible" should be dropped (three times).

- p. 72, Exercise 5.11(b):
  The denominator of the rational expression on the left-hand side should be $9(1+3x)^4$; the correct form of identity to verify is

$$ {}_3F_2\left(\begin{matrix} \frac14, \frac12, \frac34 \\ 1, 1 \end{matrix} \,\middle|\, \frac{256x}{9(1+3x)^4}\right) = \frac{1+3x}{1+x/3}\, {}_3F_2\left(\begin{matrix} \frac14, \frac12, \frac34 \\ 1, 1 \end{matrix} \,\middle|\, \frac{256x^3}{9(3+x)^4}\right). $$

- p. 79, Hint to Exercise 6.4:
  The first sentence should read "Observe that $0 \le |1+x+y-xy| \le \sqrt{8}$ on the torus $|x| = |y| = 1$."

- p. 86, l. 10:
  The reference [158, Theorem 5.4] should be [158, Section 7, Theorem 5.4]. Another reference for (7.5) is [2, Chapter 5, 6.12] (in the reference list below).

- p. 88, Exercise 7.3(c):
  An assumption on the path γ should be added, namely: if an endpoint p of γ belongs to the set $S_{f,g}$ of zeros and poles of f and g, then the argument of $\gamma(t)$ with respect to a local coordinate at p is of bounded variation when $\gamma(t)$ approaches p.

- p. 91, Chapter notes:
  The regulator map $\widehat{\mathrm{reg}}_Y$ lifts reg_Y in the sense that applying the map $\log|\cdot|\colon \mathbb{C}^\times \to \mathbb{R}$ recovers $\frac{1}{2\pi}\mathrm{reg}_Y$ (and not reg_Y). See also the correction for Exercice 7.10, pp. 93–94.

- pp. 93–94, Exercice 7.10:
  The regulator map $\widehat{\mathrm{reg}}_Y$ should not be called the 'enhanced regulator map' but rather the 'integral regulator map'. This is because $\widehat{\mathrm{reg}}_Y$ naturally takes values in the Deligne–Beilinson cohomology group $H^2_{\mathcal{D}}(Y,\mathbb{Z}(2))$ with *integral* coefficients, and we have isomorphisms $H^2_{\mathcal{D}}(Y,\mathbb{Z}(2)) \cong H^1(Y,\mathbb{C}/(2\pi i)^2\mathbb{Z})$ [1, Proposition 1.1] (in the reference list below) and $\mathbb{C}/(2\pi i)^2\mathbb{Z} \cong \mathbb{C}^\times$ by means of $z \mapsto \exp(z/(2\pi i))$.

  In Question (g), the correct formula is $\log|\widehat{\mathrm{reg}}_Y| = \frac{1}{2\pi}\mathrm{reg}_Y$.

- p. 106, Chapter notes:
  The regulator map $K_2(Y) \to H^1(Y,\mathbb{C}^\times)$ should not be called the 'enhanced regulator map' but rather the 'integral regulator map'. See also the correction for Exercise 7.10, pp. 93–94.

- p. 143: After Definition A.11, the reference [143, Proposition 1.4] should be [143, Section 3, Proposition 1.4].

References

[1] J. I. Burgos, Arithmetic Chow rings and Deligne–Beilinson cohomology, *J. Algebraic Geom.* **6** (1997), no. 2, 335–377.

[2] C. A. Weibel, *The K-book. An introduction to algebraic K-theory*, Graduate Studies in Mathematics **145** (American Mathematical Society, Providence, RI, 2013).