

Errata: BRAIDS, LINKS AND MAPPING CLASS GROUPS,
Annals of Math. Studies **82**, 1974

Joan S. Birman

In 1974 the author wrote a book, and (as of October 2008) about 50 copies are still sold each year. Since the facilities now exist, via home pages and the internet, for posting a list of errata, we have done so, in the hope that readers will make the necessary corrections in their own copies. The author would appreciate being informed about errors that she has missed.

Page 11: Lines 1-6 on this page should be moved from the *top* of the page to to the *bottom*. Section 1.2 begins right after the reference to Fox and Neuwirth at the bottom of the page.

Page 12, line 15: $F_{n,m}M \implies F_{m,n}M$

Page 20: Equation (1-12) is badly garbled. The corrected equation is

$$A_{r,s}^{-1}A_{i,j}A_{r,s} = XA_{i,j}X^{-1},$$

where:

$$\begin{array}{ll} X = I & \text{if } r < s < i < j, \\ I & \text{if } i < r < s < j, \\ A_{r,j} & \text{if } r < s = i < j, \\ A_{i,j}A_{s,j} & \text{if } i = r < s < j, \\ A_{r,j}A_{s,j}A_{r,j}^{-1}A_{s,j}^{-1} & \text{if } r < i < s < j. \end{array}$$

Pages 83 and 91: Theorem 2.7, stated on page 83, is false. The gap in its proof occurs on page 91, on lines 5_ through 1_. A weaker version holds:

Theorem 2.7 (corrected): Let $b = \Delta^m P$ be in standard form in B_n . Then b has summit power $> m$ if and only if the cyclic diagram of P contains Δ .

The proof of the corrected version is given by the alleged proof of the stronger statement.

Page 87, lines 2₋ and 1₋: Replace “ m ” by “ $\leq m$ ” twice in the statement of Lemma 2.7.5. The proof is unchanged.

Page 89, line 3: $IR \implies \hat{I}R$

Page 91, lines 10 and 11: The dot under the equality sign should have been centered.

Page 107, Statement of Theorem 3.7: Add the hypothesis that $\phi(F_n)$ does not contain roots of unity. The extra hypothesis is needed in the proof at page 107, line 3₋.

Page 107, line 3: $v_n \implies v_m$

Page 107, line 7: change to

$$\frac{\partial v_k}{\partial x_j} = \frac{\partial r_k}{\partial x_j} + r_k \frac{\partial s_k}{\partial r_j} - r_k s_k r_k^{-1} \frac{\partial r_k}{\partial x_j} - r_k s_k r_k^{-1} s_k^{-1} \frac{\partial s_k}{\partial x_j}, (1 \leq k \leq m).$$

Page 107, line 13: $\mu_{i-1} \implies \mu_i$

Page 110, line 5: ...free abelian semi-group \implies ...free semi-group...

Page 110, line 8: ... of the commuting... \implies ... of the non-commuting...

Page 119, line 3₋: $\delta_{ir} \implies \delta_{jr}$

Page 119, line 1₋: $-(1 - t_r) \implies -(1 - t_r)(1 - t_i)$

Page 128: The proof of the second assertion in Theorem 3.14 is incomplete, but the assertion is true. One needs to use a stronger argument than one based upon the determinant. Dennis Johnson has given a correct proof, however his argument uses ideas which are beyond the scope of this monograph.

Page 141, Theorem 3.19: The entry which is in the $(1, 1)$ position in the second matrix in (3-47) should be “ $1 - t$ ”, not “ $1 - t^{-1}$ ”. With this correction, the theorem is correct, however using the conventions given in (3-26) for the generators (and deleting the last row and column, as described on page 122), the matrices which are given in (3-47) represent $\| \sigma_1 \sigma_3^{-1} \|$ and $\| \sigma_2 \sigma_1 \sigma_3^{-1} \sigma_2^{-1} \|$, not $\| \sigma_3 \sigma_1^{-1} \|$ and $\| \sigma_2 \sigma_3 \sigma_1^{-1} \sigma_2^{-1} \|$, as claimed.

Page 153, line 8-: $t \leq q \implies t \leq 1$.

Page 202, line 12-: $x_{2i}^{-1} \implies x_{2i}$

Page 203, line 7-: “Thus” $\dots \implies$ “which is a consequence of” \dots

Page 220, line 8-: delete entire line.

Page 220, line 3- to 1-: delete the phrase “and it is also equal to the minimum number of meridian generators of the fundamental group of the complement of the link”