Errata for **Mathematical Omnibus** by D. Fuchs and S. Tabachnikov

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p. 16, l. -9 should read:

$$OA_{-1}BA_{-2}, A_{-1}OBC, ...$$

p. 24, l. 6 should read:

$$\text{area}(P) = \big(m + \frac{n}{2} - 1\big)s.$$

p. 25, l. -2 should read:

... and $a_k \leq n$ ...

p. 35, l. -7 should read:

Theorem 2.5 (Jacobsthal, 1949, [11]).

p. 38, l. 10 should read:

... and the denominator of t is not divisible by p, ...

p. 39, l. 3 and l. 7:

$\frac{1}{2(p-1)}$ in both formulas should be replaced by $\frac{1}{2(p-2)}$

p. 39, l. 6 should read:

of the numbers $1(p-1), 2(p-2), \ldots, q(p-q)$, ...

p. 40, l. 2 should read:

... following fact: if $0 < m < 2^k$ and m is odd then ...

p. 42, l. -8 should read:

... that $xC(x)^2 - C(x) + 1 = 0$. ...

p. 51, l. 5 and l. 8 should read:

$$p(7) = p(6) + p(5) - p(2) - 1 = 11 + 7 - 2 - 1 = 15$$

$$p(10) = p(9) + p(8) - p(5) - p(3) = 30 + 22 - 7 - 3 = 42$$

p. 75, l. -3 should read:

$$y_1 = -(x_1 + x_2)^2 = -(x_3 + x_4)^2$$

p. 76, l. 2 should read:

$$x_1 + x_2 = -(x_3 + x_4) = \pm\sqrt{-y_1}$$

p. 80, l. 17 should read:

polynomials $x^3 + \varepsilon_3 px + q, x^3 + \bar{\varepsilon}_3 px + q$ ...

p. 96-97, l. -8 should read:

$$x^5 - x + a,\ x^4 - \frac{1}{5},\ x - \frac{5}{4}a,\ \frac{1}{5} - \left(\frac{5}{4}\right)^4 a^4$$

l. -2 should read:

$$(-, +, -, -) \quad \text{and} \quad (+, +, +, -)$$

l. -1 should read:

hence there is one root (if $a^4 < 4^4/5^5$, this number is equal to 3).

p. 97, l. 3 – 8 should read:

$$a, -\frac{1}{5}, -\frac{5}{4}a, \frac{1}{5} - \left(\frac{5}{4}\right)^4 a^4$$

Still assuming that the last number is negative, there are two cases: $a > 0$ and $a < 0$. In the former, we have the signs $(+, -, -, -)$, and in the latter $(-, -, +, -)$.

Comparing this to the signs at $+\infty$, $(+, +, +, -)$, we conclude that if $a > 0$, there are no positive roots, and if $a < 0$, there is a single one (this also holds for $a = 0$).

p. 103, l. -11 should read:

Let us partition this strip into n rectangles ...

p. 104, l. 2-3 should read:

$$2\cos 2\alpha = 4\cos^2\alpha - 2 = (2\cos\alpha)^2 - 2, ...$$

$$2\cos 3\alpha = 8\cos^3\alpha - 6\cos\alpha = (2\cos\alpha)^3 - 3(2\cos\alpha), ...$$

p. 119, l. -6 should read:

$$D = 256r^3 - 128p^2r^2 - 27q^4 - 4p^3q^2 + 16p^4r + 144pq^2r$$

p. 155, the caption to Arnold's photograph should read:

Vladimir Arnold, 1937 – 2010

p. 180, Figure 12.18 should read:

$2w = ...$

p. 231, l. -8 – -9 should read:

The line through C parallel to ℓ_i crosses both ℓ_j and ℓ_k ...

p. 260, l. 13 – 14 should read:

... (this is point Z in the figure). It follows that

$$A + (B + C) = (A + B) + C = W$$

p. 265, l. 2 should read:

$(x, 0, x^2)$ and $(0, y, -y^2)$

p. 271, l. -2 – -1 should read:

If the curve is not too "wild" (say, is a bounded polygonal line) then the integral has a finite value.

p. 298, the Lyusternik caption should read:

L. A. Lyusternik, 1899 – 1981

p. 305, the Schramm caption should read:

Oded Schramm 1961 – 2008

p. 314, l. 16 should read:

$$\cos(n+1)\alpha = \cos n\alpha \cos\alpha - \sin n\alpha \sin\alpha$$

p. 321, the caption to figure 23.6 should read:

Can one cover a triangle by tribones?

p. 341, l. -3 should read:

... to polygons $DA_1 \dots A_k C$ ...

p. 350, l. -6 should read:

p. 379. The photograph of M. Hirsch is a wrong one (this is Kurt Hirsch). The right photograph is below:

Figure 1: Morris Hirsch

... rectangle $ABCD$ $(AB < BC)$ ...

p. 408, l. -4 should read:

then the circle C_3 into the angle $A_2A_3A_1$, tangent to C_2, ...

p. 411, l. 18 should read:

$$\phi_1+\phi_2 = \beta_3, \phi_2+\phi_3 = \beta_1, \phi_3+\phi_4 = \beta_2, \phi_4+\phi_5 = \beta_3, \phi_5+\phi_6 = \beta_1, \phi_6+\phi_7 = \beta_2.$$

p. 422, the caption to Arnold's photograph should read:

Vladimir Arnold, 1937 – 2010

p. 422, l. -3 should read:

Let $f(x)$ be a monic polynomial ...

p. 423, l. 15, 17, 20:

$P_n(x)$ and $Q_n(x)$ should be replaced by $P_n(x,y)$ and $Q_n(x,y)$

p. 429, l. -2 should read:

$$C_n = \frac{(2n)!}{n!(n+1)!} = \frac{1}{n(n+1)} \cdot \frac{(2n)!}{(n-1)!n!} = \left(\frac{1}{n} - \frac{1}{n+1}\right) \cdot \frac{(2n)!}{(n-1)!n!}$$

p. 430, l. 2 should read:

$$xC(x) = \int (1-4x)^{-\frac{1}{2}} dx = -\frac{1}{4} \cdot \frac{(1-4x)^{\frac{1}{2}}}{\frac{1}{2}} + C = ...$$

p. 442, l. 13 should read:

$$t_1^3(4c - 3t_1) = t_2^3(4c - 3t_2)$$

p. 444, l. -13 should read:

To find the remaining lines, we use ...

p. 444, l. -8 should read:

... (for $u = 0$, the point lies on the surface for every t). ...

p. 449, l. 15 should read:

the edges of Q all belong to ... ...

p. 450, l. -12 should read:

oval γ at more than two points. ...

p. 451, l. 13 should read:

$$n = (\cos\theta, \sin\theta), n_1 = (\cos\theta_1, \sin\theta_1), w = l(\sin\theta, -\cos\theta), w_1 = l(\sin\theta_1, -\cos\theta_1)$$

p. 454, solution to problem 30.2 should be changed to:

30.2. Let us use the solution to the previous problem. We saw that, given arbitrary numbers $b_1, \ldots, b_n$, the polynomial $g(x)$ of degree $\leq n-1$ having value b_i at point q_i, $i = 1, \ldots, n$, is unique and has the form

$$\sum_{k=1}^{n} b_k \frac{(x-q_1)(x-q_2)\ldots(x-q_{k-1})(x-q_{k+1}\ldots(x-q_n)}{f'(q_k)}$$

where $f(x) = (x-q_1)\ldots(x-q_n)$. Hence the leading coefficient of $g(x)$ is $\sum \frac{b_k}{f'(q_k)}$. It follows that if $b_1, \ldots, b_n$ are the values of a polynomial of degree $\leq n-2$ at points $q_1, \ldots, q_n$ then this sum is equal to zero, and if $b_1, \ldots, b_n$ are the values of a polynomial of degree $n-1$ at these points then the sum equals the leading coefficient of this polynomial.