Errata for "The Geometry and Topology of Coxeter Groups"

Michael W. Davis

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Additions are indicated in italics.

Table of Contents

(1) page viii: The title of 9.2 should be "*When* is Σ Simply Connected at Infinity?"

(2) page xi: The title of Appendix F.2 should be "*Equivariant* (Co)homology with Group Ring Coefficients."

Chapter 1

(1) page 2, line 13: In the third bulleted item, omit the parentheses and the word "hence,".

(2) page 3, line 24: It should be $\leq N$.

(3) page 4, line 16: "discusssed" should be *discussed*.

Chapter 2

(1) page 20, line 16: The third sentence of Proposition 2.2.3, "Since G ... $\mathrm{Vert}(\widetilde{\Lambda})$" should be replaced by:

Since G acts freely on $\mathrm{Vert}(\Lambda)$ it also acts freely on $\mathrm{Vert}(\widetilde{\Lambda})$. Since the universal cover $\widetilde{\Lambda}$ is connected and since G is transitive on $\mathrm{Vert}(\Lambda)$, we see that $\mathrm{Vert}(\widetilde{\Lambda})$ is a single G-orbit. So, G is also simply transitive on $\mathrm{Vert}(\widetilde{\Lambda})$.

Chapter 3

(1) page 34: In Lemma 3.2.14, Cay (W, S) should be closed up to $\mathrm{Cay}(W, S)$.

(2) page 40: In Definition 3.4.1, the two items should be labeled (I) and (II) instead of (i) and (ii).

Chapter 4

(1) page 44: In the first sentence, "Section 4.8" should be *Sections 4.4 and 4.8.*

(2) page 44, line 11: "prove" should be *state.*

Chapter 6

(1) page 72, line 19: Insert *there* between "case" and "is".

(2) pages 104 and 105: If possible Tables 6.1 and 6.2 should be moved to pages 103 and 104 so that they lie in Section 6.9.

(3) page 104, Table 6.1: In the fifth diagram of the right hand column for $\widetilde{A}_1$, the symbol over ○—○ should be ∞ not ω.

(4) page 105, Conjecture 6.10.1: statement (b) should be replaced by

$$\text{(b)} \quad \mathbb{Z} \times \mathbb{Z} \not\subset \pi_1(M^3).$$

The following sentence in parentheses should be moved to the bottom of the page after condition (b)′. Condition (b)′ should be replaced by

(*b*)′ *There is no incompressible torus in* M^3 *(i.e.,* M^3 *is "atoroidal").*

(5) page 111: In the second sentence of Example 6.11.3, "all other faces" should be *any other face.*

(6) page 113, line 4: The sentence following (6.25) should read "From (6.24)..." instead of (17.16).

(7) page 120, line -7 from the bottom: it should read "(i.e., *essentially* ...".

(8) page 122, line -3: instead of " > 992 " it should be > 995.

Chapter 7

(1) page 129: In line 5 of the proof of Lemma 7.3.3, instead of "maximum value of φ on K," it should be "maximum value of φ on C."

(2) page 131: In the second item of the proof of Lemma 7.3.5, the phrase "of a presentation" should be omitted. It should read "The Cayley 2-complex, $\mathrm{Cay}(G, \langle S \mid \mathcal{R} \rangle)$, ...".

Chapter 8

(1) page 150, line 8 of Section 8.4: $\bigcup_{t \in T} X_t$ should be $\bigcap_{t \in T} X_t$

(2) page 155: In the last equation of item (iii) of Remark 8.5.7, "+1" should be inserted twice. It should read: $\operatorname{gd} \Gamma \leq \operatorname{gd} \Gamma' \leq \dim L' + 1 = \dim L + 1$.

(3) page 164: Starting from the top of the page, the *Sketch of proof of Theorem 8.9.1* is incorrect. It should be fixed or at least, omitted.

Chapter 9

(1) page 170: Close up the space between the sentence following Proposition 9.1.9 and the beginning of its "Proof".

Chapter 11.

(1) pages 213, 215, 222, 223, 226: All equations in this chapter are numbered incorrectly. For example, on page 213 equation (1) should be (11.1) and on page 226, (5) should be (11.5).

(2) page 228: In the second sentence of **11.6** there is an extra "=". It should read "let $A_{(W,S)}$ ...".

Chapter 12

(1) page 239: In the second sentence of Example 12.5.2, omit the right parenthesis following [138, pp. 29–31].

(2) page 243, line 4: In the last sentence of Corollary 12.6.5, omit the phrase "combinatorially equivalent".

(3) page 251, line 4: "property (d)" should be *the property in the fourth bullet point*.

(4) page 251: In Corollary 12.8.2 the phrase *nonpositively curved* should twice be inserted before "piecewise Euclidean".

(5) page 254: The reference to [77, Section 17] in the first line of **12.8** should be to an item which was omitted from the References:

M.W. Davis, *Exotic aspherical manifolds*, in *Topology of high-dimensional manifolds*, No. 1,2 (Trieste 2001), 371–404, ICTP Lect. Notes **9**, Abdus Salam Int. Cent. Theoret. Phys., Trieste, 2002.

Chapter 14

The first sentence of Chapter 14 is "In [147] Gromov asked if every word hyperbolic group is either virtually cyclic or "large" in the sense defined below." This sentence is incorrect and should be omitted. (Thomas Delzant points out that groups with property T are not large.)

(1) page 276: The second sentence of the chapter (which should become the first) should read "*Gromov* asked if every one-ended ...". The next sentence should be: "In this chapter *this question is* answered ...". The following sentence should then end as "...or large *(in the sense defined below)*."

(2) page 276: In Definition 14.1.1, "large" should be in italics.

(3) page 277: In Definition 14.1.4, "two-sided with respect to" should be in italics.

(4) page 279: In Definition 14.1.9, "residually finite" should be in italics.

(5) page 282, line 7: Insert a space between s and "is".

Chapter 16

(1) page 314: In the third line of the last paragraph, it should be "low-$d$imensional".

Chapter 17

(1) page 315: In the first paragraph, line 6, after "function" insert the sentence *(In general, the question of the rationality of the growth series of G depends on the choice of generating set.)*

(2) page 323: In Remark 17.2.2, the third sentence should be: "(The integers $m_1 + 1, \ldots, m_n + 1$ are the degrees ....)"

(3) page 327: The Exercise should be labeled **Exercise 17.4.4**.

Chapter 18

(1) page 331: In the condition in Theorem 18.1.9, s and t should twice be changed to q_s and q_t. The condition should read: "$q_s q_t$ is a perfect square" and on the next line, "$2q_s q_t$ is ...".

Chapter 19

(1) page 353, line 3: Omit the phrase "and is isomorphic to $\mathbb{R}W$."

(2) page 358: The last paragraph should begin "*In the case where W is right-angled*, as $\mathbf{q}$ varies *over positive I-tuples*, the Hecke algebras ...". (Without the proviso that W be right-angled, we do not know if $\mathbb{R}_{\mathbf{q}}W$ is always isomorphic to $\mathbb{R}_{\mathbf{1}}W$.)

Chapter 20

(1) page 378, formula (20.23): the subscript $T \cup \{s\}$ on H should be a superscript, i.e., $H^{T\cup\{s\}}$.

(2) page 384: The Remark following the proof of Theorem 20.6.19 is wrong. It should be omitted.

Appendix A

(1) page 411, lines 3 and 4: omit the sentence "The 1-skeleton of L is J and L is the smallest full subcomplex of the full simplex on S which contains J."

(2) page 418, line 12: $S^{k-1} * \mathrm{Lk}(F, \Lambda)$ should be $\mathrm{Cone}(S^{k-1} * \mathrm{Lk}(F, \Lambda))$.

Appendix C

(1) page 437, line 2: it should be "positive *semi*definite".

(2) page 438, after line 12, there should be another bulleted item:

- Since $\Gamma \not\succeq \mathbf{Z}_5$, $n \leq 4$.

Appendix D

(1) Page 440, in the second sentence of the paragraph before Corollary D.1.4: "which is torsion-free" should be replaced with *which has that property.*

Appendix F

(1) page 465: In lines 5 and 6 of the second paragraph, a hyphen should twice be inserted between "$\mathbb{Z}\pi$" and "module".

Appendix J

(1) page 552: In the second line of the last paragraph, "L" should be "$\mathcal{L}$".

(2) page 553: In the second sentence of Definition J.8.11, a space is in the wrong position. It should read "Then (M, ω) ...".

Index

There are quite a few mistakes in the index. For references in Chapters 11, 12 and Appendix I some of the page numbers have been systematically shifted. In what follows I will give the page number in the index, then the index entry and then the needed change, often in the form: old page # → new page #.

(1) page 573, Artin group 229-230 → 228-229.

(2) page 573, Bestvina-Brady examples, 226 → 225, 223-228 → 222-227.

(3) page 573, Bestvina-Brady groups, **224** → **223**.

(4) page 574, Charney, R.: 532 → 528.

(5) page 574, $\mathbf{C}_\infty$: **450** should not be in boldface, a reference to 537 should be added.

(6) page 574, $\mathbf{C}_m$: The reference to 537 should be deleted.

(7) page 575, compactification; of a CAT(0)-space: 527-530 → 524-527
Z-set: 529 → 526.

(8) page 575, C_W: omit the comma after Coxeter.

(9) page 575, Davis, M.W.: 307 → 305, 315 → 314, 529 → 526 and 532 → 529.

(10) page 576, displacement function: **514** → **512**.

(11) page 577, flag complex: 519 → 516.

(12) page 577, Flat Torus Theorem: **514** → **512**.

(13) page 577, Gram matrix: 515 → 513 and 527 → 524.

(14) page 578, Hopf's Theorem, the first reference to 467 should be omitted.

(15) page 579, Januszkiewicz, T.: 235 → 234 and 255 → 254.

(16) page 579, Leary-Nucinkis examples: 225 → 224, 228 → 227.

(17) page 580, nerve; of an almost negative matrix: **526** → **523**.

(18) page 580, Okun, B.: 307 → 305 and 315 → 314.

(19) page 581, proper action of a group: at the end of this entry omit "of W, 66".

(20) page 582, Rips complex: 241 → 240 and 530 → 527.

(21) page 583, Świątkowski, J.: 235 → 234 and 255 → 254.

(22) page 584, virtually abelian: 515 → 513.

(23) page 584, virtually solvable: 515 → 513.

(24) page 584, word problem, for CAT(0) groups: 513 → 511.

(25) page 584, $\mathbb{X}_\kappa$-polyhedral complex: **508** → **507**.
$\mathbb{X}_\kappa$-polytope: **508** → **507**.

(26) page 584, Z-set: **529** → **526** (twice)
of a group: 532 → 529.