

Misprints and errors in
The discrete mathematical charms of Paul Erdős

Version 221104

I am indebted to Xiaomin Chen, Takako Kodate, Yasuko Matsui, and
Toshinori Sakai for all but four of these items.

- page 11, Section 1.7: Replace “the natural logarithm $\log_e x$.” by “the natural logarithm $\log_e x$.” (= replace the colon by a full stop).
- page 16: In the paragraph beginning with “A finite set Ω of objects”, replace $w \in B$ and $w \in \Omega$ by $p \in B$ and $p \in \Omega$, respectively; in the paragraph beginning with “In the special case of Bertrand’s postulate”, replace $w \in \Omega$, $w \in B$, and $w \in A$ by $p \in \Omega$, $p \in B$, and $p \in A$, respectively.
- page 24, under the photo:
Replace “Courtesy of János Pach” by “© Geňa Hahn”.
- page 26: in CASE 2, replace “There is a subscript s such that $|L_s| = |L_r|$ ” by “There is a subscript s such that $s \neq r$ and $|L_s| = |L_r|$ ”.
- page 38, line 13 from below: Replace “Andrew M. Gleason (1921–2008),” by “Andrew M. Gleason (1921–2008)” (= remove the comma).
- page 49, PROPOSITION 3.11: Replace “positive integer k ” by “non-negative integer k ”.
- page 52, second line below the photo caption: Replace
 $\{T \cup \{x^*\}: T \in \mathcal{G}\}$ is a Δ -system of more than m members of \mathcal{F}^*
by
 $\{T \cup \{x^*\}: T \in \mathcal{G}\}$ is a Δ -system of more than m members of \mathcal{F} .
- page 52, fourth line below the photo caption:
Replace “sets that intersect” by “sets of size k that intersect”
- page 53, line 10: Remove one parenthesis immediately before [146].
- page 55, line 3: Replace “is is” by “is”.

- page 60, equation (5.3): Replace the second \geq by $=$.
- page 62, line 15: Replace “Theorem 5.3 was rediscovered” by “Theorem 5.4 was rediscovered” .
page 62, lines 7 from the bottom and 10 from the bottom: Replace $\{1, 2, \dots, n\}$ by $\{1, 2, \dots, n\}$.
- page 67, second line of Lemma 5.9: Replace $2k \leq n$ by $2k < n$.
- page 69, lines 12 and 13: Replace “denoted $T(n, \ell, k)$ ” by “denoted by $T(n, \ell, k)$ ” .
- page 72: Remove the period at the end of display (5.16).
- page 74, line 13: Replace “ $S(43, 7, 2)$ ” by “Steiner system with parameters $(43, 7, 2)$ ” .
- page 76, line 11: Replace “meaning hypergraphs” by “meaning k -uniform hypergraphs” .
- page 77, sixth line of Section 5.5: Replace “smallest $m(k)$ such that there exists a k -uniform hypergraph without property B” by “smallest $m(k)$ such that there exists a k -uniform hypergraph with $m(k)$ hyperedges and without property B” .
- page 77, equation (5.19): Replace

$$2^{k-1} < m(k) < k^2 2^{k+1}$$

by

$$k \geq 2 \Rightarrow 2^{k-1} < m(k) < k^2 2^{k+1}$$

- page 77, line 1 from the bottom: Replace “ $k^2/4k \ln 2k$ vertices” by “ $k^2/4 \ln 2k$ vertices”
- page 78, line 1: Replace “of a hypergraph H” by “of a hypergraph H ” .
- page 78, Theorem 5.15: Replace

$$s^{k-1} < m(k, s) < 1 + k^2 s^{k+1} \ln s.$$

by

$$k, s \geq 2 \Rightarrow s^{k-1} < m(k, s) < 1 + k^2 s^{k+1} \ln s.$$

- page 78, lines 18-19: Replace “hyperedges H ” by “hyperedges of H ”.
- page 80, the next-to-last display in the proof: Replace

$$s \left(1 - \frac{(s-1)(k-1)^2}{sk^2 - k + 1} \right) \geq 1.$$

by

$$s \left(1 - \frac{(s-1)(k-1)^2}{sk^2 - k + 1} \right) \geq 1$$

(= remove the period). Above this display, replace “for all nonnegative x ” by “whenever $0 \leq x < 1$ ”.

- page 80, line 2 from the bottom: Replace $r(k, k)$ by $R(k, k)$.
- page 82, second line of Section 6.1: Replace “Emil Artin (1898–62)” by “Emil Artin (1898–1962)”.
- page 84: In the title of Section 6.1.2, replace $N = M(2 \cdot 3^M + 1)$ by $N = 2 \cdot 3^M + 1$.
- page 86: remove the period after $c + 2\Delta$ in the second display.
- page 87, third line of Section 6.2.1: Replace $N = M(2 \cdot 3^M + 1)$ by $N = 2 \cdot 3^M + 1$.
- page 94: Replace the display

$$2 \uparrow 2 \uparrow \delta^{-1} \uparrow 2 \uparrow 2 \uparrow (k+9) \leq n$$

by

$$2 \uparrow 2 \uparrow \delta^{-1} \uparrow 2 \uparrow 2 \uparrow (k+9) \leq n.$$

(= add the period).

- page 104: Replace the second display

$$m_0 \geq n_0(r-1, t, 1/(r-1)(r-2))$$

by

$$m_0 \geq n_0(r-1, t, 1/(r-1)(r-2))$$

(= add the closing parenthesis at the end).

- page 104: The fourth display

$$x \geq |K| \cdot ((c + \varepsilon/2)(m - 1) - (|K| - 1)) > |K| \cdot ((c + \varepsilon/2)m - |K|).$$

may (and perhaps should) be replaced by

$$x > |K| \cdot ((c + \varepsilon/2)(m - 1) - (|K| - 1)) > |K| \cdot ((c + \varepsilon/2)m - |K|).$$

(= Its first inequality \geq may be replaced by $>$.)

- page 116, line 1: Replace “ d -regular” by “regular”.
- page 131: Change the definition in the second paragraph as follows:
A graph G has a K_{t+1} *minor* if its vertex set contains $t + 1$ nonempty pairwise disjoint subsets such that each of these subsets induces a connected subgraph of G and every two of these subsets are linked by at least one edge of G (in the sense that each of the two subsets includes one endpoint of the edge).
- page 132, the last line of Section 9.3: Replace [338] by [340].
- page 133, end of the first paragraph: Replace the “Now the vertex in S that is adjacent to all of has the same colour as one of v_1, v_2, \dots, v_k ” by “Now the vertex in S that is adjacent to all of v_1, v_2, \dots, v_k has the same colour as one of them”.
- page 133, seventh line of Subsection 9.4.2: Replace “disjoint copies of F a set S ” by “disjoint copies of F and a set S ”.
- page 135, third line below Theorem 9.9: replace “when when” by “when”.
- page 136: Change the reminder as follows:
A *cycle of length k* is a string $w_1 w_2 \dots w_k$ of pairwise distinct vertices such that each w_i with $i = 1, 2, \dots, k - 1$ is adjacent to w_{i+1} and w_k is adjacent to w_1 .
- page 136: Change the second and the third line below Theorem 9.10 as follows:
Nine years later, Lovász [277] found a *constructive* proof of the Kelly-Kelly conjecture; eleven years after that, Jaroslav Nešetřil and Vojtěch Rödl [304] found a simpler constructive proof of the conjecture.

- page 139, line 6 from below: Replace “for every integer greater than n_0 ” by “for every integer n greater than n_0 ”.
- page 143: Replace the semicolon at the end of inequality (9.8) by a period.
- page 145, line 6:
Replace “Proof of Theorem 9.21” by “Proof of Theorem 9.18”.
- page 145, line 8:
Replace “In turn, Lemma 9.22” by “In turn, Lemma 9.19”.
- page 146, line 2:
Replace “If a subgraph of F of G ” by “If a subgraph F of G ”.
- page 154, equation (10.1): Replace “for all I ” by “for all J ”.
- page 158: In the third display, change

$$|\mathbf{P}| \leq \sum_{s=2}^{\lfloor n/2 \rfloor} \binom{n}{s} \sum_{t=1}^m \binom{\binom{s}{2}}{t} \binom{\binom{n-s}{2}}{m-t}$$

to

$$|\mathbf{P}| \leq \sum_{s=2}^{\lfloor n/2 \rfloor} \binom{n}{s} \sum_{t=1}^m \binom{\binom{s}{2}}{t} \binom{\binom{n-s}{2}}{m-t}.$$

(= add a period at the end).

- page 162, fourth line of Section 10.1.4: Replace “ \mathcal{C}_n for the set of all graphs in \mathcal{A}_n that have no isolated vertices,” by “ \mathcal{C}_n for the set of all graphs in \mathcal{A}_n that have no isolated vertices.” (= replace the comma by a period).
- page 164: In (10.15), replace

$$\lim_{n \rightarrow \infty} \frac{m(n)}{n^{2-r/s}} = \infty \quad \Rightarrow \quad \lim_{n \rightarrow \infty} \frac{\left(\sum_{G \in \Omega(n, m(n))} X(G) \right)^2}{\binom{\binom{n}{2}}{m(n)} \sum_{G \in \Omega(n, m(n))} X(G)^2} = 1$$

by

$$\lim_{n \rightarrow \infty} \frac{m(n)}{n^{2-r/s}} = \infty \quad \Rightarrow \quad \lim_{n \rightarrow \infty} \frac{\left(\sum_{G \in \Omega(n, m(n))} X(G) \right)^2}{\binom{n}{m(n)} \sum_{G \in \Omega(n, m(n))} X(G)^2} = 1.$$

(= add a period at the end).

- page 169, line 6 from below: replace “new vertices of degree 1” by “new vertices of degree at most 1”.
- page 175, third line of Section 11.1: Replace “We have seen this refinement as Theorem 7.1” by “We have seen this refinement as Theorem 7.2”.
- page 178: The sentence “A fourth property of H , if $d_G(v) = d_H(v)$ for all v in V , then $H = G$, is trivial since this H does not share its degree sequence with any other graph.” does not belong to Theorem 11.3. It was meant to appear outside this theorem in a footnote.
- page 181, second line above Lemma 11.8: Replace “ $r_{\min}(d_1, \dots, d_n)$ is a matter of mechanical routine” by “ $k_{\min}(d_1, \dots, d_n)$ is a matter of mechanical routine”.
- page 203, the third line above DEFINITIONS: Replace “Chernoff proved another theorem ...” by “Chernoff published another theorem ...”.

Add the following footnote:

This theorem has been” by proved by Herman Rubin (1926–2018): see page 35 of H. Chernoff. A career in statistics, in: *Past, Present, and Future of Statistical Science* (X. Lin, C. Genest, D. L. Banks, G. Molenberghs, D. W. Scott, and J. L. Wang, eds.). pp. 29–40, CRC Press, 2014.

- page 206, the first display: Replace

$$H_{n,M,N}(i) = \frac{\binom{M}{i} \binom{N-M}{n-i}}{\binom{N}{n}}.$$

by

$$H_{n,M,N}(i) = \frac{\binom{M}{i} \binom{N-M}{n-i}}{\binom{N}{n}}$$

(= remove the period).

- page 213, line 4 from below: Replace “each of them appears as G in precisely $N - i$ pairs (F, G) ” by “each of them appears as F in precisely $N - i$ pairs (F, G) ”.
- page 214, inequalities (A.28): Replace “for all $m, m + 1, \dots N$ ” by “for all $i = m, m + 1, \dots N$ ”.
- page 218, the third item: Replace “V. T. Sós.” by “V. T. Sós,” (= replace the period by a comma).
- page 235, item [187]:
Replace “Journal of Goedgebeur” by “J. Goedgebeur”.
- page 244, clique number: Replace 97–128 by 97, 128.
- page 245, direct sum of two graphs: Remove **216**.
- page 246, join of two graphs: Remove **216**.
- page 247, random variable, its probability distribution: Remove **198**.