Corrections to Tutte's *Graph Theory*

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These corrections cover all but Ch. V, §§VI.5–8, §IX.3, and Ch. X–XI. They are not complete, especially for the index.

In the text

P. xx, paragraph beginning "Chapter VIII": It should begin with "Chapter IX".

P. 9: The "reduction" of a graph is now called an *edge-induced subgraph*, specifically, that induced by the edge set S. There is no standard notation.

P. 24, Fig. I.7.2: The graph on the left should be an arc of length 4, not 3.

P. 31, etc.: The name "Thomsen graph" for $K_{3,3}$ is obsolete.

P. 32: Notation for contractions: See the section on notation.

P. 53, Exercise 3: "by at least"

P. 54, definition of separability: For a general graph, not necessarily connected, we say G is *separable* if it has a 0- or 1-separation.

P. 106, line -13: $L(i,j)$ should be $F(i,j)$.

P. 137, lines -16 and -2: Theorem VI.14 should be Theorem VI.15.

P. 160, reference [10]: The article title should not be italicized. The book title, which should be *Mathematics (Geometry and Graph Theory)*, should be italicized.

P. 162, proof of Theorem VII.2: There is a gap in the proof. If B is in P (that is, some dart of B is in P), then P cannot be extended by (D_1). This case must be treated somehow. (It isn't difficult.)

P. 164, line -16: VII.2.2.

P. 164, line -1: $PQ_1(D_2)S_3^{-1}(D_1)^{-1}$ [the P is missing]

P. 169, line 9: "is" should be "as".

P. 169: When Tutte speaks of a vertex as "having color i", what he means is that it belongs to U_i .

P. 169: There is a serious error in the definition of an alternating barrier. It seems not to invalidate any theorems, except VII.16. The error is in (ii) of the definition, which should read:

(ii) If each end of an edge is in U_i (where $i = 1$ or 2), then the edge has color i .

The reason is that the unicursal barrier can have such edges.

P. 169, Theorem VII.16: Add that "Any edge having both ends in U_1 or both ends in U_2 is noncursal."

P. 175, line 1: When Tutte says "red" and "blue" vertices, he means "red-entrant" and "blue-entrant".

P. 175: In the last four lines of displayed formulas, all the 1's should be $\delta(F, r)$'s. (Four times.)

P. 179, line−5: "Theorems VII.24 and VII.32"

P. 181: "recall" should be "call".

P. 181, display formula: The 1 should be $\delta(F, r)$.

P. 182, line -3: $=$ should be $\geq$.

P. 184, ref. [6]: The article title should not be in italics. The book title should be in italics instead of quotation marks.

P. 184, ref. [8]: The article title should be followed by "in".

P. 195, proof of Theorem VIII.29, line 5: $> n$ should be $\geq n$.

P. 197, line 4: $T \subset S$ should be $T \subseteq S$.

P. 197 (§VIII.4): The usual notation for Tutte's $\Gamma(\Omega, R)$ is $Z_1(\Omega; R)$ or $Z_1(G; R)$.

P. 200 (§VIII.5): The usual notation for Tutte's $\Delta(\Omega, R)$ is $B^1(\Omega; R)$ or $B^1(G; R)$.

P. 203: Eq. (VIII.5.7) should read

$$f = \partial g = \sum_{v \in V(G)} g(v)\delta(v).$$

P. 204, line 2: $x(K)$ should be $v(K)$.

P. 204, line 4: $\delta(\Omega \cdot T, R)$ should be $\Delta(\Omega \cdot T, R)$.

P. 222, Eq. (IX.1.5): The : should be ; (i.e., $f(X_n; S)$).

P. 225, line 9: "IX.1.8" should be "IX.8".

P. 225, line 13: "fo" should be "of".

P. 225, Eq. (IX.1.12): In the exponent, k_1 should be p_1.

P. 243, line 1: "an" should be "and".

P. 246, line -11: The inequalities should be weak: $|E(G)| \geq 2$ and $|E(G)| \geq 3$. (The $|E(G)| > n$ on line -4 is correct.)

P. 251, line 5: There is no Fig. II.2.2.

In the index

The H entries are improperly alphabetized (and there is a duplicate).

Graph: *ADD* Eulerian, 133, 171

Reduction of graph, 9 [not 16]

Thomsen graph: *ADD* 31

ref. [8]: The article title should not be quoted or capitalized.

Notation

- $G : S$ is the spanning subgraph whose edge set is S. Modern notation: $G|S$. Modern name: *restriction* of G to S.

- $G \cdot S$ is the *edge-induced subgraph*, induced by an edge set S. Modern notation: no standard exists, but I like $G{:}S$.
- $G[X]$ is the *induced subgraph* induced by a vertex set X. My preferred notation: $G{:}X$.
- Contraction: Tutte's notation is obsolete. Modern notation for the contraction of G *from* an edge set S is G/S. The contraction of G *to* an edge set T, Tutte's $G \times T$, in modern notation is $G.T$ (low dot).
- G'_A is $G \setminus A$ and G''_A is G/A. Tutte's notations are obsolete.
- Tutte's notation f_A for decontracting an edge is nonstandard, but no standard exists.