Corrections to

Representations and Invariants of the Classical Groups
by Roe Goodman and Nolan R. Wallach
(1999 paperback printing)

Revised January 18, 2002

p.25, l.10 replace: We denote by s_0

by: We denote by s_l

p.25, l.11 (display) replace: s_0 by: s_l

p.25, l.13 replace:

$$J_+ = \begin{bmatrix} 0 & s_0 \\ s_0 & 0 \end{bmatrix}, \qquad J_+ = \begin{bmatrix} 0 & s_0 \\ -s_0 & 0 \end{bmatrix},$$

by:

$$J_+ = \begin{bmatrix} 0 & s_l \\ s_l & 0 \end{bmatrix}, \qquad J_+ = \begin{bmatrix} 0 & s_l \\ -s_l & 0 \end{bmatrix},$$

p.25, l.-10 replace: $s_0 a^t s_0$ by: $s_l a^t s_l$

p.25, l.-7 replace:

$$A = \begin{bmatrix} a & b \\ c & -s_0 a^t s_0 \end{bmatrix},$$

by:

$$A = \begin{bmatrix} a & b \\ c & -s_l a^t s_l \end{bmatrix},$$

p. 25, l.-6 replace: such that $b^t = -s_0 b s_0$ and $c^t = -s_0 c s_0$

by: such that $b^t = -s_l b s_l$ and $c^t = -s_l c s_l$

p.25, l.-3 replace:

$$A = \begin{bmatrix} a & b \\ c & -s_0 a^t s_0 \end{bmatrix},$$

by:

$$A = \begin{bmatrix} a & b \\ c & -s_l a^t s_l \end{bmatrix},$$

p. 25, l.-2 replace: such that $b^t = s_0 b s_0$ and $c^t = s_0 c s_0$

by: such that $b^t = s_l b s_l$ and $c^t = s_l c s_l$

p.26, l.6 REPLACE:

$$S = \begin{bmatrix} 0 & 0 & s_0 \\ 0 & 1 & 0 \\ s_0 & 0 & 0 \end{bmatrix}.$$

BY:

$$S = \begin{bmatrix} 0 & 0 & s_l \\ 0 & 1 & 0 \\ s_l & 0 & 0 \end{bmatrix}.$$

p.26, l.12 REPLACE:

$$A = \begin{bmatrix} a & w & b \\ u & 0 & -w^t s_0 \\ c & -s_0 u^t & -s_0 a^t s_0 \end{bmatrix},$$

BY:

$$A = \begin{bmatrix} a & w & b \\ u & 0 & -w^t s_l \\ c & -s_l u^t & -s_l a^t s_l \end{bmatrix},$$

p.26, l.13 REPLACE: such that $b^t = -s_0 b s_0$ and $c^t = -s_0 c s_0$

BY: such that $b^t = -s_l b s_l$ and $c^t = -s_l c s_l$

p.40, end of line 1 The last word should be HINT:

p.40, end of line 3 The last word should be "that"

p.49, line -10 REPLACE:

Exercis (REMAINDER OF LINE DISAPPEARED IN TYPSETTING)

BY:

Exercise # 4 in Appendix A). However, in the case of algebraic groups, Theorem

p.94, l.6 REPLACE: Let $s_0 \in \mathrm{GL}(2l, \mathbb{C})$

BY: Let $s_l \in \mathrm{GL}(l, \mathbb{C})$

p.94, l.10 REPLACE:

$$\pi(\sigma) = \begin{bmatrix} s_\sigma & 0 \\ 0 & s_0 s_\sigma s_0 \end{bmatrix},$$

BY:

$$\pi(\sigma) = \begin{bmatrix} s_\sigma & 0 \\ 0 & s_l s_\sigma s_l \end{bmatrix},$$

p.95, l.8 REPLACE:

$$\phi(\sigma) = \begin{bmatrix} s_\sigma & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & s_0 s_\sigma s_0 \end{bmatrix},$$

BY:

$$\phi(\sigma) = \begin{bmatrix} s_\sigma & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & s_l s_\sigma s_l \end{bmatrix},$$

p.170, l.12 REPLACE: if $\phi \in \mathcal{J}$ then there exist

BY: if $\phi \in \mathcal{J}_+$ then there exist

p.174, l.−7 REPLACE: induction that $\mathcal{H} \cdot (\mathcal{P}\mathcal{J}_+)$ contains all polynomials

BY: induction that $\mathcal{H} \cdot (1 + \mathcal{P}\mathcal{J}_+)$ contains all polynomials

p.175, l.7 REPLACE:

4.1.4(1), which contradicts

BY:

4.1.4, which contradicts

p.183, l.−7 display REPLACE:

$$uZw = \begin{bmatrix} I_r & O_{r,m-r} \\ O_{m-r,r} & O_{m-r} \end{bmatrix}$$

BY:

$$uZw = \begin{bmatrix} I_r & O_{r,m-r} \\ O_{k-r,r} & O_{k-r,m-r} \end{bmatrix}$$

p.183, l.−5 display REPLACE:

$$X = \begin{bmatrix} I_r & O_{r,m-r} \\ O_{m-r,r} & O_{k-r} \end{bmatrix}, \quad Y = \begin{bmatrix} I_r & O_{r,n-r} \\ O_{n-r,r} & O_{n-r} \end{bmatrix},$$

BY:

$$X = \begin{bmatrix} I_r & O_{r,n-r} \\ O_{k-r,r} & O_{k-r,n-r} \end{bmatrix}, \quad Y = \begin{bmatrix} I_r & O_{r,m-r} \\ O_{n-r,r} & O_{n-r,m-r} \end{bmatrix},$$

p.184, l.−8 display REPLACE:

$$X = \begin{bmatrix} J_r & O_{r,k-r} \\ O_{k-r,r} & O_{n-r,k-r} \end{bmatrix} g.$$

BY:

$$X = \begin{bmatrix} J_r & O_{r,k-r} \\ O_{n-r,r} & O_{n-r,k-r} \end{bmatrix} g.$$

p.189, l.10 display REPLACE: $\prod_{j=1}^{k} y_j^{q_j}$

BY: $\prod_{j=1}^{m} y_j^{q_j}$

p.189, l.13 REPLACE: $z = (v_1, \dots, v_k, v_1^*, \dots, v_k^*)$

BY: $z = (v_1, \dots, v_k, v_1^*, \dots, v_m^*)$

p.198, l.−7 REPLACE: representation on $\mathbb{C}^n$

BY: representation on V

p.198, l.−5 REPLACE: space $\mathcal{P}^{[p,q]}(V^k \otimes (V^*)^m)^{\mathrm{GL}(V)}$

BY: space $\mathcal{P}^{[p,q]}(V^k \oplus (V^*)^m)^{\mathrm{GL}(V)}$

p.198, l.−3 REPLACE: acts on $\mathcal{P}^{[p,q]}(V^k \otimes (V^*)^m)$

BY: acts on $\mathcal{P}^{[p,q]}(V^k \oplus (V^*)^m)$

p.198, l.−1 display REPLACE: $\mathcal{P}^{[p,q]}(V^k \otimes (V^*)^m)^{\mathrm{GL}(V)} = 0$

BY: $\mathcal{P}^{[p,q]}(V^k \oplus (V^*)^m)^{\mathrm{GL}(V)} = 0$

p.199, l.2 display REPLACE: $\mathcal{P}^{[p,q]}(V^k \otimes (V^*)^m)^{\mathrm{GL}(V)}$

BY: $\mathcal{P}^{[p,q]}(V^k \oplus (V^*)^m)^{\mathrm{GL}(V)}$

p.199, l.4 REPLACE: complete contractions C_s

BY: complete contractions λ_s

p.199, l.6 display REPLACE: C_s

BY: λ_s

p.199, l.9 display REPLACE: C_s

BY: λ_s

p.227, l.-1 REPLACE: general Capelli problem."

BY: general "Capelli problem."

p.257, l.−3 REPLACE: *of size r such that*

BY: *of size $2r$ such that*

p.258, l.18 REPLACE: it has degree $|\mu|$

BY: it has degree $|\mu|/2$

p.259, l.5 REPLACE: *such that $|\mu| = r$ and* BY: *such that $|\mu| = 2r$ and*

p.272, l.−1 REPLACE: $\epsilon(x^*)\epsilon(y^*) = -\epsilon(x^*)\epsilon(y^*)$

BY: $\epsilon(x^*)\epsilon(y^*) = -\epsilon(y^*)\epsilon(x^*)$

p.273, change displayed formula numbers:

(4.5.5) $\longrightarrow$ (6.5.5)

(4.5.6) $\longrightarrow$ (6.5.6)

(4.5.7) $\longrightarrow$ (6.5.7)

(4.5.8) $\longrightarrow$ (6.5.8)

p.275, change displayed formula number:

(4.5.9) $\longrightarrow$ (6.5.9)

p.276, change displayed formula numbers:

(4.5.10) $\longrightarrow$ (6.5.10)

(4.5.11) $\longrightarrow$ (6.5.11)

p.340, l.−16 REPLACE:

$$\gamma s_0 \gamma^t = I_{2l}$$

BY:

$$\gamma s_{2l} \gamma^t = I_{2l}$$

p.340, l−15 REPLACE: where s_0 is the matrix

BY: where s_{2l} is the matrix

p.340, l−14 REPLACE: corresponding to s_0 as in

BY: corresponding to s_{2l} as in

p.340, l−12 REPLACE:

$$\gamma g \gamma^{-1} (\gamma g \gamma^{-1})^t = \gamma g s_0 g^t \gamma^t = \gamma s_0 \gamma^t = I_{2l}.$$

BY:

$$\gamma g \gamma^{-1} (\gamma g \gamma^{-1})^t = \gamma g s_{2l} g^t \gamma^t = \gamma s_{2l} \gamma^t = I_{2l}.$$

p.340, l−9 REPLACE: defined by the equation $g^t g = I$.

BY: defined by the equation $g^t g = I_{2l}$.

p.342, l.−12 REPLACE: invariant volume forms on K/T, T, and K, respectively

BY: invariant volume forms on T, K/T, and K, respectively

p.434, l.11 REPLACE:

$$\mathcal{H}\mathcal{T}_r^{\otimes k} = \{u \in \mathcal{T}_r^{\otimes k} \,:\, u \cdot u = 0 \text{ for all } u \in \mathcal{B}_{k,r+1}(V, \omega)\}$$

BY:

$$\mathcal{H}\mathcal{T}_r^{\otimes k} = \{u \in \mathcal{T}_r^{\otimes k} \,:\, z \cdot u = 0 \text{ for all } z \in \mathcal{B}_{k,r+1}(V, \omega)\}$$

p.436, equation (10.3.4) REPLACE:

$$1 \le m(r, \lambda) \le \dim(G^\lambda) |\mathcal{M}(k, r)|$$

BY:

$$\dim(G^\lambda) \le m(r, \lambda) \le \dim(G^\lambda) |\mathcal{M}(k, r)|$$

p.436, l.−8 REPLACE: Let $r \ge 0$ BY: Let $r > 0$

p.487, l.−5 and l.−6 REPLACE:

and
$$\frac{d}{dt}(y^{-1}\theta(y)(I + t\theta(B))y(I + tB))|_{t=0} = \mathrm{Ad}(y^{-1})\theta(B) + B.$$

BY:

whereas the curve $t \mapsto y(I + tB)$ is tangent to Q at y provided
$$0 = \frac{d}{dt}(y^{-1}\theta(y)(I + t\theta(B))y(I + tB))|_{t=0} = \mathrm{Ad}(y^{-1})\theta(B) + B.$$

p.502, l.17 REPLACE:

algebraic groups by Theorem ??.

BY:

algebraic groups by Corollary 11.1.3.

p.502, l.−5 REPLACE:
$$(\exp yX_0)g(\exp -yX_0) = t\exp[(t^{-\alpha} - 1)y + zX_0].$$

BY:
$$(\exp yX_0)g(\exp -yX_0) = t\exp[((t^{-\alpha} - 1)y + z)X_0].$$

p.544, l.−4 REPLACE: $G = \mathrm{SO}(\mathbb{C}_n, B)$

BY: $G = \mathrm{SO}(\mathbb{C}^n, B)$

p.566, l.−15 REPLACE: set $\mathcal{J} = \{f_{\mathrm{top}} : f \in \mathcal{I}\}$.

BY: set $\mathcal{J} = \mathrm{span}\{f_{\mathrm{top}} : f \in \mathcal{I}\}$.

p.566, l.−11 REPLACE: It is even easier to prove that $\mathcal{J}$ is closed under addition.

BY: By definition $\mathcal{J}$ is closed under addition.

p.567, l.13 REPLACE: $\{f_{\mathrm{top}} : f \in \mathcal{I}_c\}$.

BY: $\mathrm{span}\{f_{\mathrm{top}} : f \in \mathcal{I}_c\}$.

p.600, l.5 REPLACE: /6, Theorem 14

BY: §6, Theorem 14

p.611, l.11 REPLACE:

Ch. I, / 5.2, Theorem 3

BY:

Ch. I.5.2, Theorem 3

General Typesetting Error: The ligature “fi” (as in the words: define, finite, field, fixed, satisfied, first, suffices, find) was omitted on the following pages:

15-32, 226, 227, 273-275, 278, 279, 598-611