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MULTIPOLE OPERATORS IN SEMILEPTONIC WEAK AND ELECTROMAGNETIC INTERACTIONS WITH NUCLEI*

Harmonic Oscillator Single-Particle Matrix Elements

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We discuss the multipole operators that arise in treatments of semileptonic weak and electromagnetic interactions with nuclei. Tables in which exact expressions for the single-particle matrix elements of these operators in a harmonic oscillator basis are given for a wide range of oscillator shells. Together with some approximation to the one-body density matrix, these tables will allow the reader to calculate with ease cross sections for (e,e'), real photon processes, β-decay, and charged lepton capture, as well as those for many more exotic semileptonic interactions (charged and neutral current neutrino reactions, (μ,e) conversion, etc.). A specific example, elastic magnetic electron scattering from ^{27}Al, is considered in detail.

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INTRODUCTION

In the present work we consider the single-particle matrix elements of seven basic nuclear multipole operators. Such quantities arise naturally in discussions of semileptonic weak and electromagnetic interactions with nuclei[1–5] or, in fact, in the more general case of any nuclear transition proceeding via one-body operators. A special circumstance occurs when we choose harmonic oscillator wavefunctions for the single-particle basis; namely, the required matrix elements of the seven multipole operators can be evaluated analytically and expressed in terms of elementary functions. However, for the higher nuclear shells in particular, these evaluations are frequently very tedious due to the proliferation of 3-j, 6-j, and 9-j symbols and of confluent hypergeometric functions with large arguments. Thus, it was felt that a tabulation of the relevant matrix elements for a wide range of nuclear shells would be useful.

In the next section we define the seven basic nuclear multipole operators and present the necessary formulas for the evaluation of their single-particle matrix elements with harmonic oscillator wavefunctions. In the third section we discuss how the multipole operators as defined fit into general unified analyses of semileptonic weak and electromagnetic interactions in nuclei. Other one-body processes may be treated by straightforward extensions of these ideas. In the Explanation of Tables we give instructions for the use of the tables, and in the final section we discuss one example of how to employ the formalism of the second and third sections in conjunction with the tables.

The Basic Nuclear Operators: Definition and Evaluation of Single-particle Matrix Elements

Following past work[1–5] on semileptonic weak and electromagnetic interactions in nuclei we define the following seven basic single-particle operators:

$$M_J^{M_J}(q\mathbf{x}) \tag{1a}$$

$$\Delta_J^{M_J}(q\mathbf{x}) \equiv \mathbf{M}_{JJ}^{M_J}(q\mathbf{x})\cdot\frac{1}{q}\nabla \tag{1b}$$

$$\begin{aligned}\Delta'^{M_J}_J(q\mathbf{x}) &\equiv -i\left\{\frac{1}{q}\nabla\times\mathbf{M}_{JJ}^{M_J}(q\mathbf{x})\right\}\cdot\frac{1}{q}\nabla \\ &= [J]^{-1}\{-J^{1/2}\mathbf{M}_{JJ+1}^{M_J}(q\mathbf{x}) \\ &\qquad + (J+1)^{1/2}\mathbf{M}_{JJ-1}^{M_J}(q\mathbf{x})\}\cdot\frac{1}{q}\nabla\end{aligned} \tag{1c}$$

$$\Sigma_J^{M_J}(q\mathbf{x}) \equiv \mathbf{M}_{JJ}^{M_J}(q\mathbf{x})\cdot\boldsymbol{\sigma} \tag{1d}$$

$$\begin{aligned}\Sigma'^{M_J}_J(q\mathbf{x}) &\equiv -i\left\{\frac{1}{q}\nabla\times\mathbf{M}_{JJ}^{M_J}(q\mathbf{x})\right\}\cdot\boldsymbol{\sigma} \\ &= [J]^{-1}\{-J^{1/2}\mathbf{M}_{JJ+1}^{M_J}(q\mathbf{x}) \\ &\qquad + (J+1)^{1/2}\mathbf{M}_{JJ-1}^{M_J}(q\mathbf{x})\}\cdot\boldsymbol{\sigma}\end{aligned} \tag{1e}$$

$$\begin{aligned}\Sigma''^{M_J}_J(q\mathbf{x}) &\equiv \left\{\frac{1}{q}\nabla M_J^{M_J}(q\mathbf{x})\right\}\cdot\boldsymbol{\sigma} \\ &= [J]^{-1}\{(J+1)^{1/2}\mathbf{M}_{JJ+1}^{M_J}(q\mathbf{x}) \\ &\qquad + J^{1/2}\mathbf{M}_{JJ-1}^{M_J}(q\mathbf{x})\}\cdot\boldsymbol{\sigma}\end{aligned} \tag{1f}$$

$$\Omega_J^{M_J}(q\mathbf{x}) \equiv M_J^{M_J}(q\mathbf{x})\boldsymbol{\sigma}\cdot\frac{1}{q}\nabla \tag{1g}$$

with q the magnitude of the three-momentum transferred to the nucleus, and with $[J] \equiv (2J+1)^{1/2}$. As we shall see, it proves to be more convenient to use, in place of the last operator, a new operator defined by

$$\Omega'^{M_J}_J(q\mathbf{x}) \equiv \Omega^{M_J}_J(q\mathbf{x}) + \tfrac{1}{2}\Sigma''^{M_J}_J(q\mathbf{x}). \quad (1h)$$

In Eqs. (1) we have employed multipole projection functions which are given in terms of spherical Bessel functions,[6] spherical harmonics, and vector spherical harmonics by

$$M^{M_J}_J(q\mathbf{x}) \equiv j_J(qx)Y^{M_J}_J(\Omega_x) \quad (2a)$$

$$\mathbf{M}^{M_J}_{JL}(q\mathbf{x}) \equiv j_L(qx)\mathbf{Y}^{M_J}_{JL1}(\Omega_x), \quad (2b)$$

where

$$\mathbf{Y}^{M_J}_{JL1}(\Omega_x) = \sum_{m\lambda} \langle Lm1\lambda | (L1)JM_J\rangle Y^m_L(\Omega_x)\mathbf{e}_\lambda \quad (2c)$$

with the $\mathbf{e}_\lambda$ spherical unit vectors ($\mathbf{e}_{\pm1} = \mp(\mathbf{e}_x \pm i\mathbf{e}_y)/2^{1/2}$, $\mathbf{e}_0 = \mathbf{e}_z$). The phase conventions we adopt for the spherical harmonics and Clebsch–Gordan coefficients appearing in Eqs. (2) are those of Condon and Shortley (see, for example, Ref. 7).

We wish to consider single-particle wavefunctions labeled with nodal quantum numbers n, orbital angular momenta l, spins $s = \frac{1}{2}$, and total angular momenta j, projection m_j, with $\mathbf{j} = \mathbf{l} + \mathbf{s}$. We use the convention where $n = 1, 2, 3, \ldots$, that is, the sequence $1s$, $1p$, $2s - 1d$, ... In addition we employ the principal quantum number $N = 2(n-1) + l = 0, 1, 2, \ldots$ to label each major shell. Although the notation anticipates the use of harmonic oscillator wavefunctions, the formalism proceeds identically with a generalization of the meaning of n, at least up to the point that specific radial wavefunctions are required. Single-particle states, which we write as $|n(l\tfrac{1}{2})jm_j\rangle$, have the form $R_{nlj}(x)[Y_l(\Omega_x) \otimes \xi_{1/2}]_{jm_j}$ with $\xi_{1/2}$ the Pauli spinor. We stress the order of the angular-momentum coupling (ls, not sl) and the absence of any additional phase (for example, no factor of i^l is included). Using standard properties of angular momentum operators and eigenfunctions, we obtain the following reduced matrix elements (see also the developments in Refs. 1, 3, and 4):

$$\langle n'(l'\tfrac{1}{2})j'\|M_J(q\mathbf{x})\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}(-)^{j+j+1/2}[l'][l][j'][j][J]\begin{Bmatrix} l' & j' & \frac{1}{2} \\ j & l & J \end{Bmatrix}\begin{pmatrix} l' & J & l \\ 0 & 0 & 0 \end{pmatrix} \times \langle n'l'j'|j_J(\rho)|nlj\rangle \quad (3a)$$

$$\langle n'(l'\tfrac{1}{2})j'\|\mathbf{M}_{JL}(q\mathbf{x})\cdot\boldsymbol{\sigma}\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}(-)^{l'}6^{1/2}[l'][l][j'][j][L][J]\begin{Bmatrix} l' & l & L \\ \frac{1}{2} & \frac{1}{2} & 1 \\ j' & j & J \end{Bmatrix}\begin{pmatrix} l' & L & l \\ 0 & 0 & 0 \end{pmatrix} \times \langle n'l'j'|j_L(\rho)|nlj\rangle \quad (3b)$$

$$\langle n'(l'\tfrac{1}{2})j'\|\mathbf{M}_{JL}(q\mathbf{x})\cdot\frac{1}{q}\boldsymbol{\nabla}\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}(-)^{L+j+1/2}[l'][j'][j][L][J]\begin{Bmatrix} l' & j' & \frac{1}{2} \\ j & l & J \end{Bmatrix}$$
$$\times\left\{-(l+1)^{1/2}[l+1]\begin{Bmatrix} L & 1 & J \\ l & l' & l+1 \end{Bmatrix}\begin{pmatrix} l' & L & l+1 \\ 0 & 0 & 0 \end{pmatrix}\langle n'l'j'|j_L(\rho)\left(\frac{d}{d\rho} - \frac{l}{\rho}\right)|nlj\rangle\right.$$
$$\left. + l^{1/2}[l-1]\begin{Bmatrix} L & 1 & J \\ l & l' & l-1 \end{Bmatrix}\begin{pmatrix} l' & L & l-1 \\ 0 & 0 & 0 \end{pmatrix}\langle n'l'j'|j_L(\rho)\left(\frac{d}{d\rho} + \frac{l+1}{\rho}\right)|nlj\rangle\right\} \quad (3c)$$

$$\langle n'(l'\tfrac{1}{2})j'\|M_J(q\mathbf{x})\boldsymbol{\sigma}\cdot\frac{1}{q}\boldsymbol{\nabla}\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}(-)^{l'}[l'][j'][j][2j-l][J]\begin{Bmatrix} l' & j' & \frac{1}{2} \\ j & 2j-l & J \end{Bmatrix}\begin{pmatrix} l' & J & 2j-l \\ 0 & 0 & 0 \end{pmatrix}$$
$$\times\left\{-\delta_{j,l+1/2}\langle n'l'j'|j_J(\rho)\left(\frac{d}{d\rho} - \frac{l}{\rho}\right)|nlj\rangle + \delta_{j,l-1/2}\langle n'l'j'|j_J(\rho)\left(\frac{d}{d\rho} + \frac{l+1}{\rho}\right)|nlj\rangle\right\}, \quad (3d)$$

with $\rho \equiv qx$ and with the radial matrix elements appearing in Eqs. (3) defined by

$$\langle n'l'j'|\theta(\rho)|nlj\rangle \equiv \int x^2dxR^*_{n'l'j'}(x)\theta(\rho)R_{nlj}(x) \quad (4a)$$

for

$$\theta(\rho) = j_J(\rho), \quad j_J(\rho)\left(\frac{d}{d\rho} - \frac{l}{\rho}\right),$$

and

$$j_J(\rho)\left(\frac{d}{d\rho} + \frac{l+1}{\rho}\right).$$

We follow Ref. 7 again in our definitions of reduced matrix elements

$$\langle j'm'|T^{M_J}_J|jm\rangle = (-)^{j'-m'}\begin{pmatrix} j' & J & j \\ -m' & M_J & m \end{pmatrix}\langle j'\|T_J\|j\rangle \quad (4b)$$

and of the 3-j, 6-j, and 9-j symbols appearing in Eqs. (3).

To evaluate Eqs. (3) completely we require a specific choice for the basis set of single-particle radial wavefunctions R_{nlj}. We employ harmonic oscillators in the remainder of this work[1] (and so drop the label j now):

$$R_{nl}(x) = \left(\frac{2e^z}{b^3(n-1)!\Gamma(n+l+\tfrac{1}{2})z^{l+1}}\right)^{1/2} \times \frac{d^{n-1}}{dz^{n-1}}\{z^{n+l-1/2}e^{-z}\}, \quad (5)$$

where $z \equiv (x/b)^2$ and b is the oscillator parameter. In particular, when $n = 1$ we obtain

$$R_{1l}(x) = \left\{\frac{4(2z)e^{-z}}{b^3\pi^{1/2}(2l+1)!!}\right\}^{1/2}. \quad (6)$$

Harmonic oscillator recursion relations provide convenient expressions for wavefunctions with $n > 1$ in terms of the R_{1l}. Explicitly, for $n = 2$ and $n = 3$ we have

$$R_{2l}(x) = \frac{1}{2^{1/2}}\{[l+1]R_{1l}(x) - [l+2]R_{1l+2}(x)\} \quad (7a)$$

$$R_{3l}(x) = \frac{1}{8^{1/2}}\{[l+1][l+2]R_{1l}(x) - 2[l+2]^2R_{1l+2}(x) + [l+3][l+4]R_{1l+4}(x)\}, \quad (7b)$$

so that the matrix elements in Eq. (4a) can be reduced to linear combinations of terms having only $n' = n = 1$. In addition the derivative parts in Eqs. (3c) and (3d) may be rewritten as

$$\left(\frac{d}{d\rho} - \frac{l}{\rho}\right)R_{1l}(x) = -(8y)^{-1/2}[l+1]R_{1l+1}(x) \quad (8a)$$

$$\left(\frac{d}{d\rho} + \frac{l+1}{\rho}\right)R_{1l}(x) = (8y)^{-1/2}\{2[l]R_{1l-1}(x) - [l+1]R_{1l+1}(x)\}, \quad (8b)$$

where $y \equiv (bq/2)^2$. Thus, to complete the evaluation of Eqs. (3) we need only the relation

$$\langle 1l'|j_L(\rho)|1l\rangle = \frac{(2y)^{L/2}e^{-y}(L+l'+l+1)!!}{(2L+1)!!\{(2l'+1)!!(2l+1)!!\}^{1/2}} \times F(\tfrac{1}{2}(L-l'-l); L+\tfrac{3}{2}; y), \quad (9)$$

where the last factor is the confluent hypergeometric function

$$F(\alpha;\beta;y) = 1 + \frac{\alpha}{\beta}y + \frac{\alpha(\alpha+1)}{\beta(\beta+1)}\frac{y^2}{2!} + \cdots. \quad (10)$$

In its present context α is a negative integer, so that the series in Eq. (10) is a polynomial of order $-\alpha$ in y.

The single-particle harmonic oscillator matrix elements of the basic nuclear operators in Eqs. (1) are now completely determined in terms of simple functions. They all may be written in the form (here $T^{MJ}_J(q\mathbf{x})$ is any one of the operators in Eqs. (1))

$$\langle n'(l'\tfrac{1}{2})j'\|T_J(q\mathbf{x})\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}y^{(J-K)/2}e^{-y}p(y), \quad (11)$$

where $K = 2$ for the normal parity ($\pi = (-)^J$) operators M, Δ', and Σ, and where $K = 1$ for the abnormal parity operators, Δ, Σ', Σ'', and Ω (or Ω'). The coefficients of the polynomials $p(y)$ are given in the tables (see the Explanation of Tables for a guide to using the tables).

In concluding this section we note two important properties of the single-particle matrix elements under discussion. First, for the choices of phase conventions in our definitions all of the matrix elements are real. Second, upon interchanging $n'(l'\tfrac{1}{2})j'$ with $n(l\tfrac{1}{2})j$ we obtain the following:

$$\langle n(l\tfrac{1}{2})j\|T_J(q\mathbf{x})\|n'(l'\tfrac{1}{2})j'\rangle = (-)^\lambda\langle n'(l'\tfrac{1}{2})j'\|T_J(q\mathbf{x})\|n(l\tfrac{1}{2})j\rangle, \quad (12)$$

where $\lambda = j' - j$ for the operators M, Δ, Σ', and Σ'' and $\lambda = j' + j$ for the operators Δ', Σ, and Ω'. The operator Ω does not have a simple phase symmetry under the interchange $n'(l'\tfrac{1}{2})j' \leftrightarrow n(l\tfrac{1}{2})j$ and it is for this reason that we have defined the operator Ω' in Eq. (1h). The tables contain only one of the two orderings (see the Explanation of Tables), so the reader must employ Eq. (12) to obtain the remaining matrix elements.

Relationship to Semileptonic Weak and Electromagnetic Processes in Nuclei

The principal use of the operators and matrix elements given in the preceding section has been in analyses of semileptonic weak and electromagnetic interactions in nuclei, and thus we have included the present section. Our treatment will be kept brief, in view of the more detailed discussions of Refs. 1–5.

Electromagnetic interactions with nuclear systems are governed by a Hamiltonian density $\mathcal{H}(\mathbf{x}) = \hat{J}^{\rm em}_\mu(\mathbf{x})A_\mu(\mathbf{x})$, with A_μ the electromagnetic field and $\hat{J}^{\rm em}_\mu$ the electromagnetic current density operator* for the nucleus. Here $\hat{J}^{\rm em}_\mu(\mathbf{x})$ is a four-vector quantity

* We use a caret over a symbol to indicate an operator in second-quantization in the nuclear Hilbert space.

with time component $\hat{J}_0^{\rm em}(\mathbf{x}) = \hat{\rho}(\mathbf{x})$, the nuclear charge density operator, and with spatial components $\hat{\mathbf{J}}^{\rm em}(\mathbf{x})$ generated by the nuclear convection and magnetization density operators. In an analogous manner semileptonic weak interactions with a nuclear system are described by a current–current Hamiltonian density $\mathscr{H}(\mathbf{x}) = \hat{\mathscr{J}}_\mu^{\rm wk}(\mathbf{x}) j_\mu^{\rm wk}(\mathbf{x})$, with $j_\mu^{\rm wk}$ and $\hat{\mathscr{J}}_\mu^{\rm wk}$ the weak leptonic and nuclear density operators, respectively. While the electromagnetic densities are vector quantities, $\hat{\mathscr{J}}_\mu^{\rm wk}$ has both vector and axial-vector components, $\hat{\mathscr{J}}_\mu^{\rm wk} = \hat{J}_\mu^{\rm wk} + \hat{J}_\mu^{5,\rm wk}$. (We denote axial-vector quantities by the "5" taken from the γ_5 present in the axial-vector elementary current.) In addition, the weak and electromagnetic current densities have specific isospin structures: the electromagnetic current has both isovector ($T = 1$) and isoscalar ($T = 0$) pieces, with $M_T = 0$, while the weak charge-changing current is isovector with $M_T = \pm 1$. For weak neutral currents $M_T = 0$ and in general both $T = 0$ and $T = 1$ pieces can occur.

The nuclear transitions that are induced by such weak and electromagnetic operators involve initial and final states that are usually assumed to be eigenstates of angular momentum, parity, as well as isospin. The desire to exploit both the selection rules which these quantum numbers enforce and the power of the Wigner–Eckart theorem[7] is the motivation for the formalism we are presenting here. Standard multipole projections of the vector current yield the operators

$$\hat{M}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \mathbf{M}_J^{M_J}(q\mathbf{x}) \hat{J}_0(\mathbf{x})_{TM_T} \tag{13a}$$

$$\hat{L}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \left\{ \frac{i}{q} \nabla M_J^{M_J}(q\mathbf{x}) \right\} \cdot \hat{\mathbf{J}}(\mathbf{x})_{TM_T} \tag{13b}$$

$$\hat{T}^{\rm el}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \left\{ \frac{1}{q} \nabla \times \mathbf{M}_{JJ}^{M_J}(q\mathbf{x}) \right\} \cdot \hat{\mathbf{J}}(\mathbf{x})_{TM_T} \tag{13c}$$

$$\hat{T}^{\rm mag}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \mathbf{M}_{JJ}^{M_J}(q\mathbf{x}) \cdot \hat{\mathbf{J}}(\mathbf{x})_{TM_T} \tag{13d}$$

which are the Coulomb, longitudinal, transverse electric, and transverse magnetic multipoles, respectively. The projection functions are defined in Eqs. (2). The first three operators have parity $(-)^J$, while $\hat{T}^{\rm mag}_J$ is an abnormal parity operator. For a conserved vector current, the longitudinal multipole can be eliminated:

$$\hat{L}_{JM_J;TM_T}(q) = \frac{q_0}{q} \hat{M}_{JM_J;TM_T}(q), \tag{14}$$

with q_0 the time component of the four-momentum transfer $q_\mu = (q_0, \mathbf{q})$. We note that, for real photon processes, only the transverse multipoles can contribute. The analogous axial-vector multipoles are

$$\hat{M}^5_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} M_J^{M_J}(q\mathbf{x}) \hat{J}^5_0(\mathbf{x})_{TM_T} \tag{15a}$$

$$\hat{L}^5_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \left\{ \frac{i}{q} \nabla M_J^{M_J}(q\mathbf{x}) \right\} \cdot \hat{\mathbf{J}}^5(\mathbf{x})_{TM_T} \tag{15b}$$

$$\hat{T}^{\rm el5}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \left\{ \frac{1}{q} \nabla \times \mathbf{M}_{JJ}^{M_J}(q\mathbf{x}) \right\} \cdot \hat{\mathbf{J}}^5(\mathbf{x})_{TM_T} \tag{15c}$$

$$\hat{T}^{\rm mag5}_{JM_J;TM_T}(q) \equiv \int d\mathbf{x} \mathbf{M}_{JJ}^{M_J}(q\mathbf{x}) \cdot \hat{\mathbf{J}}^5(\mathbf{x})_{TM_T}. \tag{15d}$$

Here the first three multipoles have parity $(-)^{J+1}$, while $\hat{T}^{\rm mag5}_J$ is a normal parity operator.

We need matrix elements of these operators between nuclear many-body states labeled $|J_i M_{J_i}; T_i M_{T_i}\rangle$ which are complicated nuclear configurations of protons and neutrons. Using the Wigner–Eckart theorem we can write the matrix element of an arbitrary multipole operator $\hat{T}_{JM_J;TM_T}$ as

$$\begin{aligned}
&\langle J_1 M_{J_1}; T_1 M_{T_1} | \hat{T}_{JM_J;TM_T}(q) | J_2 M_{J_2}; T_2 M_{T_2} \rangle \\
&= (-1)^{J_1 - M_{J_1}} \begin{pmatrix} J_1 & J & J_2 \\ -M_{J_1} & M_J & M_{J_2} \end{pmatrix} (-1)^{T_1 - M_{T_1}} \\
&\times \begin{pmatrix} T_1 & T & T_2 \\ -M_{T_1} & M_T & M_{T_2} \end{pmatrix} \langle J_1; T_1 :: \hat{T}_{J;T}(q) :: J_2; T_2 \rangle,
\end{aligned} \tag{16}$$

where the symbols :: denote matrix element reduction in both angular momentum and isospin. The multipoles that we have defined in Eqs. (13) and (15) involve one-body, two-body, and, in principle, up to A-body nuclear operators (with A the nucleon number). In practice, however, weak and electromagnetic probes perturb the nucleus only slightly, so that to a good approximation the one-body components dominate most transitions (see, however, the work on meson-exchange current effects of Ref. 8). In this paper we limit our discussion to one-body operators. For such operators we can write*

$$\begin{aligned}
&\langle J_1; T_1 :: \hat{T}^{(1)}_{J;T}(q) :: J_2; T_2 \rangle \\
&\qquad = \sum_{aa'} \psi^{(12)}_{J;T}(a'a) \langle a' :: T^{(1)}_{J;T}(q) :: a \rangle
\end{aligned} \tag{17}$$

with the sums extending over complete sets of single-particle wavefunctions $a = \{n,l,j\}$. We stress that Eq. (17) is an exact statement: the matrix element of a one-body operator between arbitrarily complicated nuclear states can be written as a sum of single-

* When this basic equation is employed in describing semileptonic weak and electromagnetic processes it is usual to include as a multiplying factor in the right-hand side of Eq. (17) the center-of-mass form factor $f_{\rm CM}(q)$. We suppress this factor in the present section (see, however, Elastic Magnetic Electron Scattering from ^{27}Al below). In the special case of harmonic oscillator wavefunctions this factor is given by $f_{\rm CM}(q) = e^{y/4}$.

particle matrix elements weighted by numerical coefficients $\psi(a'a)$ which contain all relevant nuclear structure information. The one-body density matrix $\psi(a'a)$ is defined by

$$\psi^{(12)}_{J;T}(a'a) = [J]^{-1}[T]^{-1}\langle J_1; T_1 :: [c^\dagger_{a'} \otimes \tilde{c}_a]_{J;T} :: J_2; T_2\rangle. \quad (18)$$

The tensor product involves the single-particle creation operator $c^\dagger_\alpha \equiv c^\dagger_{a;m_{j_a}m_{t_a}}$ and $\tilde{c}_\alpha \equiv (-1)^{j_a-m_{j_a}} \times (-1)^{1/2-m_{t_a}} c_{a;-m_{j_a}-m_{t_a}}$, where the phase factor is introduced so that the destruction operator $\tilde{c}_\alpha$ transforms as a spherical tensor.[9]

In practice, of course, some approximation to Eq. (17) is made in which the infinite sums are truncated to a finite number of (hopefully) dominant terms, often according to the prescriptions of a shell model calculation. Given this approximation, however, we have only to compute single-particle reduced matrix elements of the basic multipole operators to be able to calculate the cross sections for the weak and electromagnetic interactions. For a single free nucleon we have, using Lorentz covariance, conservation of parity, time-reversal invariance, and isospin invariance, the following general forms for matrix elements of the vector and axial-vector currents

$$\langle \mathbf{k}'\lambda';\ \tfrac{1}{2}m_{t'}\big|J_\mu(0)_{TM_T}\big|\mathbf{k}\lambda;\ \tfrac{1}{2}m_t\rangle = i\bar{u}(\mathbf{k}'\lambda')\{F_1^{(T)}\gamma_\mu + F_2^{(T)}\sigma_{\mu\nu}q_\nu + iF_S^{(T)}q_\mu\}\mathbf{u}(\mathbf{k}\lambda)\langle \tfrac{1}{2}m_{t'}\big|I_T^{M_T}\big|\tfrac{1}{2}m_t\rangle \quad (19a)$$

$$\langle \mathbf{k}'\lambda';\ \tfrac{1}{2}m_{t'}\big|J^5_\mu(0)_{TM_T}\big|\mathbf{k}\lambda;\ \tfrac{1}{2}m_t\rangle = i\bar{u}(\mathbf{k}'\lambda')\{F_A^{(T)}\gamma_5\gamma_\mu - iF_P^{(T)}\gamma_5 q_\mu - F_T^{(T)}\gamma_5\sigma_{\mu\nu}q_\nu\}u(\mathbf{k}\lambda)\langle \tfrac{1}{2}m_{t'}\big|I_T^{M_T}\big|\tfrac{1}{2}m_t\rangle. \quad (19b)$$

Here the plane-wave single-nucleon states are labeled with 3-momenta $\mathbf{k}$ ($\mathbf{k}'$), helicities λ (λ'), and isospins $\frac{1}{2}m_t$ ($\frac{1}{2}m_{t'}$). The single-nucleon form factors $F_X^{(T)} = F_X^{(T)}(q_\mu^2)$, $T = 0, 1$, $X = 1, 2, S, A, P, T$ (vector (Dirac), vector (Pauli), scalar, axial, pseudoscalar, and tensor) are all functions of q_μ^2 (see Refs. 3 and 4 for more discussion). We assume that the vector current is conserved, in which case there are no induced scalar (second-class vector) currents, $F_S^{(T)} = 0$. Furthermore, we assume that there are no tensor (second-class axial-vector) currents, $F_T^{(T)} = 0$. Finally, the isospin dependence in Eqs. (19) is contained in

$$I_T^{M_T} \equiv \tfrac{1}{2} \times \begin{cases} 1 & T = 0, M_T = 0 \\ \tau_0 = \tau_3 & T = 1, M_T = 0 \\ \tau_{\pm 1} = \mp\dfrac{1}{2^{1/2}}(\tau_1 \pm i\tau_2) & T = 1, M_T = \pm 1. \end{cases} \quad (20)$$

The Wigner-Eckart theorem in isospin space yields immediately

$$\langle \tfrac{1}{2}m_{t'}\big|I_T^{M_T}\big|\tfrac{1}{2}m_t\rangle = (-)^{1/2-m_{t'}}\begin{pmatrix} \frac{1}{2} & T & \frac{1}{2} \\ -m_{t'} & M_T & m_t \end{pmatrix}\langle \tfrac{1}{2}\|I_T\|\tfrac{1}{2}\rangle, \quad (21a)$$

where

$$\langle \tfrac{1}{2}\|I_T\|\tfrac{1}{2}\rangle = [T]/2^{1/2}. \quad (21b)$$

The final step in this development entails making a nonrelativistic reduction of the matrix elements in Eqs. (19) and converting to a single-particle basis labeled with the single-particle quantum numbers α (see discussion after Eq. (18)). The nonrelativistic reduction yields operators ∇, σ, etc., and, upon making the multipole projections (Eqs. (13, 15)), we are led to the seven basic single-particle operators defined in the preceding section (Eqs. (1)):

$$M_{JM_J;TM_T}(q\mathbf{x}) = F_1^{(T)}M_J^{M_J}(q\mathbf{x})I_T^{M_T} \quad (22a)$$

$$T^{\mathrm{el}}_{JM_J;TM_T}(q\mathbf{x}) = \frac{q}{M_N}\{F_1^{(T)}\Delta'^{M_J}_J(q\mathbf{x}) + \tfrac{1}{2}\mu^{(T)}\Sigma^{M_J}_J(q\mathbf{x})\}I_T^{M_T} \quad (22b)$$

$$iT^{\mathrm{mag}}_{JM_J;TM_T}(q\mathbf{x}) = \frac{q}{M_N}\{F_1^{(T)}\Delta^{M_J}_J(q\mathbf{x}) - \tfrac{1}{2}\mu^{(T)}\Sigma'^{M_J}_J(q\mathbf{x})\}I_T^{M_T} \quad (22c)$$

$$iM^5_{JM_J;TM_T}(q\mathbf{x}) = \frac{q}{M_N}\{F_A^{(T)}\Omega'^{M_J}_J(q\mathbf{x}) + \tfrac{1}{2}q_0F_P^{(T)}\Sigma''^{M_J}_J(q\mathbf{x})\}I_T^{M_T} \quad (22d)$$

$$-iL^5_{JM_J;TM_T}(q\mathbf{x}) = \left(F_A^{(T)} - \frac{q^2}{2M_N}F_P^{(T)}\right)\Sigma''^{M_J}_J(q\mathbf{x})I_T^{M_T} \quad (22e)$$

$$-iT^{\mathrm{el5}}_{JM_J;TM_T}(q\mathbf{x}) = F_A^{(T)}\Sigma'^{M_J}_J(q\mathbf{x})I_T^{M_T} \quad (22f)$$

$$T^{\mathrm{mag5}}_{JM_J;TM_T}(q\mathbf{x}) = F_A^{(T)}\Sigma^{M_J}_J(q\mathbf{x})I_T^{M_T}, \quad (22g)$$

where M_N is the nucleon mass and $\mu^{(T)} \equiv F_1^{(T)} + 2M_NF_2^{(T)}$. With the phase conventions we employ, matrix elements of the right-hand sides of Eqs. (22) are real numbers. The harmonic oscillator single-particle reduced matrix elements of these multipole operators are obtained using the results of the preceding section and the tables, along with Eq. (21b) for the isospin reduced matrix element. A specific example of these ideas is presented below.

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References

1. T. deForest, Jr. and J. D. Walecka, Advances in Phys. **15,** 1 (1966)
2. T. W. Donnelly and J. D. Walecka, Ann. Rev. Nucl. Sci. **25,** 329 (1975)
3. J. D. Walecka, in *Muon Physics*, edited by V. W. Hughes and C. S. Wu (Academic Press, New York, 1975), Vol. 2, p. 113
4. J. S. O'Connell, T. W. Donnelly, and J. D. Walecka, Phys. Rev. C **6,** 719 (1972)
5. T. W. Donnelly and R. P. Peccei, Phys. Repts. **50,** 1 (1979)
6. M. Abramowitz and I. A. Stegun, *Handbook of Mathematical Functions* (Dover, New York, 1965)
7. A. R. Edmonds, *Angular Momentum in Quantum Mechanics* (Princeton Univ. Press, Princeton, N. J., 1960)
8. J. Dubach, J. H. Koch, and T. W. Donnelly, Nucl. Phys. A **271,** 279 (1976); J. Dubach and W. C. Haxton, Phys. Rev. Lett. **41,** 1453 (1978).
9. A. L. Fetter and J. D. Walecka, *Quantum Theory of Many-Particle Systems* (McGraw-Hill, New York, 1971)
10. T. W. Donnelly and J. D. Walecka, Nucl. Phys. A **201,** 81 (1973)
11. T. W. Donnelly and J. D. Walecka, Nucl. Phys. A **274,** 368 (1976)

EXPLANATION OF TABLES

TABLES I–XXXVI

In these tables analytic expressions for harmonic oscillator single-particle reduced matrix elements of the seven basic operators are given. The form of these matrix elements is (see The Basic Nuclear Operators above)

$$\langle n'(l'\tfrac{1}{2})j'\|T_J(q\mathbf{x})\|n(l\tfrac{1}{2})j\rangle = \frac{1}{(4\pi)^{1/2}}\, y^{(J-K)/2}e^{-y}p(y), \tag{11}$$

where $K = 2$ for the normal parity operators M_J, Δ'_J, and Σ_J, and $K = 1$ for the abnormal parity operators Δ_J, Σ'_J, Σ''_J, and Ω'_J. The polynomials $p(y)$ are listed in the tables in columns beneath the appropriate operator headings. Specifically, $p(y)$ has the form

$$p(y) = (J_1)^{1/2}\frac{J_2}{J_3}\left\{\frac{I_1}{K_1} + \frac{I_2}{K_2}y + \frac{I_3}{K_3}y^2 + \cdots + \frac{I_n}{K_n}y^n\right\} \tag{23}$$

with the J_i, I_i, and K_i integers. The first entry in each column is J_1, followed by J_2/J_3. The coefficients I_i/K_i are then listed, with the first nonzero coefficient normalized to ± 1 by an appropriate choice of J_2/J_3. All the integers involved in these expressions are given in terms of their prime factors in order to simplify the algebra required when several operators must be combined.

N', N The single-particle wavefunction principal quantum number ($N = 0, 1, \ldots$) for bra and ket. A separate table is given for each pair of quantum numbers N' and N, and for each of the two operator parities

j', j The single-particle wavefunction angular momentum. As $(N - l)$ must be even, j immediately determines l and thus the nodal quantum number $n = (N - l)/2 + 1$. The tables are limited to single-particle orbits lying below the magic neutron/proton number 126 (that is, either $N' < 6$ or $N' = 6$ with $j' = 13/2$). Also, matrix elements are given only for $N' > N$ and for $N' = N$ with $j' \geq j$. All other orderings can be obtained from these by using Eq. (12) to interchange bra and ket. We have also omitted matrix elements for which $N' - N > 2$ in order to keep the size of the tables tractable. We feel very few shell model calculations will be so ambitious as to require these. However, tables for $N' - N > 2$ can be obtained from the authors on request

J The multipole operator rank

ODD-NUMBERED TABLES I–XXXV. Normal Parity Operators

These tables contain matrix elements for operators that generate a parity change of $(-)^J$, that is, M_J, Δ'_J, and Σ_J. See Eqs. (1) for explicit definitions.

EVEN-NUMBERED TABLES II–XXXVI. Abnormal Parity Operators

These tables contain matrix elements for operators that generate a parity change of $(-)^{J+1}$, that is, Δ_J, Σ'_J, Σ''_J, and Ω'_J. See Eqs. (1) for explicit definitions.

As an example we consider the matrix elements $\langle 1d_{5/2}\|\Delta_{J=1}\|1d_{5/2}\rangle$ and $\langle 1d_{5/2}\|\Sigma'_{J=1}\|1d_{5/2}\rangle$; thus $N' = N = 2$ and $j' = j = 5/2$. From Table XII we find

j'	j	J	Δ	Σ'	...
5/2	5/2	1	$5\cdot 7$	$5\cdot 7$	
			2/5	2/5	
			-1	1	
			2/5	$-2^3/5$	
			0	$2^2 3^1/5^1 7^1$	

from which we immediately have

$$p(y)_\Delta = \frac{2}{5}(35)^{1/2}\left[-1 + \frac{2}{5}y\right], \tag{24a}$$

$$p(y)_{\Sigma'} = \frac{2}{5}(35)^{1/2}\left[1 - \frac{8}{5}y + \frac{12}{35}y^2\right]. \tag{24b}$$

These polynomials will be used in the next section.

EXAMPLE: ELASTIC MAGNETIC ELECTRON SCATTERING FROM ^{27}Al

In this section we present a simple application of the ideas discussed in the rest of this work to the problem of elastic magnetic electron scattering.[10] We begin by noting that, when the initial and final nuclear states coincide, as in elastic processes (or in the more general case of isoelastic processes[11] in which these states differ only in their magnetic quantum numbers), then only the following operators have nonvanishing matrix elements:

$$\hat{M}_J, \qquad J \geq 0, \text{ even}$$
$$\hat{T}^{\text{mag}}_J, \hat{L}^5_J, \hat{T}^{\text{el}5}_J, \qquad J \geq 1, \text{ odd}. \tag{25}$$

In particular, elastic electron scattering may be described by

$$\frac{d\sigma}{d\Omega} = \frac{4\pi\sigma_M}{1 + (2\epsilon \sin^2 \theta/2)/M_A} \times F^2(q,\theta), \tag{26}$$

where the electron is scattered from a state with energy ϵ to a state with energy ϵ' through an angle θ. M_A is the target mass, $\sigma_M = [(\alpha \cos \theta/2) \times (2\epsilon \sin^2 \theta/2)^{-1}]^2$ is the Mott cross section, and throughout we consider only ultrarelativistic electrons, $\epsilon, \epsilon' \gg m_e$. The form factor $F^2(q,\theta)$ may be written in the Rosenbluth form in terms of longitudinal and transverse form factors, each independent of θ:

$$F^2(q,\theta) = F^2_L(q) + \left(\frac{1}{2} + \tan^2\frac{\theta}{2}\right)F^2_T(q), \tag{27}$$

where

$$F^2_L(q) = \frac{1}{2J_0 + 1} \sum_{\substack{J\geq 0 \\ \text{even}}} \left| \sum_{T=0,1} \begin{pmatrix} T_0 & T & T_0 \\ -M_{T_0} & 0 & M_{T_0} \end{pmatrix} \times \langle J_0; T_0 :: \hat{M}_{J;T}(q) :: J_0; T_0 \rangle \right|^2 \tag{28a}$$

$$F^2_T(q) = \frac{1}{2J_0 + 1} \sum_{\substack{J\geq 0 \\ \text{odd}}} \left| \sum_{T=0,1} \begin{pmatrix} T_0 & T & T_0 \\ -M_{T_0} & 0 & M_{T_0} \end{pmatrix} \times \langle J_0; T_0 :: \hat{T}^{\text{mag}}_{J;T}(q) :: J_0; T_0 \rangle \right|^2, \tag{28b}$$

and where we have taken $J_1 = J_2 \equiv J_0$, $T_1 = T_2 \equiv T_0$. We now consider only elastic magnetic electron scattering (Eq. (28b)). Let us focus on ^{27}Al which has $J_0 = 5/2$, $T_0 = 1/2$, $M_{T_0} = -1/2$; then, we have

$$F^2_T(q) = 1/6 \sum_{J=1,3,5} \left| -\frac{1}{2^{1/2}} \langle 5/2; 1/2 :: \hat{T}^{\text{mag}}_{J;0}(q) :: 5/2; 1/2 \rangle + \frac{1}{6^{1/2}} \langle 5/2; 1/2 :: \hat{T}^{\text{mag}}_{J;1}(q) :: 5/2; 1/2 \rangle \right|^2, \tag{29}$$

that is, $M1$, $M3$, and $M5$ contributions to $F^2_T(q)$. For definiteness we assume that the one-body density matrix has the extremely simple form

$$\psi^{(00)}_{J;T}(a'a) = (-)^T \delta_{a'1d_{5/2}} \delta_{a1d_{5/2}}; \qquad J = 1, 3, 5; \qquad T = 0, 1, \tag{30}$$

which would be the case if we viewed this nucleus as a simple $1d_{5/2}$ proton hole in a closed spherical core [Eq. (18) may be used to obtain this result].

Then we have

$$\langle 5/2;\, 1/2 :: i\hat{T}^{\rm mag}_{J;T}(q) :: 5/2;\, 1/2\rangle = (-)^T \frac{q}{M_{\rm N}} \langle 1d_{5/2}\| \{ F_1^{(T)} \Delta_J(q\mathbf{x}) - 1/2\,\mu^{(T)} \Sigma'_J(q\mathbf{x})\} \| 1d_{5/2}\rangle \langle 1/2 \| I_T \| 1/2\rangle f_{\rm CM}(q), \quad (31)$$

using Eq. (17) and so, from Eq. (21b) we find

$$\frac{1}{2^{1/2}} \langle 5/2;\, 1/2 :: i\hat{T}^{\rm mag}_{J;0}(q) :: 5/2;\, 1/2\rangle - \frac{1}{6^{1/2}} \langle 5/2;\, 1/2 :: i\hat{T}^{\rm mag}_{J;1}(q) :: 5/2;\, 1/2\rangle$$

$$= \frac{q}{M_{\rm N}} \{ 1/2 [F_1^{(0)} + F_1^{(1)}] \langle 1d_{5/2} \| \Delta_J(q\mathbf{x}) \| 1d_{5/2}\rangle - 1/2 \times 1/2 [\mu^{(0)} + \mu^{(1)}] \langle 1d_{5/2} \| \Sigma'_J(q\mathbf{x}) \| 1d_{5/2}\rangle \} f_{\rm CM}(q). \quad (32)$$

Now, the single-nucleon form factors are given sufficiently accurately for our purposes at momentum transfers $q_\mu^2 < (1\ \text{GeV})^2$ by

$$F_1^{(T)}(q_\mu^2) = F_1^{(T)}(0) f_{\rm SN}(q_\mu^2), \qquad T = 0,\, 1 \quad (33a)$$

$$\mu^{(T)}(q_\mu^2) = \mu^{(T)}(0) f_{\rm SN}(q_\mu^2), \qquad T = 0,\, 1 \quad (33b)$$

with $F_1^{(0)}(0) = F_1^{(1)}(0) = 1$, $\mu^{(0)}(0) = \mu^S = \mu_p + \mu_n$, $\mu^{(1)}(0) = \mu^V = \mu_p - \mu_n$, where μ_p and μ_n are the proton and neutron magnetic moments, respectively, and where $f_{\rm SN}(q_\mu^2) = [1 + q_\mu^2/(855\ \text{MeV})^2]^{-2}$. Thus, we have

$$F_T^2(q) = \frac{1}{6}\left(\frac{q}{M_{\rm N}}\right)^2 f_{\rm CM}^2(q) f_{\rm SN}^2(q^2{}_\mu) \times \sum_{J=1,3,5} \left| \langle 1d_{5/2} \| \Delta_J(q\mathbf{x}) \| 1d_{5/2}\rangle - 1/2\,\mu_p \langle 1d_{5/2} \| \Sigma'_J(q\mathbf{x}) \| 1d_{5/2}\rangle \right|^2. \quad (34)$$

Now following the conventions (see Explanation of Tables) we find

$$\langle 1d_{5/2} \| \Delta_J(q\mathbf{x}) \| 1d_{5/2}\rangle = \frac{1}{(4\pi)^{1/2}} y^{(J-1)/2} e^{-y} p_J(y)_\Delta \quad (35a)$$

$$\langle 1d_{5/2} \| \Sigma'_J(q\mathbf{x}) \| 1d_{5/2}\rangle = \frac{1}{(4\pi)^{1/2}} y^{(J-1)/2} e^{-y} p_J(y)_{\Sigma'}, \quad (35b)$$

and so

$$F_T^2(q) = \frac{1}{6\pi}\left[\frac{q}{2M_{\rm N}} f_{\rm CM}(q) f_{\rm SN}(q_\mu^2) e^{-y}\right]^2 \times \sum_{J=1,3,5} y^{J-1} \{ p_J(y)_\Delta - 1/2\,\mu_p p_J(y)_{\Sigma'} \}^2. \quad (36)$$

The tables then give us (see Explanation of Tables for the $J = 1$ cases)

$$p_1(y)_\Delta = -2(7/5)^{1/2}(1 - (2/5)y), \qquad p_1(y)_{\Sigma'} = 2(7/5)^{1/2}(1 - (8/5)y + (12/35)y^2)$$

$$p_3(y)_\Delta = 4/5(3/5)^{1/2}, \qquad p_3(y)_{\Sigma'} = -16/5(3/5)^{1/2}(1 - (1/3)y)$$

$$p_5(y)_\Delta = 0, \qquad p_5(y)_{\Sigma'} = 8(2)^{1/2}/(3 \times 5 \times 7)^{1/2} \quad (37)$$

and completely define the form factor.

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE I. N' = 0 N = 0 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0

TABLE II. N' = 0 N = 0 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	0	1	2	0
			0	2	1	0
			0	1	1	0

TABLE III. N' = 1 N = 0 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	1	3	$2\cdot3$	$2\cdot3$
			2/3	$1/2^{1}3^{1}$	2/3
			0	1	0
			−1	0	1
3/2	1/2	1	$2\cdot3$	3	3
			2/3	1/3	2/3
			0	−1	0
			1	0	1

TABLE IV. N' = 1 N = 0 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	0	0	0	3	3
			0	0	2/3	1/2
			0	0	0	1
			0	0	1	0
3/2	1/2	2	0	1	$2\cdot3$	0
			0	2	2/3	0
			0	1	1	0

TABLE V. N' = 1 N = 1 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0
			−2/3	0	0
3/2	1/2	2	1	0	$2\cdot3$
			$2^{3}/3$	0	2/3
			0	0	0
			−1	0	−1
3/2	3/2	0	1	0	0
			2	0	0
			0	0	0
			1	0	0
			−2/3	0	0
3/2	3/2	2	1	0	0
			$2^{3}/3$	0	0
			0	0	0
			−1	0	0

TABLE VI. N' = 1 N = 1 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	1	1	2	0
			2/3	2/3	1/3	0
			−1	−1	−1	0
			0	2	−2	0
3/2	1/2	1	2	2	1	1
			1/3	$2^{3}/3$	$2^{3}/3$	1
			−1	−1	−1	−1
			0	1/2	1	0
3/2	3/2	1	$2\cdot5$	$2\cdot5$	5	0
			1/3	2/3	2/3	0
			−1	1	1	0
			0	$-2^{3}/5$	−2/5	0
3/2	3/2	3	0	$3\cdot5$	5	0
			0	$2^{3}/3^{1}5^{1}$	$2^{3}/5$	0
			0	−1	−1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE VII. N' = 2 N = 0 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	3	0	0
			2/3	0	0
			0	0	0
			0	0	0
			1	0	0
3/2	1/2	2	$3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^3/3^15^1$	1/5	2/5
			0	1	0
			−1	0	1
5/2	1/2	2	$2\cdot5$	$3\cdot5$	$3\cdot5$
			2/5	1/5	$2^3/3^15^1$
			0	−1	0
			1	0	1

TABLE VIII. N' = 2 N = 0 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	0	$2\cdot3$	3	3
			0	2/3	2/3	1/3
			0	0	0	1
			0	1	1	0
3/2	1/2	1	0	$2\cdot3\cdot5$	$3\cdot5$	$3\cdot5$
			0	$2/3^15^1$	$2^3/3^15^1$	1/3
			0	0	0	1
			0	−1	1	0
5/2	1/2	3	0	$2\cdot3\cdot5$	$2\cdot5$	0
			0	$2^3/3^15^1$	2/5	0
			0	1	1	0

TABLE IX. N' = 2 N = 1 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	1	2	1	1
			2/3	1/3	$2^3/3$
			0	−1	0
			1	−1	1
			−1	0	−1
1/2	3/2	1	1	2	2
			$2^3/3$	1/3	2/3
			0	−1	0
			1	−1	−1
			−1	0	1
3/2	1/2	1	$2\cdot5$	5	5
			2/3	1/3	2/3
			0	−1	0
			1	$2^3/5$	−1
			−2/5	0	2/5
3/2	3/2	1	2	1	1
			2/3	1/3	$2^3/3$
			0	1	0
			−1	$-2^3/5$	1
			2/5	0	−2/5
3/2	3/2	3	2	$2\cdot3$	$2\cdot3$
			$2^3/5$	$2/3^15^1$	$2^3/3^15^1$
			0	−1	0
			1	0	−1
5/2	1/2	3	$3\cdot5$	5	5
			$2^3/3^15^1$	$2/3^15^1$	$2^3/3^15^1$
			0	1	0
			−1	0	−1
5/2	3/2	1	2	1	1
			2	1	2
			0	−1	0
			1	$2^3/5$	1
			−2/5	0	−2/5
5/2	3/2	3	3	1	1
			$2^3/3^15^1$	$2^3/3^15^1$	$2^3/3^15^1$
			0	1	0
			−1	0	−1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE X. $N' = 2$ $N = 1$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	0	0	0	2	2
			0	0	2/3	1/2
			0	0	0	−1
			0	0	−1	−1/3
			0	0	1	0
1/2	3/2	2	0	2·3	1	1
			0	2/3	$2^2/3$	2/3
			0	1	1	−1
			0	−1	−1	0
3/2	1/2	2	3·5	3·5	2·5	2·5
			$2/3^15^1$	$2/3^15^1$	$2/3^15^1$	$2/3^15^1$
			−1	−1	−1	−1
			0	2	−2	0
3/2	3/2	0	0	0	2·5	2·5
			0	0	2/3	1/2
			0	0	0	1
			0	0	1	−2/3
			0	0	−2/5	0
3/2	3/2	2	3·5	3·5	2·5	2·5
			$2/3^15^1$	$2^2/3^15^1$	$2^2/3^15^1$	1/3
			1	1	1	−1
			0	0	−1	0
5/2	1/2	2	2·5	2·5	3·5	3·5
			$2/3^15^1$	$2^2/5$	$2^2/3^15^1$	1/5
			−1	−1	−1	−1
			0	1/3	1/2	0
5/2	3/2	2	5·7	5·7	2·3·5·7	0
			$2/3^15^1$	2/5	$2/3^15^1$	0
			−1	1	1	0
			0	$-2^15^1/3^17^1$	−2/7	0
5/2	3/2	4	0	7	5·7	0
			0	$2^2/7$	$2^2/5^17^1$	0
			0	−1	−1	0

TABLE XI. $N' = 2$ $N = 2$ Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^2/3$	0	0
			2/3	0	0
3/2	1/2	2	2·5	3·5	3·5
			$2^2/3^15^1$	$2/3^15^1$	$2^2/3^15^1$
			0	0	0
			1	1	−1
			−1/2	0	1/2
3/2	3/2	0	1	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^2/3$	0	0
			$2^2/3^15^1$	0	0
3/2	3/2	2	1	0	0
			$2^27^1/3^15^1$	0	0
			0	0	0
			−1	0	0
			2/7	0	0
5/2	1/2	2	3·5	2·5	2·5
			$2^2/3^15^1$	1/5	$2^2/3^15^1$
			0	0	0
			−1	−1	−1
			1/2	0	1/2
5/2	3/2	2	3·7	0	2·7
			$2^2/3^15^1$	0	2/3
			0	0	0
			−1	0	−1
			2/7	0	2/7
5/2	3/2	4	2·7	0	2·5·7
			$2^2/5^17^1$	0	$2^2/5^17^1$
			0	0	0
			1	0	1
5/2	5/2	0	2·3	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^2/3$	0	0
			$2^2/3^15^1$	0	0
5/2	5/2	2	3·7	0	0
			$2^2/3^15^1$	0	0
			0	0	0
			−1	0	0
			2/7	0	0
5/2	5/2	4	7	0	0
			$2^2/5^17^1$	0	0
			0	0	0
			1	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XII. N' = 2 N = 2 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	0	1	2	0
			0	2	1	0
			0	1	1	0
			0	$-2^3/3$	$-2^3/3$	0
			0	2/3	2/3	0
3/2	1/2	1	0	5	$2\cdot5$	$2\cdot5$
			0	$2^3/3^15^1$	$2^3/3^15^1$	1/5
			0	0	0	0
			0	1	−1	1
			0	−1/2	1/2	0
3/2	3/2	1	$2\cdot5$	$2\cdot5$	5	0
			3/5	2/5	2/5	0
			−1	−1	−1	0
			2/5	$2^117^1/3^15^1$	$-2^3/3^15^1$	0
			0	$-2^3/3^15^1$	$2^3/3^15^1$	0
3/2	3/2	3	$3\cdot5$	$3\cdot5$	5	0
			$2^3/3^15^3$	$2^3/3^15^3$	$2^3/5^3$	0
			1	1	1	0
			0	−2	2	0
5/2	1/2	3	0	5	$3\cdot5$	$3\cdot5$
			0	$2^4/3^15^1$	$2^3/3^15^1$	$2/3^15^1$
			0	−1	−1	−1
			0	1/2	1/2	0
5/2	3/2	1	$2\cdot5$	$2\cdot5$	5	5
			1/5	$2^3/5$	$2^3/5$	1
			−1	−1	−1	−1
			2/5	$11/2^15^1$	$3^3/5$	2/5
			0	−1/5	−2/5	0
5/2	3/2	3	$2\cdot5$	$2\cdot5$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2^3/5^3$	$2^3/3^15^3$	$2^4/3^15^3$	$2/3^15^1$
			1	1	1	1
			0	$-1/2^3$	−1/2	0
5/2	5/2	1	$5\cdot7$	$5\cdot7$	$2\cdot5\cdot7$	0
			2/5	2/5	1/5	0
			−1	1	1	0
			2/5	$-2^3/5$	$-2^3/5$	0
			0	$2^33^15^17^1$	$2^3/5^17^1$	0
5/2	5/2	3	$3\cdot5$	$3\cdot5$	5	0
			$2^3/5^3$	$2^4/5^3$	$2^33^1/5^3$	0
			1	−1	−1	0
			0	1/3	$2/3^3$	0
5/2	5/2	5	0	$2\cdot3\cdot5\cdot7$	7	0
			0	$2^3/3^15^17^1$	$2^3/3^17^1$	0
			0	1	1	0

TABLE XIII. N' = 3 N = 1 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	5	0	0
			2/3	0	0
			0	0	0
			0	0	0
			1	0	0
			−2/5	0	0
1/2	3/2	2	$2\cdot5$	$3\cdot5$	$3\cdot5$
			$2^3/3^15^1$	$2/3^15^1$	$2^3/3^15^1$
			0	1	0
			−1	0	1
			1	0	−1
3/2	1/2	2	$2\cdot5$	$3\cdot5$	$3\cdot5$
			$2^3/3^15^1$	$2/3^15^1$	$2^3/3^15^1$
			0	−1	0
			1	0	1
			−1	0	−1
3/2	3/2	0	$2\cdot5$	0	0
			2/3	0	0
			0	0	0
			0	0	0
			1	0	0
			−2/5	0	0
3/2	3/2	2	$2\cdot5$	$3\cdot5$	0
			$2^3/3^15^1$	$2/3^15^1$	0
			0	−1	0
			1	0	0
			−1	0	0
5/2	1/2	2	$2\cdot3\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2/3^15^1$	1/5	$2^3/3^15^1$
			0	−1	0
			1	$2^15^1/3^17^1$	−1
			−2/7	0	2/7
5/2	3/2	2	$3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^3/3^15^1$	1/5	2/3
			0	1	0
			−1	$-2^15^1/3^17^1$	1
			2/7	0	−2/7
5/2	3/2	4	$2\cdot5$	2	2
			$2^3/5^17^1$	2/7	$2^3/7$
			0	−1	0
			1	0	−1
7/2	1/2	4	$2\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^3/3^15^17^1$	$2/3^17^1$	$2^3/3^17^1$
			0	1	0
			−1	0	−1
7/2	3/2	2	$2\cdot5$	$3\cdot5$	$3\cdot5$
			$2^3/5$	2/5	$2^3/3^15^1$
			0	−1	0
			1	$2^15^1/3^17^1$	1
			−2/7	0	−2/7

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XIII. N' = 3 N = 1 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	3/2	4	2	2·5	2·5
			$2^3/3^1 7^1$	$2/3^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			−1	0	−1

TABLE XIV. N' = 3 N = 1 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	2·5	2·5	5	5
			$2/3^1 5^1$	2/5	$2/3^1 5^1$	1/3
			0	0	0	1
			−1	−1	1	−2/5
			0	2/3	−2	0
1/2	3/2	1	5	5	2·5	2·5
			$2/3^1 5^1$	$2^3/5$	$2^3/3^1 5^1$	1/3
			0	0	0	1
			1	1	1	−1
			0	−1/3	−1/2	0
3/2	1/2	1	5	5	2·5	2·5
			$2/3^1 5^1$	$2^3/5$	$2^3/3^1 5^1$	1/3
			0	0	0	−1
			−1	−1	−1	−1/5
			0	1/3	1/2	0
3/2	3/2	1	1	1	2	2
			2/3	$2^3 3^1/5$	$2^1 7^1/3^1 5^1$	1/3
			0	0	0	1
			−1	1	1	−2/5
			0	$-2^3/3^2$	−2/7	0
3/2	3/2	3	0	2·3	2	2
			0	$2^3/3^1 5^1$	$2^3/5$	2/5
			0	1	1	−1
			0	−1	−1	0
5/2	1/2	3	2·5·7	2·5·7	2·3·5·7	2·3·5·7
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			−1	−1	−1	−1
			0	2	−2	0
5/2	3/2	1	0	2·7	7	7
			0	2/5	$2^3/5$	1
			0	0	0	1
			0	−1	1	−2/5
			0	2/7	−2/7	0
5/2	3/2	3	2·7	2·7	2·3·7	2·3·7
			$2/3^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2/3^1 5^1$
			1	1	1	−1
			0	$1/2^3$	−1	0
7/2	1/2	3	2·3·5·7	2·3·5·7	2·5·7	2·5·7
			$2/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/5^1 7^1$	$2/5^1 7^1$
			−1	−1	−1	−1
			0	$1/2^3$	1/3	0
7/2	3/2	3	2·5·7	2·5·7	2·3·5·7	0
			$2/5^1 7^1$	$2^3/5^1 7^1$	$2^3/5^1 7^1$	0
			−1	1	1	0
			0	−1/3	$-2/3^3$	0
7/2	3/2	5	0	5·7	2·3·7	0
			0	$2^4/3^1 5^1 7^1$	$2^3/3^3 7^1$	0
			0	−1	−1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XV. N' = 3 N = 2 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	1	5 2/3	$2\cdot5$ $1/2^1 3^1$	$2\cdot5$ 2/3
			0 −1 $2^1 3^1/5$ −2/5	1 −2/5 2/5 0	0 1 $-2^1 3^1/5$ 2/5
1/2	3/2	1	1 $2^2/3$	2 1/3	2 2/3
			0 1 $-3^2/5$ 2/5	−1 −7/5 $2^2/5$ 0	0 1 $-3^2/5$ 2/5
1/2	5/2	3	$2\cdot3$ $2^2/3^1 5^1$	2 $2^2/3^1 5^1$	2 $2^4/3^1 5^1$
			0 1 −1/2	−1 −1/2 0	0 −1 1/2
3/2	1/2	1	$2\cdot5$ 2/3	5 1/3	5 2/3
			0 1 $-2^1 3^1/5$ 2/5	−1 2/5 −2/5 0	0 1 $-2^1 3^1/5$ 2/5
3/2	3/2	1	5 $2^2/3^1 5^1$	$2\cdot5$ $1/3^1 5^1$	$2\cdot5$ $2^2/3^1 5^1$
			0 1 $-3^2/5$ 2/5	−1 −7/5 $2^2/5$ 0	0 1 $-3^2/5$ 2/5
3/2	3/2	3	5 $2^4/5^2$	$3\cdot5$ $2^2/3^1 5^2$	$3\cdot5$ $2^2/3^1 5^2$
			0 −1 1/2	1 1/2 0	0 −1 1/2
3/2	5/2	1	5 $2^2/5$	$2\cdot5$ 1/5	$2\cdot5$ 2/5
			0 1 $-3^2/5$ 2/5	−1 −7/5 $2^2/5$ 0	0 −1 $3^2/5$ −2/5
3/2	5/2	3	$2\cdot3\cdot5$ $2^4/3^1 5^2$	$2\cdot5$ $2^2/3^1 5^2$	$2\cdot5$ $2^2/3^1 5^2$
			0 −1 1/2	1 1/2 0	0 1 −1/2
5/2	1/2	3	$2\cdot3\cdot5\cdot7$ $2^2/5^1 7^1$	$2\cdot5\cdot7$ $2/5^1 7^1$	$2\cdot5\cdot7$ $2^2/5^1 7^1$
			0 1 −1/3	−1 1 0	0 −1 1/3
5/2	3/2	1	$2\cdot5\cdot7$ 2/5	$5\cdot7$ 1/5	$5\cdot7$ 2/5
			0 1 $-2^2/5$ $2^2/5^1 7^1$	−1 $2^2/5$ $-2^2 3^1/5^1 7^1$ 0	0 −1 $2^2/5$ $-2^2/5^1 7^1$
5/2	3/2	3	$3\cdot5\cdot7$ $2^2 3^1/5^2 7^1$	$5\cdot7$ $2^2 3^1/5^2 7^1$	$5\cdot7$ $2^2 3^1/5^2 7^1$
			0 −1 $2/3^2$	1 −1/3 0	0 1 $-2/3^2$
5/2	5/2	1	5 2/5	$2\cdot5$ $1/2^1 5^1$	$2\cdot5$ $2^1 3^1/5$
			0 −1 $2^2/5$ $-2^2/5^1 7^1$	1 $-2^2/5$ $2^2 3^1/5^1 7^1$ 0	0 1 $-2^2/5$ $2^2/5^1 7^1$
5/2	5/2	3	$2\cdot5\cdot7$ $2^2 3^1/5^2 7^1$	$2\cdot3\cdot5\cdot7$ $2^2/5^2 7^1$	$2\cdot3\cdot5\cdot7$ $2^2 3^1/5^2 7^1$
			0 1 $-2/3^2$	−1 1/3 0	0 −1 $2/3^2$
5/2	5/2	5	2 $2^2/3^1 7^1$	$3\cdot5$ $2^2/3^1 5^1 7^1$	$3\cdot5$ $2^4/3^1 5^1 7^1$
			0 −1	1 0	0 1
7/2	1/2	3	$2\cdot5\cdot7$ $2^2/5^1 7^1$	$2\cdot3\cdot5\cdot7$ $2^2/3^1 5^1 7^1$	$2\cdot3\cdot5\cdot7$ $2^2/5^1 7^1$
			0 −1 1/3	1 −1 0	0 −1 1/3
7/2	3/2	3	$3\cdot7$ $2^2/5^1 7^1$	7 $2^2/5^1 7^1$	7 $2^2 3^1/5^1 7^1$
			0 −1 $2/3^2$	1 −1/3 0	0 −1 $2/3^2$
7/2	3/2	5	$3\cdot5\cdot7$ $2^4/3^2 5^1 7^1$	$2\cdot7$ $2^2/3^1 5^1 7^1$	$2\cdot7$ $2^4/3^1 5^1 7^1$
			0 1	−1 0	0 1
7/2	5/2	1	1 2^2	2 1	2 2
			0 1 $-2^2/5$ $2^2/5^1 7^1$	−1 $2^2/5$ $-2^2 3^1/5^1 7^1$ 0	0 1 $-2^2/5$ $2^2/5^1 7^1$
7/2	5/2	3	7 $2^2 3^1/5^1 7^1$	$3\cdot7$ $2^2/5^1 7^1$	$3\cdot7$ $2^2/5^1 7^1$
			0 −1 $2/3^2$	1 −1/3 0	0 −1 $2/3^2$
7/2	5/2	5	5 $2^4/3^1 5^1 7^1$	$2\cdot3$ $2^2/3^1 5^1 7^1$	$2\cdot3$ $2^2/3^2 5^1 7^1$
			0 1	−1 0	0 1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XVI. $N' = 3$ $N = 2$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	0	0	0	5	5
			0	0	2/3	1/2
			0	0	0	1
			0	0	1	−2/3
			0	0	$-2^1 3^1/5$	2/5
			0	0	2/5	0
1/2	3/2	2	2·3	2·3	1	1
			$2/3^1 5^1$	$2/3^1 5^1$	$2^2/3^1 5^1$	2/3
			−1	−1	−1	−1
			1	5	−3	0
			0	−2	2	0
1/2	5/2	2	1	1	2·3	2·3
			$2^2/3^1 5^1$	$2^2/5$	$2^2/3^1 5^1$	2/3
			1	1	1	−1
			−1	−5/3	−2	1/2
			0	1/3	1/2	0
3/2	1/2	2	0	3·5	2·5	2·5
			0	2/3	2/3	$2/3^1 5^1$
			0	1	1	−1
			0	$-2^1 3^1/5$	$-2^1 3^1/5$	0
			0	2/5	2/5	0
3/2	3/2	0	0	0	1	1
			0	0	$2^2/3$	1
			0	0	0	−1
			0	0	−1	−1/3
			0	0	$3^2/5$	2/5
			0	0	−2/5	0
3/2	3/2	2	2·3	2·3	1	1
			$2/3^1 5^1$	$2^2/3^1 5^1$	$2^2/3^1 5^1$	$2^2/3^1 5^1$
			−1	−1	−1	1
			1	1	3	3/2
			0	0	−1	0
3/2	5/2	2	2·7	2·7	3·7	3·7
			$2/3^1 5^1$	2/5	$2^2/3^1 5^1$	$2/3^1 5^1$
			−1	1	1	−1
			1	$-41/3^1 7^1$	−11/7	2/7
			0	$2^1 5^1/3^1 7^1$	2/7	0
3/2	5/2	4	0	2·5·7	2·7	2·7
			0	$2^2/5^1 7^1$	$2^4/5^1 7^1$	$2^2/5^1 7^1$
			0	−1	−1	1
			0	1/2	1/2	0
5/2	1/2	2	0	5·7	2·3·5·7	2·3·5·7
			0	$2^2/5^1 7^1$	$2^2/5^1 7^1$	$1/3^1 5^1$
			0	0	0	−1
			0	1	−1	5/7
			0	−1/3	1/3	0
5/2	3/2	2	1	1	2·3	2·3
			$2^2/5$	$2^1 3^1/5$	2/5	$2/3^1 5^1$
			−1	−1	−1	−1
			2/7	$2^2 3^1/7$	$-2^2/7$	2/7
			0	$-2^2 5^1/3^2 7^1$	$2^2/3^1 7^1$	0

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	3/2	4	5	5	1	1
			$2^2/5^1 7^1$	$2^2/5^1 7^1$	$2^2/5^1 7^1$	$2^2/5^1 7^1$
			1	1	1	1
			0	−2	2	0
5/2	5/2	0	0	0	3·7	3·7
			0	0	2/3	1/2
			0	0	0	1
			0	0	1	$-2^2/3$
			0	0	$-2^2/5$	$2^2/3^1 5^1$
			0	0	$2^2/5^1 7^1$	0
5/2	5/2	2	1	1	2·3	2·3
			$2^2/5$	$2^2/5$	$2^2/3^1 5^1$	$2^1 7^1/3^1 5^1$
			1	1	1	−1
			−2/7	−2/7	−11/7	2/7
			0	0	2/7	0
5/2	5/2	4	2·5	2·5	2	2
			$2^2/5^1 7^1$	$2^2/5^1 7^1$	$2^4/5^1 7^1$	2/5
			−1	−1	−1	1
			0	0	1/2	0
7/2	1/2	4	0	2·7	2·5·7	2·5·7
			0	$2^2/7$	$2^2/5^1 7^1$	$2^2/3^1 5^1 7^1$
			0	−1	−1	−1
			0	1/3	1/3	0
7/2	3/2	2	2·3	2·3	1	1
			$2^2/3^1 5^1$	$2^2/5$	$2^4/5$	2
			−1	−1	−1	−1
			2/7	5/7	$13/2^1 7^1$	2/7
			0	$-2/3^1 7^1$	−1/7	0
7/2	3/2	4	1	1	5	5
			$2^2 3^1/5^1 7^1$	$2^2/7$	$2^4/5^1 7^1$	$2^2/3^1 7^1$
			1	1	1	1
			0	$-2/3^1 5^1$	−1/3	0
7/2	5/2	2	2·3	2·3	1	0
			$2^2/5$	$2^1 3^1/5$	$2^2 3^1/5$	0
			−1	1	$-2^2/7$	0
			2/7	$-2^2 5^1/3^1 7^1$	$2^2/3^2$	0
			0	$2^2/3^2$	$2^2/3^2 7^1$	0
7/2	5/2	4	11	11	5·11	0
			$2^2/5^1 7^1$	$2^2/7$	$2^2/5^1 7^1$	0
			1	−1	−1	0
			0	$2^1 7^1/5^1 11^1$	2/11	0
7/2	5/2	6	0	2·3·11	7·11	0
			0	$2^2/3^2 11^1$	$2^4/3^1 7^1 11^1$	0
			0	1	1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XVII. N' = 3 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0
			−2	0	0
			$2^1 11^1/3^1 5^1$	0	0
			$-2^3/3^1 5^1$	0	0
3/2	1/2	2	1	0	2·3
			$2^3 3^1/5$	0	$2^1 3^1/5$
			0	0	0
			−1	0	−1
			$2^3/3^3$	0	$2^3/3^3$
			$-2/3^3$	0	$-2/3^3$
3/2	3/2	0	1	0	0
			2	0	0
			0	0	0
			1	0	0
			−2	0	0
			$2^1 11^1/3^1 5^1$	0	0
			$-2^3/3^1 5^1$	0	0
3/2	3/2	2	1	0	0
			$2^3 3^1/5$	0	0
			0	0	0
			−1	0	0
			$2^3/3^3$	0	0
			$-2/3^3$	0	0
5/2	1/2	2	3·7	2·7	2·7
			$2^3/3^1 5^1$	1/3	$2^3/3^1 5^1$
			0	0	0
			−1	−1	1
			$13/2^1 7^1$	2/7	$-13/2^1 7^1$
			$-1/7$	0	1/7
5/2	3/2	2	2·3	1	1
			$2^3/3^1 5^1$	2/3	$2^3/3$
			0	0	0
			1	1	−1
			$-13/2^1 7^1$	−2/7	$13/2^1 7^1$
			1/7	0	$-1/7$
5/2	3/2	4	1	5	5
			$2^4 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$
			0	0	0
			−1	−1	1
			1/3	0	−1/3
5/2	5/2	0	2·3	0	0
			1	0	0
			0	0	0
			1	0	0
			−2	0	0
			$2^3/5$	0	0
			$-2^3/3^1 5^1 7^1$	0	0
5/2	5/2	2	3·7	0	0
			$2^3 3^1/5^1 7^1$	0	0
			0	0	0
			−1	0	0
			$2^3/7$	0	0
			$-2^3/3^3 7^1$	0	0

j'	j	J	M	Δ'	Σ
5/2	5/2	4	7	0	0
			$2^3 11^1/5^1 7^2$	0	0
			0	0	0
			1	0	0
			$-2/11$	0	0
7/2	1/2	4	7	5·7	5·7
			$2^4/5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/5^1 7^1$
			0	0	0
			1	1	1
			$-1/3$	0	$-1/3$
7/2	3/2	2	1	2·3	2·3
			$2^4/5$	2/3	$2^4/3^1 5^1$
			0	0	0
			−1	−1	−1
			$13/2^1 7^1$	2/7	$13/2^1 7^1$
			$-1/7$	0	$-1/7$
7/2	3/2	4	5	1	1
			$2^4/5^1 7^1$	$2^3/3^1 7^1$	$2^4/5^1 7^1$
			0	0	0
			1	1	1
			$-1/3$	0	$-1/3$
7/2	5/2	2	2·7	0	3·7
			$2^3 3^1/5^1 7^1$	0	$2^3/5$
			0	0	0
			−1	0	−1
			$2^3/7$	0	$2^3/7$
			$-2^3/3^3 7^1$	0	$-2^3/3^3 7^1$
7/2	5/2	4	$2 \cdot 5 \cdot 7 \cdot 11$	0	$2 \cdot 7 \cdot 11$
			$2^3/5^1 7^2$	0	$2^3/5^1 7^1$
			0	0	0
			1	0	1
			$-2/11$	0	$-2/11$
7/2	5/2	6	2·11	0	3·7·11
			$2^4/3^1 7^1 11^1$	0	$2^4/3^3 7^1 11^1$
			0	0	0
			−1	0	−1
7/2	7/2	0	2	0	0
			2	0	0
			0	0	0
			1	0	0
			−2	0	0
			$2^3/5$	0	0
			$-2^3/3^1 5^1 7^1$	0	0
7/2	7/2	2	$2 \cdot 3 \cdot 7$	0	0
			$2^3/7$	0	0
			0	0	0
			−1	0	0
			$2^3/7$	0	0
			$-2^3/3^3 7^1$	0	0
7/2	7/2	4	$2 \cdot 7 \cdot 11$	0	0
			$2^3 3^1/5^1 7^2$	0	0
			0	0	0
			1	0	0
			$-2/11$	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XVII. N' = 3 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	7/2	6	$2\cdot3\cdot11$	0	0
			$2^4/3^2 7^1 11^1$	0	0
			0	0	0
			−1	0	0

TABLE XVIII. N' = 3 N = 3 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	1	1	2	0
			2/3	2/3	1/3	0
			−1	−1	−1	0
			$2^2/5$	$2^1 11^1/5$	$-2^1 7^1/5$	0
			$-2/5$	$-2^1 3^2/5$	$2^1 7^1/5$	0
			0	$2^2/5$	$-2^2/5$	0
3/2	1/2	1	2	2	1	1
			1/3	$2^2/3$	$2^2/3$	1
			−1	−1	−1	−1
			$2^2/5$	$17/2^1 5^1$	13/5	$2^2/5$
			$-2/5$	$-2^1 3^1/5$	−2	$-2/5$
			0	1/5	2/5	0
3/2	3/2	1	$2\cdot5$	$2\cdot5$	5	0
			1/3	2/3	2/3	0
			−1	1	1	0
			$2^2/5$	$-2^2 7^1/5^2$	$-2^1 19^1/5^2$	0
			$-2/5$	$2^1 3^1 7^1/5^2$	$2^1 13^1/5^2$	0
			0	$-2^2/5^2$	$-2^2/5^2$	0
3/2	3/2	3	0	$3\cdot5$	5	0
			0	$2^2 3^1/5^2$	$2^2 3^2/5^2$	0
			0	−1	−1	0
			0	$2^2/3^2$	$2^2/3^2$	0
			0	$-2/3^2$	$-2/3^2$	0
5/2	1/2	3	7	7	$3\cdot7$	$3\cdot7$
			$2^4/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^2/3^1 5^1 7^1$	$2/3^1 5^1 7^1$
			1	1	1	−1
			−1/2	−7/2	5/2	−2
			0	1	−1	0
5/2	3/2	1	0	$5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			0	$2^2/5^2$	$2^2/5^2$	1/5
			0	0	0	0
			0	1	−1	1
			0	$-13/2^1 7^1$	$13/2^1 7^1$	$-2/7$
			0	1/7	−1/7	0
5/2	3/2	3	$5\cdot7$	$5\cdot7$	$3\cdot5\cdot7$	$3\cdot5\cdot7$
			$2^2/3^1 5^1 7^1$	$2^2/3^1 5^2 7^1$	$2^2/3^1 5^2 7^1$	$2^2/3^1 5^1 7^1$
			−1	−1	−1	1
			1/2	$1/2^2$	2	−1
			0	$1/2^2$	−1/2	0
5/2	5/2	1	$5\cdot7$	$5\cdot7$	$2\cdot5\cdot7$	0
			$2^2/7$	2/7	1/7	0
			−1	−1	−1	0
			$2^2/5$	$2^1 37^1/5^2$	$2/5^2$	0
			$-2^2/5^1 7^1$	$-2^2 59^1/5^2 7^1$	$2^2 13^1/5^2 7^1$	0
			0	$2^2 3^1/5^2 7^1$	$-2^2/5^2 7^1$	0
5/2	5/2	3	$3\cdot5$	$3\cdot5$	5	0
			$2^2 3^1/5^1 7^1$	$2^4 3^1/5^2 7^1$	$2^2 3^2/5^2 7^1$	0
			1	1	1	0
			$-2/3^2$	$-13/3^2$	$2^4/3^2$	0
			0	$2/3^2$	$-2^2/3^2$	0
5/2	5/2	5	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$	7	0
			$2^2/3^1 5^1 7^2$	$2^2/3^1 5^1 7^2$	$2^2/3^1 7^2$	0
			−1	−1	−1	0
			0	2	−2	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XVIII. N' = 3 N = 3 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	1/2	3	$3\cdot7$	$3\cdot7$	7	7
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/5^1 7^1$	$2^2/7$
			1	1	1	1
			$-1/2$	$-7/2^3$	-1	$-1/3$
			0	$1/2^3$	$1/2^1 3^1$	0
7/2	3/2	3	7	7	$3\cdot7$	$3\cdot7$
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$	$2^2/5^1 7^1$
			1	-1	-1	-1
			$-1/2$	1	$5/2^1 3^1$	$2/3^2$
			0	$-1/2^1 3^1$	$-1/3^2$	0
7/2	3/2	5	0	$2\cdot7$	$3\cdot5\cdot7$	$3\cdot5\cdot7$
			0	$2^4/5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^2 5^1 7^1$
			0	1	1	1
			0	$-1/3$	$-1/3$	0
7/2	5/2	1	7	7	$2\cdot7$	$2\cdot7$
			$2/7$	$2^3/7$	$2^2/7$	1
			-1	-1	-1	-1
			$2^3/5$	$17/2^1 5^1$	$13/5$	$2^3/5$
			$-2^3/5^1 7^1$	$-2^1 11^1/5^1 7^1$	$-2^3/7$	$-2^3/5^1 7^1$
			0	$2/5^1 7^1$	$2^4/5^1 7^1$	0
7/2	5/2	3	$2\cdot3$	$2\cdot3$	2	2
			$2^3 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2^4 3^1/5^1 7^1$	$2^1 3^1/5$
			1	1	1	1
			$-2/3^3$	$-3/2^3$	$-5/2^1 3^1$	$-2/3^2$
			0	$1/2^2 3^2$	$1/3^3$	0
7/2	5/2	5	$3\cdot7$	$3\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^3/3^1 7^2$	$2^3/5^1 7^2$	$2^4/5^1 7^2$	$2^2/3^1 5^1 7^1$
			-1	-1	-1	-1
			0	$1/2^1 3^2$	$1/3$	0
7/2	7/2	1	$3\cdot7$	$3\cdot7$	$2\cdot3\cdot7$	0
			$2^1 3^1/7$	$2^3/7$	$2/7$	0
			-1	1	1	0
			$2^3/5$	$-2^3 3^1/5$	$-2^1 3^1/5$	0
			$-2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	0
			0	$-2^3/3^2 5^1 7^1$	$-2^3/3^2 5^1 7^1$	0
7/2	7/2	3	$2\cdot11$	$2\cdot11$	$2\cdot3\cdot11$	0
			$2^3 3^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	0
			1	-1	-1	0
			$-2/3^3$	$2/3$	$2^3/3^2$	0
			0	$-2^3/3^2 11^1$	$-2^3/3^2 11^1$	0
7/2	7/2	5	$5\cdot7\cdot13$	$5\cdot7\cdot13$	$2\cdot3\cdot7\cdot13$	0
			$2^3/3^1 5^1 7^2$	$2^4/5^1 7^2$	$2^3/3^1 7^2$	0
			-1	1	1	0
			0	$-2^3/3^1 13^1$	$-2/13$	0
7/2	7/2	7	0	$3\cdot7\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	0
			0	$2^6/3^2 7^1 11^1 13^1$	$2^4/3^2 11^1 13^1$	0
			0	-1	-1	0

TABLE XIX. N' = 4 N = 2 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	$2\cdot5$	0	0
			$2/3$	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^3/5$	0	0
			$1/5$	0	0
1/2	3/2	2	2	3	3
			$2^3/3^1 5^1$	$2^3/3^1 5^1$	$2^3/3^1 5^1$
			0	-1	0
			1	0	1
			-2	$1/2$	-2
			$1/2$	0	$1/2$
1/2	5/2	2	3	2	2
			$2^3/3^1 5^1$	$2/5$	$2^3/3^1 5^1$
			0	-1	0
			1	0	-1
			-2	$1/2$	2
			$1/2$	0	$-1/2$
3/2	1/2	2	$5\cdot7$	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$
			$2^3/3^1 5^1$	$1/3^1 5^1$	$2/3^1 5^1$
			0	1	0
			-1	$-2^3/7$	1
			$2^3/7$	$2/7$	$-2^3/7$
			$-2/7$	0	$2/7$
3/2	3/2	0	$2\cdot7$	0	0
			$2/3$	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^3/5$	0	0
			$2^3/5^1 7^1$	0	0
3/2	3/2	2	$2\cdot7$	$3\cdot7$	0
			$2^3/3^1 5^1$	$2/3^1 5^1$	0
			0	-1	0
			1	$2/7$	0
			$-11/7$	0	0
			$2/7$	0	0
3/2	5/2	2	$2\cdot3$	1	1
			$2^3/3^1 5^1$	$2/5$	$2^3/3$
			0	1	0
			-1	$-2/7$	1
			$11/7$	0	$-11/7$
			$-2/7$	0	$2/7$
3/2	5/2	4	1	5	5
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$
			0	-1	0
			1	0	-1
			$-1/2$	0	$1/2$
5/2	1/2	2	$2\cdot3\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2/3^1 5^1$	$1/5$	$2^3/3^1 5^1$
			0	-1	0
			1	$2^3/7$	1
			$-2^3/7$	$-2/7$	$-2^3/7$
			$2/7$	0	$2/7$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XIX. N' = 4 N = 2 Normal Parity

j'	j	J	M	Δ'	Σ
5/2	3/2	2	$2\cdot3$	1	1
			$2^3/3^1 5^1$	$2/5$	$2^3/3$
			0	−1	0
			1	$2/7$	1
			$-11/7$	0	$-11/7$
			$2/7$	0	$2/7$
5/2	3/2	4	1	5	5
			$2^6/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$
			0	1	0
			−1	0	−1
			1/2	0	1/2
5/2	5/2	0	$3\cdot7$	0	0
			$2/3$	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^3/5$	0	0
			$2^3/5^1 7^1$	0	0
5/2	5/2	2	$2\cdot3$	1	0
			$2^3/3^1 5^1$	$2^3/5$	0
			0	−1	0
			1	$2/7$	0
			$-11/7$	0	0
			$2/7$	0	0
5/2	5/2	4	2	$2\cdot5$	0
			$2^4/5^1 7^1$	$2^3/5^1 7^1$	0
			0	1	0
			−1	0	0
			1/2	0	0
7/2	1/2	4	$5\cdot7$	7	7
			$2^6/3^2 5^1 7^1$	$2^4/3^2 7^1$	$2^3/3^2 7^1$
			0	−1	0
			1	1/2	−1
			$-1/2^3$	0	$1/2^3$
7/2	3/2	2	2	3	3
			$2^3 3^1/5$	$2^1 3^1/5$	$2^3/5$
			0	−1	0
			1	$2^3 5^1/3^1 7^1$	−1
			$-2^3/7$	$-2^3/3^3$	$2^3/7$
			$2^3/3^2 7^1$	0	$-2^3/3^2 7^1$
7/2	3/2	4	$2\cdot5$	2	2
			$2^3 11^1/3^2 5^1 7^1$	$2^1 11^1/3^2 7^1$	$2^3 11^1/3^2 5^1 7^1$
			0	1	0
			−1	$-2^1 7^1/5^1 11^1$	1
			$2/11$	0	$-2/11$
7/2	5/2	2	2	3	3
			$2^3/5$	$2/5$	$2^3 7^1/3^1 5^1$
			0	1	0
			−1	$-2^3 5^1/3^1 7^1$	1
			$2^3/7$	$2^3/3^3$	$-2^3/7$
			$-2^3/3^2 7^1$	0	$2^3/3^2 7^1$

j'	j	J	M	Δ'	Σ
7/2	5/2	4	$2\cdot5\cdot11$	$2\cdot11$	$2\cdot11$
			$2^3/3^1 5^1 7^1$	$2/3^1 7^1$	$2^3/3^1 5^1$
			0	−1	0
			1	$2^1 7^1/5^1 11^1$	−1
			$-2/11$	0	$2/11$
7/2	5/2	6	$2\cdot7\cdot11$	$3\cdot11$	$3\cdot11$
			$2^4/3^2 7^1 11^1$	$2^3/3^2 11^1$	$2^4/3^2 11^1$
			0	1	0
			−1	0	1
9/2	1/2	4	7	$5\cdot7$	$5\cdot7$
			$2^3/3^2 7^1$	$2^3/3^2 7^1$	$2^3/3^2 5^1 7^1$
			0	1	0
			−1	−1/2	−1
			$1/2^3$	0	$1/2^3$
9/2	3/2	4	$2\cdot5\cdot7\cdot11$	$2\cdot7\cdot11$	$2\cdot7\cdot11$
			$2^3/3^2 5^1 7^1$	$2/3^2 7^1$	$2^3/3^2 5^1$
			0	1	0
			−1	$-2^1 7^1/5^1 11^1$	−1
			$2/11$	0	$2/11$
9/2	3/2	6	$5\cdot7\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			$2^4/3^1 5^1 7^1 11^1$	$2^3/3^2 5^1 11^1$	$2^3/3^2 5^1 11^1$
			0	−1	0
			1	0	1
9/2	5/2	2	1	$2\cdot3$	$2\cdot3$
			2^3	1	$2^3/3$
			0	−1	0
			1	$2^3 5^1/3^1 7^1$	1
			$-2^3/7$	$-2^3/3^3$	$-2^3/7$
			$2^3/3^2 7^1$	0	$2^3/3^2 7^1$
9/2	5/2	4	$5\cdot11$	11	11
			$2^4/3^1 5^1 7^1$	$2^3/3^1 7^1$	$2^4/3^1 5^1 7^1$
			0	1	0
			−1	$-2^1 7^1/5^1 11^1$	−1
			$2/11$	0	$2/11$
9/2	5/2	6	$2\cdot5\cdot11$	$3\cdot5\cdot7\cdot11$	$3\cdot5\cdot7\cdot11$
			$2^3/3^2 5^1 11^1$	$2^3/3^2 5^1 11^1$	$2^4/3^2 5^1 7^1 11^1$
			0	−1	0
			1	0	1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XX. N' = 4 N = 2 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	0	5	$2\cdot5$	$2\cdot5$
			0	$2^3/3$	$2/3$	$1/3$
			0	0	0	1
			0	1	1	$-2^3/5$
			0	$-2^3/5$	$-2^3/5$	$1/5$
			0	$1/5$	$1/5$	0
1/2	3/2	1	0	1	2	2
			0	$2^3/3^1 5^1$	$2^3/3^1 5^1$	$2/3$
			0	0	0	-1
			0	1	-1	$2^3/5$
			0	-2	2	$1/2^1 5^1$
			0	$1/2$	$-1/2$	0
1/2	5/2	3	0	1	3	3
			0	$2^4/3^1 5^1$	$2^3/3^1 5^1$	$2^3/3^1 5^1$
			0	1	1	-1
			0	-2	-2	$1/2$
			0	$1/2$	$1/2$	0
3/2	1/2	1	0	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			0	$2/3^1 5^1$	$2^2/3^1 5^1$	$1/3$
			0	0	0	1
			0	-1	1	$-2^3/5$
			0	$2^3/7$	$-2^3/7$	$2/7$
			0	$-2/7$	$2/7$	0
3/2	3/2	1	$5\cdot7$	$5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^1 3^1/5^2$	$2^3 7^1/3^1 5^2$	$2/3^1 5^2$	$1/3^1 5^1$
			0	0	0	1
			-1	-1	-1	$-2^3/5$
			$2/7$	$2^1 5^2/7^2$	$-2^4/7$	$2^3/5^1 7^1$
			0	$-2^3/7^2$	$2^2/7$	0
3/2	3/2	3	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^3/3^1 5^3 7^1$	$2^3/3^1 5^3 7^1$	$2^2/5^3 7^1$	$2^1 3^2/5^3 7^1$
			-1	-1	-1	-1
			1	5	-3	$2/3^2$
			0	-2	2	0
3/2	5/2	1	$5\cdot7$	$5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2/5^2$	$2^2 3^1/5^2$	$2^3/5^2$	$1/5$
			0	0	0	1
			1	1	1	$-3^2/5$
			$-2/7$	$-5/7$	$-13/2^1 7^1$	$2/5$
			0	$2/3^1 7^1$	$1/7$	0
3/2	5/2	3	$5\cdot7$	$5\cdot7$	$3\cdot5\cdot7$	$3\cdot5\cdot7$
			$2^3/5^3 7^1$	$2^3/3^1 5^3 7^1$	$2^2/3^1 5^3 7^1$	$2^2/3^1 5^2$
			1	1	1	-1
			-1	$-5/2^2$	-2	$1/2$
			0	$1/2^2$	$1/2$	0
5/2	1/2	3	0	$2\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$
			0	$2^3/3^1 5^1$	$2/3^1 5^1$	$2^2/3^1 5^1 7^1$
			0	1	1	-1
			0	$-2^3/7$	$-2^3/7$	0
			0	$2/7$	$2/7$	0

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	3/2	1	$5\cdot7$	$5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2/5^2$	$2^2 3^1/5^2$	$2^3/5^2$	$1/5$
			0	0	0	-1
			-1	-1	-1	$-1/5$
			$2/7$	$5/7$	$13/2^1 7^1$	$2^1 3^1/5^1 7^1$
			0	$-2/3^1 7^1$	$-1/7$	0
5/2	3/2	3	$5\cdot7$	$5\cdot7$	$3\cdot5\cdot7$	$3\cdot5\cdot7$
			$2^3/5^2 7^1$	$2^2/3^1 5^2 7^1$	$2^2/3^1 5^2 7^1$	$2^2/3^1 5^2 7^1$
			-1	-1	-1	1
			1	$5/2^2$	2	$3/2^2$
			0	$-1/2^2$	$-1/2$	0
5/2	5/2	1	$2\cdot5$	$2\cdot5$	5	5
			$2^1 7^1/5^2$	$2^1 13^1/5^2$	$2^1 3^2/5^2$	$1/5$
			0	0	0	1
			-1	1	1	$-2^2/5$
			$2/7$	$-2^4 5^1/7^1 13^1$	$-2^2/7$	$2^2/5^1 7^1$
			0	$2^2 3^1/7^1 13^1$	$2^2/3^2 7^1$	0
5/2	5/2	3	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^2/5^2 7^1$	$2^4/5^2 7^1$	$2^2 3^1/5^2 7^1$	$2^2 3^1/5^2 7^1$
			-1	1	1	-1
			1	$-5/3$	$-13/3^2$	$2/3^2$
			0	$1/3$	$2/3^2$	0
5/2	5/2	5	0	$3\cdot5$	2	2
			0	$2^3/3^1 5^1 7^1$	$2^4/3^1 7^1$	$2^2/3^1 7^1$
			0	-1	-1	1
			0	$1/2$	$1/2$	0
7/2	1/2	3	0	$3\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			0	$2^3/3^2 5^1 7^1$	$2^3/3^2 5^1 7^1$	$2^2/5^1 7^1$
			0	0	0	-1
			0	1	-1	$7/2^1 3^2$
			0	$-1/2^2$	$1/2^2$	0
7/2	3/2	3	$2\cdot7$	$2\cdot7$	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2/7$	$2^3/5^1 7^1$	$2^2/5^1 7^1$	$2^3/3^1 5^1 7^1$
			-1	-1	-1	-1
			$2/3^1$	$13/3^2$	$-2^4/3^3$	$2/3^2$
			0	$-2/3^2$	$2^2/3^3$	0
7/2	3/2	5	7	7	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$
			$2^4/3^2 5^1 7^1$	$2^4/3^2 5^1 7^1$	$2^2/3^2 5^1 7^1$	$2^4/3^2 5^1 7^1$
			1	1	1	1
			0	-2	2	0
7/2	5/2	1	0	1	2	2
			0	$2^2 3^1/5$	$2^2 3^1/5$	3
			0	0	0	1
			0	-1	1	$-2^2/5$
			0	$2^2/7$	$-2^2/7$	$2^2/5^1 7^1$
			0	$-2^2/3^2 7^1$	$2^2/3^2 7^1$	0
7/2	5/2	3	$2\cdot3\cdot7$	$2\cdot3\cdot7$	$2\cdot7$	$2\cdot7$
			$2/3^1 7^1$	$2^4/3^1 5^1 7^1$	$2^2/5^1 7^1$	$2^1 3^2/5^1 7^1$
			1	1	1	-1
			$-2/3^2$	$1/2^2 3^1$	$-13/3^2$	$2/3^2$
			0	$-1/2^1 3^2$	$2/3^2$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XX. N' = 4 N = 2 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	5/2	5	3	3	2·5	2·5
			$2^4/3^2 5^1$	$2^6/3^2 5^1 7^1$	$2^6/3^2 5^1 7^1$	$2^2/5^1 7^1$
			−1	−1	−1	1
			0	$-1/2^2 3^1$	1/2	0
9/2	1/2	5	0	2·3·5·7	7	7
			0	$2^6/3^2 5^1 7^1$	$2^6/3^2 7^1$	$2^2/3^2 7^1$
			0	−1	−1	−1
			0	$1/2^2$	$1/2^2$	0
9/2	3/2	3	2·5·7	2·5·7	2·3·5·7	2·3·5·7
			$2/5^1 7^1$	$2^4/5^1 7^1$	$2^2/5^1 7^1$	$2/3^1 7^1$
			−1	−1	−1	−1
			$2/3^2$	$19/2^2 3^2$	$17/3^2$	$2/3^2$
			0	$-1/2^1 3^2$	$-2/3^2$	0
9/2	3/2	5	2·7	2·7	3·5·7	3·5·7
			$2^4/3^2 5^1 7^1$	$2^6/3^2 5^1 7^1$	$2^6/3^2 5^1 7^1$	$2^2/3^2 7^1$
			1	1	1	1
			0	$-1/2^2$	$-1/2^2$	0
9/2	5/2	3	3·5·7·11	3·5·7·11	5·7·11	0
			$2^2/3^1 5^1 7^1$	$2^2/3^1 5^1 7^1$	$2^2/5^1 7^1$	0
			−1	1	1	0
			$2/3^2$	$-2/3^2$	$-2^2/3^2$	0
			0	$2^2/3^2 11^1$	$2^2/3^2 11^1$	0
9/2	5/2	5	2·3·7·13	2·3·7·13	5·7·13	0
			$2^2/3^2 5^1 7^1$	$2^4/3^2 5^1 7^1$	$2^4/3^2 5^1 7^1$	0
			1	−1	−1	0
			0	$2^2/3^1 13^1$	2/13	0
9/2	5/2	7	0	7·11·13	2·11·13	0
			0	$2^2/3^1 7^1 11^1 13^1$	$2^2/3^1 11^1 13^1$	0
			0	1	1	0

TABLE XXI. N' = 4 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	1	1	2	2
			$2^2/3$	1/3	$2^2/3$
			0	−1	0
			1	−3/5	1
			−11/5	2/5	−11/5
			$2^1 3^1/5$	−1/5	$2^1 3^1/5$
			−1/5	0	−1/5
1/2	3/2	1	2	1	1
			$2^2/3$	2/3	$2^2/3$
			0	−1	0
			1	−3/5	−1
			−11/5	2/5	11/5
			$2^1 3^1/5$	−1/5	$-2^1 3^1/5$
			−1/5	0	1/5
1/2	5/2	3	2·3·7	2·7	2·7
			$2^2/5^1 7^1$	$2^2/5^1 7^1$	$2^4/5^1 7^1$
			0	1	0
			−1	1	−1
			1	−1/2	1
			$-1/2^1 3^1$	0	$-1/2^1 3^1$
1/2	7/2	3	2·7	2·3·7	2·3·7
			$2^4/5^1 7^1$	$2^2/3^1 5^1 7^1$	$2^2/5^1 7^1$
			0	1	0
			−1	1	1
			1	−1/2	−1
			$-1/2^1 3^1$	0	$1/2^1 3^1$
3/2	1/2	1	2·7	7	7
			2/3	1/3	2/3
			0	−1	0
			1	$2^1 3^1/5$	−1
			$-2^2/5$	$-2^1 17^1/5^1 7^1$	$2^2/5$
			$2^1 3^1/7$	$2^2/5^1 7^1$	$-2^1 3^1/7$
			$-2^2/5^1 7^1$	0	$2^2/5^1 7^1$
3/2	3/2	1	2·5·7	5·7	5·7
			$2/3^1 5^1$	$1/3^1 5^1$	$2^2/3^1 5^1$
			0	1	0
			−1	$-2^1 3^1/5$	1
			$2^2/5$	$2^1 17^1/5^1 7^1$	$-2^2/5$
			$-2^1 3^1/7$	$-2^2/5^1 7^1$	$2^1 3^1/7$
			$2^2/5^1 7^1$	0	$-2^2/5^1 7^1$
3/2	3/2	3	2·5·7	2·3·5·7	2·3·5·7
			$2^2 13^1/5^2 7^1$	$2^1 13^1/3^1 5^2 7^1$	$2^2 13^1/3^1 5^2 7^1$
			0	−1	0
			1	$2^1 3^1/13$	−1
			$-2^1 5^1/13$	−2/13	$2^1 5^1/13$
			2/13	0	−2/13
3/2	5/2	1	5	2·5	2·5
			$2^2/5$	1/5	2/5
			0	−1	0
			1	$-3^2/5$	1
			−13/5	$2^2 19^1/5^1 7^1$	−13/5
			$2^2/7$	$-2^2 3^1/5^1 7^1$	$2^2/7$
			$-2^2/5^1 7^1$	0	$-2^2/5^1 7^1$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXI. N' = 4 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
3/2	5/2	3	$2\cdot3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^{4}3^{1}/5^{3}7^{1}$	$2^{3}3^{1}/5^{3}7^{1}$	$2^{3}3^{1}/5^{3}7^{1}$
			0	1	0
			-1	$1/2$	-1
			$5/2^{1}3^{1}$	$-1/2^{1}3^{1}$	$5/2^{1}3^{1}$
			$-1/3^{2}$	0	$-1/3^{2}$
3/2	7/2	3	$2\cdot3$	2	2
			$2^{4}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{4}3^{1}/5^{1}7^{1}$
			0	-1	0
			1	$-1/2$	-1
			$-5/2^{1}3^{1}$	$1/2^{1}3^{1}$	$5/2^{1}3^{1}$
			$1/3^{2}$	0	$-1/3^{2}$
3/2	7/2	5	$2\cdot3\cdot5$	1	1
			$2^{4}/3^{1}5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$
			0	1	0
			-1	$1/3$	1
			$1/3$	0	$-1/3$
5/2	1/2	3	$3\cdot7$	7	7
			$2^{3}13^{1}/3^{1}5^{1}7^{1}$	$2^{1}13^{1}/3^{1}5^{1}7^{1}$	$2^{3}13^{1}/3^{1}5^{1}7^{1}$
			0	1	0
			-1	$-2^{1}3^{1}/13$	-1
			$2^{1}5^{1}/13$	$2/13$	$2^{1}5^{1}/13$
			$-2/13$	0	$-2/13$
5/2	3/2	1	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2/5$	$1/5$	$2/5$
			0	-1	0
			1	$2^{1}3^{1}/5$	1
			$-2^{3}/5$	$-2^{1}17^{1}/5^{1}7^{1}$	$-2^{3}/5$
			$2^{1}3^{1}/7$	$2^{3}/5^{1}7^{1}$	$2^{1}3^{1}/7$
			$-2^{3}/5^{1}7^{1}$	0	$-2^{3}/5^{1}7^{1}$
5/2	3/2	3	$3\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2^{3}13^{1}/3^{1}5^{3}7^{1}$	$2^{3}13^{1}/3^{1}5^{3}7^{1}$	$2^{3}13^{1}/3^{1}5^{3}7^{1}$
			0	1	0
			-1	$-2^{1}3^{1}/13$	-1
			$2^{1}5^{1}/13$	$2/13$	$2^{1}5^{1}/13$
			$-2/13$	0	$-2/13$
5/2	5/2	1	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2/5^{1}7^{1}$	$1/5^{1}7^{1}$	$2^{3}3^{1}/5^{1}7^{1}$
			0	-1	0
			1	$-3^{2}/5$	1
			$-13/5$	$2^{3}19^{1}/5^{1}7^{1}$	$-13/5$
			$2^{3}/7$	$-2^{3}3^{1}/5^{1}7^{1}$	$2^{3}/7$
			$-2^{3}/5^{1}7^{1}$	0	$-2^{3}/5^{1}7^{1}$
5/2	5/2	3	5	$3\cdot5$	$3\cdot5$
			$2^{3}3^{1}/5^{3}7^{1}$	$2^{4}/5^{3}7^{1}$	$2^{3}3^{1}/5^{3}7^{1}$
			0	1	0
			-1	$1/2$	-1
			$5/2^{1}3^{1}$	$-1/2^{1}3^{1}$	$5/2^{1}3^{1}$
			$-1/3^{2}$	0	$-1/3^{2}$
5/2	5/2	5	7	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$
			$2^{4}/7^{2}$	$2^{3}/5^{1}7^{2}$	$2^{4}/5^{1}7^{2}$
			0	-1	0
			1	$-1/3$	1
			$-1/3$	0	$-1/3$

j'	j	J	M	Δ'	Σ
5/2	7/2	1	$2\cdot7$	7	7
			$2^{3}/7$	$2/7$	$2^{3}/7$
			0	-1	0
			1	$-3^{3}/5$	-1
			$-13/5$	$2^{3}19^{1}/5^{1}7^{1}$	$13/5$
			$2^{3}/7$	$-2^{3}3^{1}/5^{1}7^{1}$	$-2^{3}/7$
			$-2^{3}/5^{1}7^{1}$	0	$2^{3}/5^{1}7^{1}$
5/2	7/2	3	2	$2\cdot3$	$2\cdot3$
			$2^{4}3^{1}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$
			0	1	0
			-1	$1/2$	1
			$5/2^{1}3^{1}$	$-1/2^{1}3^{1}$	$-5/2^{1}3^{1}$
			$-1/3^{2}$	0	$1/3^{2}$
5/2	7/2	5	$2\cdot5\cdot7$	$3\cdot7$	$3\cdot7$
			$2^{4}/5^{1}7^{2}$	$2^{3}/5^{1}7^{2}$	$2^{4}/3^{1}5^{1}7^{2}$
			0	-1	0
			1	$-1/3$	-1
			$-1/3$	0	$1/3$
7/2	1/2	3	$2\cdot7$	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^{3}3^{1}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{3}3^{1}/5^{1}7^{1}$
			0	1	0
			-1	$-2^{4}/3^{2}$	1
			$17/3^{3}$	$1/3$	$-17/3^{3}$
			$-2/3^{3}$	0	$2/3^{3}$
7/2	3/2	3	$2\cdot3\cdot7$	$2\cdot7$	$2\cdot7$
			$2^{3}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{3}3^{1}/5^{1}7^{1}$
			0	-1	0
			1	$2^{4}/3^{2}$	-1
			$-17/3^{3}$	$-1/3$	$17/3^{3}$
			$2/3^{3}$	0	$-2/3^{3}$
7/2	3/2	5	$2\cdot3\cdot5\cdot7$	7	7
			$2^{3}/3^{2}5^{1}7^{1}$	$2^{3}/3^{2}5^{1}7^{1}$	$2^{7}/3^{2}5^{1}7^{1}$
			0	1	0
			-1	$-3/2^{2}$	1
			$1/2^{3}$	0	$-1/2^{2}$
7/2	5/2	1	7	$2\cdot7$	$2\cdot7$
			$2^{3}3^{1}/7$	$3/7$	$2^{1}3^{1}/7$
			0	-1	0
			1	$2^{3}3^{1}/5$	-1
			$-2^{1}3^{1}/5$	$-2^{3}3^{2}/5^{1}7^{1}$	$2^{1}3^{1}/5$
			$2^{3}3^{1}/5^{1}7^{1}$	$2^{3}/3^{2}5^{1}7^{1}$	$-2^{3}3^{1}/5^{1}7^{1}$
			$-2^{3}/3^{2}5^{1}7^{1}$	0	$2^{3}/3^{2}5^{1}7^{1}$
7/2	5/2	3	1	3	3
			$2^{3}11^{1}/5^{1}7^{1}$	$2^{3}11^{1}/3^{1}5^{1}7^{1}$	$2^{3}11^{1}/3^{1}5^{1}7^{1}$
			0	1	0
			-1	$-2/3$	1
			$2^{3}/3^{3}$	$2^{3}/3^{3}11^{1}$	$-2^{3}/3^{3}$
			$-2^{3}/3^{3}11^{1}$	0	$2^{3}/3^{3}11^{1}$
7/2	5/2	5	$5\cdot7$	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^{4}13^{1}/3^{3}5^{1}7^{2}$	$2^{3}13^{1}/3^{3}5^{1}7^{2}$	$2^{3}13^{1}/3^{3}5^{1}7^{2}$
			0	-1	0
			1	$2^{3}/3^{1}13^{1}$	-1
			$-2/13$	0	$2/13$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXI. N' = 4 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	7/2	1	$3\cdot7$ $2^3/3^1 7^1$	$2\cdot3\cdot7$ $1/3^1 7^1$	$2\cdot3\cdot7$ $2^4/3^1 7^1$
			0 −1 $2^1 3^1/5$ $-2^3 3^1/5^1 7^1$ $2^3/3^2 5^1 7^1$	1 $-2^3 3^1/5$ $2^3 3^2/5^1 7^1$ $-2^5/3^2 5^1 7^1$ 0	0 1 $-2^1 3^1/5$ $2^3 3^1/5^1 7^1$ $-2^3/3^2 5^1 7^1$
7/2	7/2	3	$3\cdot11$ $2^3/5^1 7^1$	11 $2^3/5^1 7^1$	11 $2^3/5^1 7^1$
			0 1 $-2^3/3^2$ $2^3/3^2 11^1$	−1 2/3 $-2^3/3^2 11^1$ 0	0 −1 $2^3/3^2$ $-2^3/3^2 11^1$
7/2	7/2	5	$3\cdot7\cdot13$ $2^4/3^2 7^2$	$2\cdot5\cdot7\cdot13$ $2^3/3^1 5^1 7^2$	$2\cdot5\cdot7\cdot13$ $2^6/3^2 5^1 7^2$
			0 −1 2/13	1 $-2^3/3^1 13^1$ 0	0 1 −2/13
7/2	7/2	7	$3\cdot11\cdot13$ $2^3/3^2 11^1 13^1$	$2\cdot3\cdot7\cdot11\cdot13$ $2^4/3^2 7^1 11^1 13^1$	$2\cdot3\cdot7\cdot11\cdot13$ $2^6/3^2 7^1 11^1 13^1$
			0 1	−1 0	0 −1
9/2	1/2	5	$2\cdot5\cdot7$ $2^3/3^2 5^1 7^1$	$3\cdot7$ $2^4/3^2 5^1 7^1$	$3\cdot7$ $2^3/3^2 5^1 7^1$
			0 1 $-1/2^2$	−1 $3/2^2$ 0	0 1 $-1/2^2$
9/2	3/2	3	$2\cdot3\cdot5\cdot7$ $2^3/5^1 7^1$	$2\cdot5\cdot7$ $2^3/5^1 7^1$	$2\cdot5\cdot7$ $2^3 3^1/5^1 7^1$
			0 −1 $17/3^3$ $-2/3^3$	1 $-2^4/3^2$ 1/3 0	0 −1 $17/3^3$ $-2/3^3$
9/2	3/2	5	$3\cdot5\cdot7$ $2^3/3^2 5^1 7^1$	$2\cdot7$ $2^4/3^2 5^1 7^1$	$2\cdot7$ $2^5/3^2 5^1 7^1$
			0 1 $-1/2^2$	−1 $3/2^2$ 0	0 1 $-1/2^2$
9/2	5/2	3	$2\cdot5\cdot11$ $2^3/5^1 7^1$	$2\cdot3\cdot5\cdot11$ $2/3^1 5^1 7^1$	$2\cdot3\cdot5\cdot11$ $2^4/3^1 5^1 7^1$
			0 −1 $2^3/3^2$ $-2^3/3^2 11^1$	1 −2/3 $2^3/3^2 11^1$ 0	0 −1 $2^3/3^2$ $-2^3/3^2 11^1$
9/2	5/2	5	$2\cdot5\cdot13$ $2^4/3^2 5^1 7^1$	$3\cdot13$ $2^3/3^2 5^1 7^1$	$3\cdot13$ $2^7/3^2 5^1 7^1$
			0 1 −2/13	−1 $2^3/3^1 13^1$ 0	0 1 −2/13
9/2	5/2	7	$7\cdot11\cdot13$ $2^4/3^1 7^1 11^1 13^1$	$2\cdot11\cdot13$ $2^3/3^1 7^1 11^1 13^1$	$2\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$
			0 −1	1 0	0 −1

j'	j	J	M	Δ'	Σ
9/2	7/2	1	$3\cdot5$ $2^3/3$	$2\cdot3\cdot5$ 1/3	$2\cdot3\cdot5$ 2/3
			0 1 $-2^1 3^1/5$ $2^3 3^1/5^1 7^1$ $-2^3/3^2 5^1 7^1$	−1 $2^3 3^1/5$ $-2^3 3^2/5^1 7^1$ $2^6/3^2 5^1 7^1$ 0	0 1 $-2^1 3^1/5$ $2^3 3^1/5^1 7^1$ $-2^3/3^2 5^1 7^1$
9/2	7/2	3	$3\cdot5\cdot11$ $2^3/5^1 7^1$	$5\cdot11$ $2^3/5^1 7^1$	$5\cdot11$ $2^3/5^1 7^1$
			0 −1 $2^3/3^2$ $-2^3/3^2 11^1$	1 −2/3 $2^3/3^2 11^1$ 0	0 −1 $2^3/3^2$ $-2^3/3^2 11^1$
9/2	7/2	5	$3\cdot5\cdot13$ $2^4/3^2 5^1 7^1$	$2\cdot13$ $2^3/3^1 5^1 7^1$	$2\cdot13$ $2^3/3^2 5^1 7^1$
			0 1 −2/13	−1 $2^3/3^1 13^1$ 0	0 1 −2/13
9/2	7/2	7	$2\cdot3\cdot7\cdot11\cdot13$ $2^3/3^2 7^1 11^1 13^1$	$3\cdot11\cdot13$ $2^4/3^2 7^1 11^1 13^1$	$3\cdot11\cdot13$ $2^4/3^2 7^1 11^1 13^1$
			0 −1	1 0	0 −1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXII. $N' = 4$ $N = 3$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	0	0	0	1	1
			0	0	$2^3/3$	1
			0	0	0	-1
			0	0	-1	$1/3$
			0	0	$11/5$	$-2/3^1 5^1$
			0	0	$-2^1 3^1/5$	$-1/3^1 5^1$
			0	0	$1/5$	0
1/2	3/2	2	0	3	2	2
			0	$2^3/3$	$2^3/3$	$2^1 7^1/3^1 5^1$
			0	1	1	-1
			0	$-11/5$	$-11/5$	$2^3/7$
			0	$2^1 3^1/5$	$2^1 3^1/5$	$-1/7$
			0	$-1/5$	$-1/5$	0
1/2	5/2	2	0	7	$2 \cdot 3 \cdot 7$	$2 \cdot 3 \cdot 7$
			0	$2^4/5^1 7^1$	$2^3/5^1 7^1$	$2/3^1 5^1$
			0	0	0	1
			0	-1	1	$1/7$
			0	1	-1	$-3/2^1 7^1$
			0	$-1/2^1 3^1$	$1/2^1 3^1$	0
1/2	7/2	4	0	$2 \cdot 5 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			0	$2^3/5^1 7^1$	$2^4/5^1 7^1$	$2^3/5^1 7^1$
			0	-1	-1	-1
			0	1	1	$-1/2$
			0	$-1/2^1 3^1$	$-1/2^1 3^1$	0
3/2	1/2	2	$3 \cdot 7$	$3 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			$2/3^1 5^1$	$2/3^1 5^1$	$2/3^1 5^1$	$2^3/3^1 5^1$
			-1	-1	-1	-1
			$2^1 3^1/7$	$2^3/7$	$-2^3 5^1/7$	$2^3/7$
			$-2/7$	$-2^1 11^1/7$	$2^1 3^3/7$	$-1/7$
			0	$2^3/7$	$-2^3/7$	0
3/2	3/2	0	0	0	$2 \cdot 7$	$2 \cdot 7$
			0	0	$2/3$	$1/2$
			0	0	0	0
			0	0	1	$-2^3/3$
			0	0	$-2^3/5$	$2^1 7^1/3^1 5^1$
			0	0	$2^1 3^1/7$	$-2^3/3^1 7^1$
			0	0	$-2^3/5^1 7^1$	0
3/2	3/2	2	$3 \cdot 7$	$3 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			$2/3^1 5^1$	$2^3/3^1 5^1$	$2^3/3^1 5^1$	$7/3^1 5^1$
			1	1	1	-1
			$-2^1 3^1/7$	$-2^1 3^1/7$	$-19/7$	$2^1 17^1/7^2$
			$2/7$	$2/7$	$2^3 3^1/7$	$-2^1 5^1/7^2$
			0	0	$-2/7$	0
3/2	5/2	2	$2 \cdot 7$	$2 \cdot 7$	$3 \cdot 7$	$3 \cdot 7$
			$2^3/5^1 7^1$	$2^1 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2/3^1 5^1$
			-1	-1	-1	-1
			11/7	31/7	$-1/7$	$2/7$
			$-2/7$	$-2^3/3$	$2^3/7$	0
			0	$2^3 5^1/3^2 7^1$	$-2^3/3^1 7^1$	0
3/2	5/2	4	$2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			$2^3/5^1 7^2$	$2^3/5^1 7^2$	$2^4/5^1 7^2$	$2^2/5^1 7^1$
			1	1	1	1
			$-1/2$	$-7/2$	$5/2$	0
			0	1	-1	0

j'	j	J	Δ	Σ'	Σ''	Ω'
3/2	7/2	2	$3 \cdot 7$	$3 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			$2^4/3^1 5^1 7^1$	$2^4/5^1 7^1$	$2^4/5^1 7^1$	$2^3/5$
			1	1	1	-1
			$-11/7$	$-17/7$	$-2^2 5^1/7$	$13/2^1 7^1$
			$2/7$	1	$19/2^1 7^1$	$-1/7$
			0	$-2/3^1 7^1$	$-1/7$	0
3/2	7/2	4	$2 \cdot 7$	$2 \cdot 7$	$2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 7$
			$2^3 3^1/5^1 7^2$	$2^4/7^2$	$2^3/5^1 7^2$	$2^2/5^1 7^1$
			-1	-1	-1	1
			$1/2$	$7/2^1 5^1$	1	$-1/3$
			0	$-1/3^1 5^1$	$-1/2^1 3^1$	0
5/2	1/2	2	$2 \cdot 7$	$2 \cdot 7$	$3 \cdot 7$	$3 \cdot 7$
			$2/3^1 5^1$	$2^3/5$	$2^3/3^1 5^1$	$1/3^1 5^1$
			-1	-1	-1	-1
			$2^1 3^1/7$	$31/3^1 7^1$	$5^2/2^1 7^1$	2
			$-2/7$	$-2^4/3^1 7^1$	-1	$-2^1 3^1/7$
			0	$2/3^1 7^1$	$1/7$	0
5/2	3/2	2	1	1	$2 \cdot 3$	$2 \cdot 3$
			$2^1 7^1/3^1 5^1$	$2^1 7^1/5$	$2^1 7^1/3^1 5^1$	$2/3^1 5^1$
			-1	1	1	-1
			$2^1 3^1/7$	$-2^3/3^1 7^2$	$-2^3 17^1/7^2$	$2/7$
			$-2/7$	$2^1 7^1/3^1 7^2$	$2^1 17^1/7^2$	0
			0	$-2^3 5^1/3^1 7^2$	$-2^3/7^2$	0
5/2	3/2	4	0	5	1	1
			0	$2^3 13^1/5^1 7^1$	$2^3 13^1/5^1 7^1$	$2^3/5^1 7^1$
			0	-1	-1	1
			0	$2^1 5^1/13$	$2^1 5^1/13$	0
			0	$-2/13$	$-2/13$	0
5/2	5/2	0	0	0	$2 \cdot 3$	$2 \cdot 3$
			0	0	$2/3$	$1/2$
			0	0	0	-1
			0	0	-1	$-1/3$
			0	0	$13/5$	$2^4/3^1 5^1$
			0	0	$-2^3/7$	$-2^3/3^1 7^1$
			0	0	$2^3/5^1 7^1$	0
5/2	5/2	2	$2 \cdot 7$	$2 \cdot 7$	$3 \cdot 7$	$3 \cdot 7$
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			-1	-1	-1	1
			11/7	11/7	29/7	$41/2^1 7^1$
			$-2/7$	$-2/7$	$-17/7$	$-5/7$
			0	0	$2/7$	0
5/2	5/2	4	$5 \cdot 7$	$5 \cdot 7$	7	7
			$2^4/5^1 7^2$	$2^3/5^1 7^2$	$2^3/5^1 7^2$	$2^2 3^1/5^1 7^2$
			1	1	1	1
			$-1/2$	$-1/2$	$-5/2^2$	$-5/3$
			0	0	$1/2^2$	0
5/2	7/2	2	$3 \cdot 7$	$3 \cdot 7$	$2 \cdot 7$	$2 \cdot 7$
			$2^3/5^1 7^1$	$2^2 3^1/5^1 7^1$	$2^2 3^1/5^1 7^1$	$2^1 3^1/5^1 7^1$
			-1	1	1	-1
			11/7	$-61/3^1 7^1$	$-3^1 5^1/7$	$2^2/7$
			$-2/7$	$2^3 11^1/3^2 7^1$	$2^4/3^1 7^1$	$-2^2/3^2 7^1$
			0	$-2^3/3^2$	$-2^3/3^2 7^1$	0
5/2	7/2	4	$2 \cdot 7 \cdot 11$	$2 \cdot 7 \cdot 11$	$2 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 5 \cdot 7 \cdot 11$
			$2^3/5^1 7^2$	$2^3/7^2$	$2^4/5^1 7^2$	$2^2/5^1 7^2$
			1	-1	-1	1
			$-1/2$	$97/2^1 5^1 11^1$	$17/2^1 11^1$	$-2/11$
			0	$-7/5^1 11^1$	$-1/11$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXII. N' = 4 N = 3 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	7/2	6	0	$3\cdot7\cdot11$	$2\cdot11$	$2\cdot11$
			0	$2^4/3^1 7^1 11^1$	$2^4/7^1 11^1$	$2^3/3^1 7^1 11^1$
			0	1	1	−1
			0	−1/3	−1/3	0
7/2	1/2	4	$2\cdot5\cdot7$	$2\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^2 5^1$
			1	1	1	1
			−1/3	−3	7/3	$-2^3/7$
			0	2/3	−2/3	0
7/2	3/2	2	0	3	2	2
			0	$2^4 3^1/5^1 7^1$	$2^3 3^2/5^1 7^1$	$2^1 3^1/5$
			0	0	0	−1
			0	1	−1	$3^2/7$
			0	$-17/3^2$	$17/3^2$	$-2/3^2$
			0	$2/3^2$	$-2/3^2$	0
7/2	3/2	4	2	2	$2\cdot5$	$2\cdot5$
			$2^3/3^1 5^1$	$2^3/3^1 7^1$	$2^4/3^1 5^1 7^1$	$2^6/3^2 5^1 7^1$
			−1	−1	−1	1
			1/3	−1/5	5/3	$-7/2^4$
			0	$2/3^1 5^1$	−1/3	0
7/2	5/2	2	$2\cdot3\cdot7$	$2\cdot3\cdot7$	7	7
			$2^1 5^1/3^1 7^1$	2/7	$2^2/7$	$2^2/5^1 7^1$
			−1	−1	−1	−1
			$2^3/7$	$2^1 107^1/3^1 5^1 7^1$	$-2/5^1 7^1$	$2^3/7$
			$-2^3/3^2 7^1$	$-2^2 13^2/3^2 5^1 7^1$	$2^2 17^1/3^2 5^1 7^1$	$-2^3/3^2 7^1$
			0	$2^3/3^2 5^1$	$-2^3/3^2 5^1 7^1$	0
7/2	5/2	4	$7\cdot11$	$7\cdot11$	$5\cdot7\cdot11$	$5\cdot7\cdot11$
			$2^3 3^1/5^1 7^2$	$2^3/7^2$	$2^3/5^1 7^2$	$2^3/3^1 5^1 7^2$
			1	1	1	1
			−2/11	$-2^3 53^1/3^1 5^1 11^1$	$2^2 5^1/3^1 11^1$	$-2/11$
			0	$2^2 7^1/3^1 5^1 11^1$	$-2^2/3^1 11^1$	0
7/2	5/2	6	$2\cdot3\cdot7\cdot11$	$2\cdot3\cdot7\cdot11$	11	11
			$2^3/3^2 7^1 11^1$	$2^3/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$
			−1	−1	−1	−1
			0	2	−2	0
7/2	7/2	0	0	0	1	1
			0	0	2^2	3
			0	0	0	1
			0	0	1	−2
			0	0	$-2^1 3^1/5$	$2^2/5$
			0	0	$2^3 3^1/5^1 7^1$	$-2^3/3^1 5^1 7^1$
			0	0	$-2^3/3^2 5^1 7^1$	0
7/2	7/2	2	$2\cdot7$	$2\cdot7$	$3\cdot7$	$3\cdot7$
			2/7	$2^2/7$	$2^2/3^1 7^1$	$2^1 3^1/7$
			1	1	1	−1
			$-2^2/7$	$-2^2/7$	$-3^1 5^1/7$	$2^2/7$
			$2^2/3^2 7^1$	$2^2/3^2 7^1$	$2^4/3^1 7^1$	$-2^2/3^2 7^1$
			0	0	$-2^2/3^2 7^1$	0
7/2	7/2	4	$5\cdot7\cdot11$	$5\cdot7\cdot11$	$7\cdot11$	$7\cdot11$
			$2^3/5^1 7^2$	$2^4/5^1 7^2$	$2^3/5^1 7^2$	$2^3 3^2/5^1 7^2$
			−1	−1	−1	1
			2/11	2/11	$17/2^1 11^1$	$-2/11$
			0	0	−1/11	0
7/2	7/2	6	$2\cdot7\cdot11$	$2\cdot7\cdot11$	$3\cdot11$	$3\cdot11$
			$2^3/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^3/3^1 7^1 11^1$
			1	1	1	−1
			0	0	−1/3	0
9/2	1/2	4	2·7	2·7	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^3/3^1 5^1 7^1$	$2^4/3^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^2 7^1$
			1	1	1	1
			−1/3	−3/5	−2/3	$-1/2^2$
			0	$1/3^1 5^1$	$1/2^2 3^1$	0
9/2	3/2	4	$2\cdot7\cdot11$	$2\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$
			$2^3/3^1 5^1 7^1$	$2^3/3^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^2 5^1 7^1$
			1	−1	−1	−1
			−1/3	$37/5^1 11^1$	$19/3^1 11^1$	2/11
			0	$-2^1 7^1/3^1 5^1 11^1$	$-2/3^1 11^1$	0
9/2	3/2	6	0	$2\cdot3\cdot5\cdot11$	$5\cdot7\cdot11$	$5\cdot7\cdot11$
			0	$2^3/3^2 5^1 11^1$	$2^3/3^1 5^1 7^1 11^1$	$2^3/3^1 5^1 7^1 11^1$
			0	1	1	1
			0	$-1/2^2$	$-1/2^2$	0
9/2	5/2	2	3·7	3·7	2←	2·7
			$2^3/3^1 7^1$	$2^3/7$	$2^3/7$	1
			−1	−1	−1	−1
			$2^3/7$	$23/3^1 7^1$	$19/2^1 7^1$	$2^3/7$
			$-2^3/3^2 7^1$	$-2^3/3^2$	$-2^1 13^1/3^2 7^1$	$-2^3/3^2 7^1$
			0	$2^3/3^2 7^1$	$2/3^2 7^1$	0
9/2	5/2	4	$2\cdot7\cdot11$	$2\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$
			$2^3 3^1/5^1 7^2$	$2^3/7^2$	$2^4/5^1 7^2$	$2^3/3^1 5^1 7^1$
			1	1	1	1
			−2/11	$-2^2 7^1/3^1 5^1 11^1$	$-19/3^1 11^1$	−2/11
			0	$2^3/3^1 5^1 11^1$	$2/3^1 11^1$	0
9/2	5/2	6	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	$5\cdot7\cdot11$	$5\cdot7\cdot11$
			$2^4/3^2 7^1 11^1$	$2^3/3^2 5^1 11^1$	$2^3/3^2 5^1 7^1 11^1$	$2^3/3^2 5^1 11^1$
			−1	−1	−1	−1
			0	$1/2^1 7^1$	$1/2^2$	0
9/2	7/2	2	$2\cdot7\cdot11$	$2\cdot7\cdot11$	$3\cdot7\cdot11$	0
			2/7	2/7	$2^2/3^1 7^1$	0
			−1	1	1	0
			$2^2/7$	$-2^1 5^1/7$	$-2^1 3^1/7$	0
			$-2^2/3^2 7^1$	$2^2/3^2$	$2^2/3^1 7^1$	0
			0	$-2^2/3^1 7^1 11^1$	$-2^2/3^2 7^1 11^1$	0
9/2	7/2	4	$7\cdot11\cdot13$	$7\cdot11\cdot13$	$5\cdot7\cdot11\cdot13$	0
			$2^3/5^1 7^2$	$2^2/7^2$	$2^3/5^1 7^2$	0
			1	−1	−1	0
			−2/11	$2^2 7^1/5^1 11^1$	$2^2/11$	0
			0	$-2^2 3^2/5^1 11^1 13^1$	$-2^2/11^1 13^1$	0
9/2	7/2	6	$2\cdot5\cdot11$	$2\cdot5\cdot11$	$3\cdot5\cdot7\cdot11$	0
			$2^3/3^2 7^1 11^1$	$2^3/3^2 11^1$	$2^4/3^2 7^1 11^1$	0
			−1	1	1	0
			0	$-2^1 3^1/5^1 7^1$	$-2/3^1 5^1$	0
9/2	7/2	8	0	$5\cdot11\cdot13$	$2\cdot5\cdot11\cdot13$	0
			0	$2^4/3^1 5^1 11^1 13^1$	$2^5/3^2 5^1 11^1 13^1$	0
			0	−1	−1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIII. N' = 4 N = 4 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^3/3$	0	0
			$2^3 11^1/3^1 5^1$	0	0
			$-2^4/3^1 5^1$	0	0
			$2/3^1 5^1$	0	0
3/2	1/2	2	7	$2\cdot 3\cdot 7$	$2\cdot 3\cdot 7$
			$2^4/3^1 5^1$	$2/3^1 5^1$	$2^3/3^1 5^1$
			0	0	0
			1	1	-1
			$-19/2^1 7^1$	$-2^3/7$	$19/2^1 7^1$
			$2^3/7$	$1/7$	$-2^3/7$
			$-1/2^1 7^1$	0	$1/2^1 7^1$
3/2	3/2	0	1	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^3/3$	0	0
			$2^1 19^1/3^1 5^1$	0	0
			$-2^3 11^1/3^1 5^1 7^1$	0	0
			$2^3/3^1 5^1 7^1$	0	0
3/2	3/2	2	1	0	0
			$2^3 11^1/3^1 5^1$	0	0
			0	0	0
			-1	0	0
			$2^1 47^1/7^1 11^1$	0	0
			$-2^1 19^1/7^1 11^1$	0	0
			$2^3/7^1 11^1$	0	0
5/2	1/2	2	$2\cdot 3\cdot 7$	7	7
			$2^3/3^1 5^1$	2/5	$2^4/3^1 5^1$
			0	0	0
			-1	-1	-1
			$19/2^1 7^1$	$2^3/7$	$19/2^1 7^1$
			$-2^3/7$	$-1/7$	$-2^3/7$
			$1/2^1 7^1$	0	$1/2^1 7^1$
5/2	3/2	2	$3\cdot 7$	0	$2\cdot 7$
			$2^3 11^1/3^1 5^1 7^1$	0	$2^1 11^1/3^1 7^1$
			0	0	0
			-1	0	-1
			$2^1 47^1/7^1 11^1$	0	$2^1 47^1/7^1 11^1$
			$-2^1 19^1/7^1 11^1$	0	$-2^1 19^1/7^1 11^1$
			$2^3/7^1 11^1$	0	$2^3/7^1 11^1$
5/2	3/2	4	$2\cdot 7$	0	$2\cdot 5\cdot 7$
			$2^3 19^1/5^1 7^2$	0	$2^3 19^1/5^1 7^2$
			0	0	0
			1	0	1
			$-2^3 3^1/19$	0	$-2^3 3^1/19$
			$2/19$	0	$2/19$
5/2	5/2	0	$2\cdot 3$	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^3/3$	0	0
			$2^1 19^1/3^1 5^1$	0	0
			$-2^3 11^1/3^1 5^1 7^1$	0	0
			$2^3/3^1 5^1 7^1$	0	0
5/2	5/2	2	$3\cdot 7$	0	0
			$2^3 11^1/3^1 5^1 7^1$	0	0
			0	0	0
			-1	0	0
			$2^1 47^1/7^1 11^1$	0	0
			$-2^1 19^1/7^1 11^1$	0	0
			$2^3/7^1 11^1$	0	0
5/2	5/2	4	7	0	0
			$2^3 19^1/5^1 7^2$	0	0
			0	0	0
			1	0	0
			$-2^3 3^1/19$	0	0
			$2/19$	0	0
7/2	1/2	4	7	$5\cdot 7$	$5\cdot 7$
			$2^3/3^1 5^1 7^1$	$2^3/3^2 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	0	0
			-1	-1	1
			2/3	$1/2^2$	$-2/3$
			$-1/2^2 3^1$	0	$1/2^2 3^1$
7/2	3/2	2	7	$2\cdot 3\cdot 7$	$2\cdot 3\cdot 7$
			$2^4 3^1/5^1 7^1$	2/5	$2^4/5^1 7^1$
			0	0	0
			-1	-1	1
			$19/2^1 7^1$	$2^3/7$	$-19/2^1 7^1$
			$-2^1 13^1/3^2 7^1$	$-2^3/3^2 7^1$	$2^1 13^1/3^2 7^1$
			$2/3^2 7^1$	0	$-2/3^2 7^1$
7/2	3/2	4	$5\cdot 7$	7	7
			$2^4 11^1/3^1 5^1 7^2$	$2^2 11^1/3^2 5^1 7^1$	$2^4 11^1/3^1 5^1 7^2$
			0	0	0
			1	1	-1
			$-19/3^1 11^1$	$-2/11$	$19/3^1 11^1$
			$2/3^1 11^1$	0	$-2/3^1 11^1$
7/2	5/2	2	7	$2\cdot 3\cdot 7$	$2\cdot 3\cdot 7$
			$2^4/5^1 7^1$	$2/3^1 5^1$	$2^3/3^1 5^1$
			0	0	0
			1	1	-1
			$-19/2^1 7^1$	$-2^3/7$	$19/2^1 7^1$
			$2^1 13^1/3^2 7^1$	$2^3/3^2 7^1$	$-2^1 13^1/3^2 7^1$
			$-2/3^2 7^1$	0	$2/3^2 7^1$
7/2	5/2	4	$5\cdot 7\cdot 11$	$7\cdot 11$	$7\cdot 11$
			$2^4/5^1 7^2$	$2^3/3^1 5^1 7^1$	$2^3/5^1 7^1$
			0	0	0
			-1	-1	1
			$19/3^1 11^1$	$2/11$	$-19/3^1 11^1$
			$-2/3^1 11^1$	0	$2/3^1 11^1$
7/2	5/2	6	11	$2\cdot 3\cdot 7\cdot 11$	$2\cdot 3\cdot 7\cdot 11$
			$2^7/3^2 7^1 11^1$	$2^3/3^2 7^1 11^1$	$2^6/3^2 7^1 11^1$
			0	0	0
			1	1	-1
			$-1/2^3$	0	$1/2^3$
7/2	7/2	0	2	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^3/3$	0	0
			$2^3/5$	0	0
			$-2^3/3^1 5^1 7^1$	0	0
			$2^4/3^2 5^1 7^1$	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIII. N' = 4 N = 4 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	7/2	2	$2\cdot3\cdot7$	0	0
			$2^3 11^1/3^2 7^1$	0	0
			0	0	0
			−1	0	0
			$2^1 3^1/7$	0	0
			$-2^3/3^1 7^1$	0	0
			$2^3/3^2 7^1 11^1$	0	0
7/2	7/2	4	$2\cdot7\cdot11$	0	0
			$2^3 13^1/3^1 5^1 7^2$	0	0
			0	0	0
			1	0	0
			$-2^3/11$	0	0
			$2^3/11^1 13^1$	0	0
7/2	7/2	6	$2\cdot3\cdot11$	0	0
			$2^4 5^1/3^2 7^1 11^1$	0	0
			0	0	0
			−1	0	0
			$2/3^1 5^1$	0	0
9/2	1/2	4	$5\cdot7$	7	7
			$2^3/3^1 5^1 7^1$	$2^4/3^2 7^1$	$2^3/3^1 5^1 7^1$
			0	0	0
			1	1	1
			−2/3	$-1/2^2$	−2/3
			$1/2^2 3^1$	0	$1/2^2 3^1$
9/2	3/2	4	$5\cdot11$	11	11
			$2^4/3^1 5^1 7^1$	$2^3/3^2 5^1$	$2^3/3^1 5^1$
			0	0	0
			1	1	1
			$-19/3^1 11^1$	$-2/11$	$-19/3^1 11^1$
			$2/3^1 11^1$	0	$2/3^1 11^1$
9/2	3/2	6	$2\cdot5\cdot11$	$3\cdot5\cdot7\cdot11$	$3\cdot5\cdot7\cdot11$
			$2^6/3^1 5^1 7^1 11^1$	$2^3/3^2 5^1 7^1 11^1$	$2^6/3^2 5^1 7^1 11^1$
			0	0	0
			−1	−1	−1
			$1/2^2$	0	$1/2^2$
9/2	5/2	2	$2\cdot7$	$3\cdot7$	$3\cdot7$
			$2^3/7$	2/3	$2^4/3^1 7^1$
			0	0	0
			−1	−1	−1
			$19/2^1 7^1$	$2^3/7$	$19/2^1 7^1$
			$-2^1 13^1/3^2 7^1$	$-2^3/3^2 7^1$	$-2^1 13^1/3^2 7^1$
			$2/3^2 7^1$	0	$2/3^2 7^1$
9/2	5/2	4	$2\cdot5\cdot7\cdot11$	$2\cdot7\cdot11$	$2\cdot7\cdot11$
			$2^4/5^1 7^2$	$2^3/3^1 5^1 7^1$	$2^4/5^1 7^2$
			0	0	0
			1	1	1
			$-19/3^1 11^1$	$-2/11$	$-19/3^1 11^1$
			$2/3^1 11^1$	0	$2/3^1 11^1$
9/2	5/2	6	$5\cdot7\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			$2^6/3^2 5^1 7^1 11^1$	$2^3/3^2 5^1 11^1$	$2^6/3^2 5^1 7^1 11^1$
			0	0	0
			−1	−1	−1
			$1/2^2$	0	$1/2^2$

j'	j	J	M	Δ'	Σ
9/2	7/2	2	$2\cdot3\cdot7\cdot11$	0	$7\cdot11$
			$2^3/3^2 7^1$	0	$2^3/7$
			0	0	0
			−1	0	−1
			$2^1 3^1/7$	0	$2^1 3^1/7$
			$-2^3/3^1 7^1$	0	$-2^3/3^1 7^1$
			$2^3/3^2 7^1 11^1$	0	$2^3/3^2 7^1 11^1$
9/2	7/2	4	$2\cdot5\cdot7\cdot11\cdot13$	0	$2\cdot7\cdot11\cdot13$
			$2^3/3^1 5^1 7^2$	0	$2^3 3^1/5^1 7^2$
			0	0	0
			1	0	1
			$-2^3/11$	0	$-2^3/11$
			$2^3/11^1 13^1$	0	$2^3/11^1 13^1$
9/2	7/2	6	$2\cdot3\cdot5\cdot7\cdot11$	0	$5\cdot11$
			$2^4/3^2 7^1 11^1$	0	$2^4/3^1 7^1 11^1$
			0	0	0
			−1	0	−1
			$2/3^1 5^1$	0	$2/3^1 5^1$
9/2	7/2	8	$5\cdot11\cdot13$	0	$2\cdot5\cdot11\cdot13$
			$2^3/3^2 5^1 11^1 13^1$	0	$2^4/3^2 5^1 11^1 13^1$
			0	0	0
			1	0	1
9/2	9/2	0	$2\cdot5$	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^3/3$	0	0
			$2^3/5$	0	0
			$-2^3/3^1 5^1 7^1$	0	0
			$2^4/3^2 5^1 7^1$	0	0
9/2	9/2	2	$3\cdot11$	0	0
			$2^3/3^2$	0	0
			0	0	0
			−1	0	0
			$2^1 3^1/7$	0	0
			$-2^3/3^1 7^1$	0	0
			$2^3/3^2 7^1 11^1$	0	0
9/2	9/2	4	$5\cdot11\cdot13$	0	0
			$2^3/3^1 5^1 7^1$	0	0
			0	0	0
			1	0	0
			$-2^3/11$	0	0
			$2^3/11^1 13^1$	0	0
9/2	9/2	6	$3\cdot5\cdot11$	0	0
			$2^6/3^2 7^1 11^1$	0	0
			0	0	0
			−1	0	0
			$2/3^1 5^1$	0	0
9/2	9/2	8	$5\cdot11\cdot13$	0	0
			$2^6/3^2 5^1 11^1 13^1$	0	0
			0	0	0
			1	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIV. $N^{\dagger} = 4$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	0	1	2	0
			0	2	1	0
			0	1	1	0
			0	$-2^3/3$	$-2^3/3$	0
			0	$2^3 11^1/3^1 5^1$	$2^3 11^1/3^1 5^1$	0
			0	$-2^4/3^1 5^1$	$-2^4/3^1 5^1$	0
			0	$2/3^1 5^1$	$2/3^1 5^1$	0
3/2	1/2	1	0	$2 \cdot 7$	7	7
			0	$2^3/3^1 5^1$	$2^4/3^1 5^1$	2/5
			0	0	0	0
			0	1	-1	1
			0	$-19/2^1 7^1$	$19/2^1 7^1$	$-2^3/7$
			0	$2^3/7$	$-2^3/7$	1/7
			0	$-1/2^1 7^1$	$1/2^1 7^1$	0
3/2	3/2	1	$2 \cdot 5$	$2 \cdot 5$	5	0
			3/5	2/5	2/5	0
			-1	-1	-1	0
			$2^1 3^1/5$	$2^1 31^1/3^1 5^1$	$-2^3/3^1 5^1$	0
			$-2^1 13^1/5^1 7^1$	$-2^1 227^1/3^1 5^1 7^1$	$2^1 11^1/3^1 7^1$	0
			$2^3/5^1 7^1$	$2^3 41^1/3^1 5^1 7^1$	$-2^6/3^1 5^1 7^1$	0
			0	$-2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	0
3/2	3/2	3	$3 \cdot 5$	$3 \cdot 5$	5	0
			$2^3 11^1/3^1 5^2 7^1$	$2^3 11^1/3^1 5^2 7^1$	$2^3 11^1/5^2 7^1$	0
			1	1	1	0
			$-2^3/11$	$-2^1 23^1/11$	$2^1 3^1 5^1/11$	0
			2/11	$2^1 13^1/11$	-2	0
			0	$-2^3/11$	$2^3/11$	0
5/2	1/2	3	0	$2 \cdot 7$	$2 \cdot 3 \cdot 7$	$2 \cdot 3 \cdot 7$
			0	$2^4/3^1 5^1$	$2^3/3^1 5^1$	$2/3^1 5^1$
			0	-1	-1	-1
			0	$19/2^1 7^1$	$19/2^1 7^1$	$2^3/7$
			0	$-2^3/7$	$-2^3/7$	$-1/7$
			0	$1/2^1 7^1$	$1/2^1 7^1$	0
5/2	3/2	1	$2 \cdot 5$	$2 \cdot 5$	5	5
			1/5	$2^3/5$	$2^3/5$	1
			-1	-1	-1	-1
			$2^1 3^1/5$	$23/2^1 5^1$	17/5	$2^1 3^1/5$
			$-2^1 13^1/5^1 7^1$	$-73/5^1 7^1$	$-2^3 3^1/7$	$-2^1 13^1/5^1 7^1$
			$2^3/5^1 7^1$	$23/5^1 7^1$	$2^1 3^1/5$	$2^3/5^1 7^1$
			0	$-2/5^1 7^1$	$-2^3/5^1 7^1$	0
5/2	3/2	3	$2 \cdot 5$	$2 \cdot 5$	$2 \cdot 3 \cdot 5$	$2 \cdot 3 \cdot 5$
			$2^3 11^1/5^2 7^1$	$2^3 11^1/3^1 5^2 7^1$	$2^4 11^1/3^1 5^2 7^1$	$2^1 11^1/3^1 5^1 7^1$
			1	1	1	1
			$-2^3/11$	$-83/2^3 11^1$	$-5^1 7^1/2^1 11^1$	$-2^3/11$
			2/11	$7/2^1 11^1$	$2^3/11$	2/11
			0	$-1/2^3 11^1$	$-1/11$	0
5/2	5/2	1	$5 \cdot 7$	$5 \cdot 7$	$2 \cdot 5 \cdot 7$	0
			2/5	2/5	1/5	0
			-1	1	1	0
			$2^1 3^1/5$	$-2^3 3^2/5^1 7^1$	$-2^6/5^1 7^1$	0
			$-2^1 13^1/5^1 7^1$	$2^1 373^1/5^1 7^2$	$2^1 37^1/7^2$	0
			$2^3/5^1 7^1$	$-2^6/5^1 7^2$	$-2^3 13^1/5^1 7^2$	0
			0	$2^3 3^1/5^1 7^2$	$2^3/5^1 7^2$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIV. $N' = 4$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	5/2	3	$3\cdot5$	$3\cdot5$	5	0
			$2^{3}11^{1}/5^{3}7^{1}$	$2^{4}11^{1}/5^{3}7^{1}$	$2^{3}3^{1}11^{1}/5^{3}7^{1}$	0
			1	-1	-1	0
			$-2^{3}/11$	$43/3^{1}11^{1}$	$2^{1}5^{1}/3^{3}$	0
			$2/11$	$-2^{3}3^{1}/11$	$-2^{1}7^{1}/3^{1}11^{1}$	0
			0	$2/3^{1}11^{1}$	$2^{3}/3^{3}11^{1}$	0
5/2	5/2	5	0	$2\cdot3\cdot5\cdot7$	7	0
			0	$2^{3}19^{1}/3^{1}5^{1}7^{2}$	$2^{3}19^{1}/3^{1}7^{2}$	0
			0	1	1	0
			0	$-2^{3}3^{1}/19$	$-2^{3}3^{1}/19$	0
			0	$2/19$	$2/19$	0
7/2	1/2	3	0	$3\cdot7$	7	7
			0	$2^{4}/3^{1}5^{1}7^{1}$	$2^{4}/3^{1}5^{1}7^{1}$	$2^{4}/3^{3}7^{1}$
			0	0	0	0
			0	-1	1	-1
			0	$2/3$	$-2/3$	$1/2^{3}$
			0	$-1/2^{3}3^{1}$	$1/2^{3}3^{1}$	0
7/2	3/2	3	1	1	3	3
			$2^{3}/7$	$2^{3}/5^{1}7^{1}$	$2^{4}/5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$
			1	1	1	-1
			$-5/2^{1}3^{1}$	$-2^{3}/3$	$7/2^{1}3^{2}$	$-2^{4}/3^{2}$
			$1/3^{2}$	$7/2^{1}3^{1}$	$-2^{4}/3^{2}$	$2^{3}/3^{2}$
			0	$-1/3^{2}$	$2/3^{2}$	0
7/2	3/2	5	2	2	$3\cdot5$	$3\cdot5$
			$2^{4}/3^{1}5^{1}7^{1}$	$2^{4}/3^{1}5^{1}7^{1}$	$2^{4}/3^{2}5^{1}7^{1}$	$2^{3}/3^{2}5^{1}7^{1}$
			-1	-1	-1	1
			$1/3$	3	$-7/3$	2
			0	$-2/3$	$2/3$	0
7/2	5/2	1	0	$2\cdot7$	7	7
			0	$2^{3}3^{1}/5^{1}7^{1}$	$2^{4}3^{1}/5^{1}7^{1}$	$2^{1}3^{1}/5$
			0	0	0	0
			0	1	-1	1
			0	$-19/2^{1}7^{1}$	$19/2^{1}7^{1}$	$-2^{2}/7$
			0	$2^{1}13^{1}/3^{2}7^{1}$	$-2^{1}13^{1}/3^{2}7^{1}$	$2^{2}/3^{2}7^{1}$
			0	$-2/3^{2}7^{1}$	$2/3^{2}7^{1}$	0
7/2	5/2	3	3	3	1	1
			$2^{3}/3^{1}7^{1}$	$2^{3}/3^{1}5^{1}7^{1}$	$2^{3}/5^{1}7^{1}$	$2^{3}/5$
			-1	-1	-1	1
			$5/2^{1}3^{1}$	$3/2^{3}$	$2^{3}/3$	$-13/3^{2}$
			$-1/3^{2}$	$11/2^{3}3^{2}$	$-7/2^{1}3^{1}$	$2/3^{2}$
			0	$-1/2^{3}3^{2}$	$1/3^{2}$	0
7/2	5/2	5	$2\cdot3\cdot7$	$2\cdot3\cdot7$	$5\cdot7$	$5\cdot7$
			$2^{4}/3^{2}5^{1}7^{1}$	$2^{3}/3^{1}5^{1}7^{2}$	$2^{3}/3^{1}5^{1}7^{2}$	$2^{4}/3^{2}5^{1}7^{1}$
			1	1	1	-1
			$-1/3$	$-2/3^{2}$	-1	$1/2$
			0	$-1/2^{3}3^{2}$	$1/2^{1}3^{1}$	0
7/2	7/2	1	$3\cdot7$	$3\cdot7$	$2\cdot3\cdot7$	0
			$2^{1}5^{1}/3^{2}$	$2^{3}/3^{2}$	$2/3^{2}$	0
			-1	-1	-1	0
			$2^{1}3^{1}/5$	$2^{1}13^{1}/7$	$2^{3}/7$	0
			$-2^{3}3^{1}/5^{1}7^{1}$	$-2^{3}3^{1}17^{1}/5^{1}7^{2}$	$2^{4}3^{1}/5^{1}7^{2}$	0
			$2^{3}/3^{2}5^{1}7^{1}$	$2^{3}139^{1}/3^{2}5^{1}7^{2}$	$-2^{4}13^{1}/3^{2}5^{1}7^{2}$	0
			0	$-2^{6}/3^{2}5^{1}7^{2}$	$2^{4}/3^{2}5^{1}7^{2}$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIV. $N' = 4$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	7/2	3	$2\cdot11$	$2\cdot11$	$2\cdot3\cdot11$	0
			$2^3/7$	$2^3/3^1 7^1$	$2^2/3^1 7^1$	0
			1	1	1	0
			$-2^3/3^3$	$-2^3/5$	$2/3^1 5^1$	0
			$2^3/3^2 11^1$	$2^3 19^1/3^1 5^1 11^1$	$-2^2 7^1/3^1 5^1 11^1$	0
			0	$-2^4/3^2 5^1 11^1$	$2^3/3^2 5^1 11^1$	0
7/2	7/2	5	$5\cdot7\cdot13$	$5\cdot7\cdot13$	$2\cdot3\cdot7\cdot13$	0
			$2^3/3^2 5^1 7^1$	$2^4/3^1 5^1 7^2$	$2^3/3^2 7^2$	0
			-1	-1	-1	0
			$2/13$	$2^1 23^1/3^1 13^1$	$-2^3/13$	0
			0	$-2^4/3^2 13^1$	$2^2/3^1 13^1$	0
7/2	7/2	7	$3\cdot7\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	0
			$2^6/3^4 7^1 11^1 13^1$	$2^6/3^4 7^1 11^1 13^1$	$2^4/3^4 11^1 13^1$	0
			1	1	1	0
			0	-2	2	0
9/2	1/2	5	0	$2\cdot3\cdot7$	$5\cdot7$	$5\cdot7$
			0	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^2 5^1 7^1$
			0	1	1	1
			0	$-2/3$	$-2/3$	$-1/2^3$
			0	$1/2^3 3^1$	$1/2^3 3^1$	0
9/2	3/2	3	5	5	$3\cdot5$	$3\cdot5$
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^3/5$
			1	1	1	1
			$-5/2^1 3^1$	$-31/2^3 3^1$	$-13/3^2$	$-17/3^3$
			$1/3^3$	$3/2^3$	$5^2/2^1 3^3$	$2/3^3$
			0	$-1/2^2 3^2$	$-1/3^3$	0
9/2	3/2	5	1	1	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2^3/3^1 5^1 7^1$	$2^7/3^1 5^1 7^1$	$2^6/3^2 5^1 7^1$	$2^4/3^2 5^1$
			-1	-1	-1	-1
			$1/3$	$1/2$	$2/3$	$1/2^3$
			0	$-1/2^2 3^1$	$-1/2^2 3^1$	0
9/2	5/2	3	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot5\cdot11$	$2\cdot5\cdot11$
			$2^3/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/5^1 7^1$	$2/5^1 7^1$
			1	-1	-1	-1
			$-5/2^1 3^1$	$3/2$	$7/2^1 3^1$	$2^3/3^2$
			$1/3^3$	$-7^2/3^2 11^1$	$-2^1 5^1/3^1 11^1$	$-2^2/3^2 11^1$
			0	$2^2/3^2 11^1$	$2/3^2 11^1$	0
9/2	5/2	5	$3\cdot13$	$3\cdot13$	$2\cdot5\cdot13$	$2\cdot5\cdot13$
			$2^4/3^2 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^2 5^1 7^1$
			-1	1	1	1
			$1/3$	$-71/3^2 13^1$	$-7/13$	$-2/13$
			0	$2^3/3^2 13^1$	$2/3^1 13^1$	0
9/2	5/2	7	0	$2\cdot11\cdot13$	$7\cdot11\cdot13$	$7\cdot11\cdot13$
			0	$2^7/3^1 7^1 11^1 13^1$	$2^6/3^1 7^1 11^1 13^1$	$2^3/3^1 7^1 11^1 13^1$
			0	-1	-1	-1
			0	$1/2^2$	$1/2^2$	0
9/2	7/2	1	$3\cdot5$	$3\cdot5$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2/3^3$	$2^3/3^2$	$2^2/3^2$	1
			-1	-1	-1	-1
			$2^1 3^1/5$	$23/2^1 5^1$	$17/5$	$2^1 3^1/5$
			$-2^2 3^1/5^1 7^1$	$-3^2/7$	$-2^1 3^1 13^1/5^1 7^1$	$-2^2 3^1/5^1 7^1$
			$2^3/3^2 5^1 7^1$	$2^1 37^1/3^2 5^1 7^1$	$2^2/3^2$	$2^3/3^2 5^1 7^1$
			0	$-2^3/3^2 5^1 7^1$	$-2^3/3^2 5^1 7^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIV. N' = 4 N = 4 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	7/2	3	$2\cdot5\cdot11$	$2\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			$2^3/5^1 7^1$	$2^5/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^1 3^1/5^1 7^1$
			1	1	1	1
			$-2^3/3^2$	$-5/2^3$	$-7/2^1 3^1$	$-2^3/3^2$
			$2^3/3^2 11^1$	$7/2^1 3^1 11^1$	$2^1 5^1/3^1 11^1$	$2^3/3^2 11^1$
			0	$-1/2^1 3^2 11^1$	$-2/3^2 11^1$	0
9/2	7/2	5	13	13	$2\cdot3\cdot5\cdot13$	$2\cdot3\cdot5\cdot13$
			$2^3/3^2 7^1$	$2^5/3^1 5^1 7^1$	$2^4/3^2 5^1 7^1$	$2^3/3^1 5^1 7^1$
			-1	-1	-1	-1
			2/13	$17/2^1 3^1 13^1$	7/13	2/13
			0	$-1/3^2 13^1$	$-2/3^1 13^1$	0
9/2	7/2	7	$2\cdot3\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$
			$2^3/3^4 11^1 13^1$	$2^3/3^4 7^1 11^1 13^1$	$2^3/3^4 7^1 11^1 13^1$	$2^4/3^2 7^1 11^1 13^1$
			1	1	1	1
			0	$-1/2^3$	$-1/2^3$	0
9/2	9/2	1	$3\cdot5\cdot11$	$3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	0
			$2^3/3^2$	$2/3^2$	$1/3^2$	0
			-1	1	1	0
			$2^1 3^1/5$	$-2^4/5$	$-2^3/5$	0
			$-2^3 3^1/5^1 7^1$	$2^3 3^2/5^1 7^1$	$2^3 3^1/5^1 7^1$	0
			$2^3/3^2 5^1 7^1$	$-2^7/3^2 5^1 7^1$	$-2^4/3^2 5^1 7^1$	0
			0	$2^4/3^2 7^1 11^1$	$2^4/3^2 5^1 7^1 11^1$	0
9/2	9/2	3	$5\cdot11\cdot13$	$5\cdot11\cdot13$	$3\cdot5\cdot11\cdot13$	0
			$2^3/5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	0
			1	-1	-1	0
			$-2^3/3^2$	1	2/3	0
			$2^3/3^2 11^1$	$-2^3/3^1 11^1$	$-2^3/3^1 11^1$	0
			0	$2^2 5^1/3^2 11^1 13^1$	$2^3/3^2 11^1 13^1$	0
9/2	9/2	5	$2\cdot13$	$2\cdot13$	$3\cdot5\cdot13$	0
			$2^3/3^2 7^1$	$2^3/3^1 7^1$	$2^3/3^2 7^1$	0
			-1	1	1	0
			2/13	$-2^4/3^1 13^1$	$-2^3/13$	0
			0	$2^3/3^2 13^1$	$2^3/3^1 5^1 13^1$	0
9/2	9/2	7	$2\cdot3\cdot7\cdot11\cdot13\cdot17$	$2\cdot3\cdot7\cdot11\cdot13\cdot17$	$3\cdot11\cdot13\cdot17$	0
			$2^4/3^4 7^1 11^1 13^1$	$2^7/3^4 7^1 11^1 13^1$	$2^6/3^4 11^1 13^1$	0
			1	-1	-1	0
			0	$5/2^1 17^1$	2/17	0
9/2	9/2	9	0	$2\cdot11\cdot13\cdot17$	$5\cdot11\cdot13\cdot17$	0
			0	$2^6/3^2 11^1 13^1 17^1$	$2^6/3^1 5^1 11^1 13^1 17^1$	0
			0	1	1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXV. N' = 5 N = 3 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	$2\cdot7$	0	0
			$2/3$	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/5$	0	0
			$17/5^1 7^1$	0	0
			$-2/5^1 7^1$	0	0
1/2	3/2	2	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^3/3^1 5^1$	$2/3^1 5^1$	$2^3/3^1 5^1$
			0	1	0
			-1	$-2^3/7$	1
			$3^1 5^1/7$	$1/7$	$-3^1 5^1/7$
			-1	0	1
			$1/7$	0	$-1/7$
1/2	5/2	2	3	2	2
			$2^3/3^1 5^1$	$2/5$	$2^3/3^1 5^1$
			0	-1	0
			1	$2/3^1 7^1$	1
			$-2^2 5^1/7$	$7/2^1 3^1$	$-2^2 5^1/7$
			$19/2^1 7^1$	$-5/3^1 7^1$	$19/2^1 7^1$
			$-1/7$	0	$-1/7$
1/2	7/2	4	1	5	5
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$
			0	-1	0
			1	0	-1
			-1	$1/2^1 3^1$	1
			$1/2^1 3^1$	0	$-1/2^1 3^1$
3/2	1/2	2	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^3/3^1 5^1$	$2/3^1 5^1$	$2^3/3^1 5^1$
			0	-1	0
			1	$2^3/7$	1
			$-3^1 5^1/7$	$-1/7$	$-3^1 5^1/7$
			1	0	1
			$-1/7$	0	$-1/7$
3/2	3/2	0	7	0	0
			$2^3/3$	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/5$	0	0
			$17/5^1 7^1$	0	0
			$-2/5^1 7^1$	0	0
3/2	3/2	2	7	$2\cdot3\cdot7$	0
			$2^3/3^1 5^1$	$2/3^1 5^1$	0
			0	-1	0
			1	$2^3/7$	0
			$-3^1 5^1/7$	$-1/7$	0
			1	0	0
			$-1/7$	0	0
3/2	5/2	2	$2\cdot3\cdot7$	7	7
			$2^3/3^1 5^1 7^1$	$2^3/5^1 7^1$	$2^3/3^1 7^1$
			0	-1	0
			1	$2/3^1 7^1$	1
			$-2^2 5^1/7$	$7/2^1 3^1$	$-2^2 5^1/7$
			$19/2^1 7^1$	$-5/3^1 7^1$	$19/2^1 7^1$
			$-1/7$	0	$-1/7$

j'	j	J	M	Δ'	Σ
3/2	5/2	4	7	$5\cdot7$	$5\cdot7$
			$2^3 3^1/5^1 7^2$	$2^3 3^1/5^1 7^2$	$2^4 3^1/5^1 7^2$
			0	1	0
			-1	0	-1
			1	$-1/2^1 3^1$	1
			$-1/2^1 3^1$	0	$-1/2^1 3^1$
3/2	7/2	2	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^4/5^1 7^1$	$2^3/5^1 7^1$	$2^4/3^1 5^1 7^1$
			0	-1	0
			1	$2/3^1 7^1$	-1
			$-2^3 5^1/7$	$7/2^1 3^1$	$2^2 5^1/7$
			$19/2^1 7^1$	$-5/3^1 7^1$	$-19/2^1 7^1$
			$-1/7$	0	$1/7$
3/2	7/2	4	$5\cdot7$	7	7
			$2^3/5^1 7^2$	$2^3/7^2$	$2^3/5^1 7^2$
			0	1	0
			-1	0	1
			1	$-1/2^1 3^1$	-1
			$-1/2^1 3^1$	0	$1/2^1 3^1$
5/2	1/2	2	$2\cdot3\cdot7$	7	7
			$2/5$	$3/5$	$2^2/5$
			0	-1	0
			1	$2^1 11^1/3^1 7^1$	-1
			$-2^1 5^1/7$	$-2^1 61^1/3^2 7^1$	$2^1 5^1/7$
			$2^1 19^1/3^2 7^1$	$2^2 5^1/3^2 7^1$	$-2^1 19^1/3^2 7^1$
			$-2^2/3^2 7^1$	0	$2^2/3^2 7^1$
5/2	3/2	2	3	2	2
			$2^2/5$	$3/5$	2
			0	1	0
			-1	$-2^1 11^1/3^1 7^1$	1
			$2^1 5^1/7$	$2^1 61^1/3^2 7^1$	$-2^1 5^1/7$
			$-2^1 19^1/3^2 7^1$	$-2^2 5^1/3^2 7^1$	$2^1 19^1/3^2 7^1$
			$2^2/3^2 7^1$	0	$-2^2/3^2 7^1$
5/2	3/2	4	2	$2\cdot5$	$2\cdot5$
			$2^2 17^1/3^1 5^1 7^1$	$2^1 17^1/3^1 5^1 7^1$	$2^2 17^1/3^1 5^1 7^1$
			0	-1	0
			1	$2^2/17$	-1
			$-2^2 3^1/17$	$-2/17$	$2^2 3^1/17$
			$2/17$	0	$-2/17$
5/2	5/2	0	3	0	0
			2	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/5$	0	0
			$2^2 3^1/5^1 7^1$	0	0
			$-2^2/3^2 5^1 7^1$	0	0
5/2	5/2	2	$2\cdot3\cdot7$	7	0
			$2^2/5^1 7^1$	$2^2 3^1/5^1 7^1$	0
			0	-1	0
			1	$2^2/7$	0
			$-3^1 5^1/7$	$-2^2/3^2 7^1$	0
			$2^4/3^1 7^1$	0	0
			$-2^2/3^2 7^1$	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXV. $N' = 5$ $N = 3$ Normal Parity

j'	j	J	M	Δ'	Σ
5/2	5/2	4	$2\cdot7$	$2\cdot5\cdot7$	0
			$2^4 11^1/3^1 5^1 7^2$	$2^3 11^1/3^1 5^1 7^2$	0
			0	1	0
			−1	−2/11	0
			$17/2^1 11^1$	0	0
			−1/11	0	0
5/2	7/2	2	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^5/5^1 7^1$	$2/5^1 7^1$	$2^3/3^1 5^1$
			0	1	0
			−1	$-2^3/7$	1
			$3^1 5^1/7$	$2^3/3^2 7^1$	$-3^1 5^1/7$
			$-2^4/3^1 7^1$	0	$2^4/3^1 7^1$
			$2^3/3^2 7^1$	0	$-2^3/3^2 7^1$
5/2	7/2	4	$5\cdot7\cdot11$	$7\cdot11$	$7\cdot11$
			$2^6/3^1 5^1 7^2$	$2^3/3^1 7^2$	$2^4/3^1 5^1 7^1$
			0	−1	0
			1	2/11	−1
			$-17/2^1 11^1$	0	$17/2^1 11^1$
			1/11	0	−1/11
5/2	7/2	6	11	$2\cdot3\cdot7\cdot11$	$2\cdot3\cdot7\cdot11$
			$2^6/3^1 7^1 11^1$	$2^3/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$
			0	1	0
			−1	0	1
			1/3	0	−1/3
7/2	1/2	4	$2\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^3 17^1/3^2 5^1 7^1$	$2^1 17^1/3^2 5^1 7^1$	$2^3 17^1/3^2 5^1 7^1$
			0	1	0
			−1	$-2^3/17$	−1
			$2^3 3^1/17$	2/17	$2^3 3^1/17$
			−2/17	0	−2/17
7/2	3/2	2	2	3	3
			$2^3 3^1/5$	$2^1 3^1/5$	$2^3/5$
			0	−1	0
			1	$2^1 11^1/3^1 7^1$	1
			$-2^1 5^1/7$	$-2^1 61^1/3^2 7^1$	$-2^1 5^1/7$
			$2^1 19^1/3^2 7^1$	$2^2 5^1/3^2 7^1$	$2^1 19^1/3^2 7^1$
			$-2^3/3^2 7^1$	0	$-2^3/3^2 7^1$
7/2	3/2	4	$2\cdot5$	2	2
			$2^3 17^1/3^2 5^1 7^1$	$2^1 17^1/3^2 7^1$	$2^3 17^1/3^2 5^1 7^1$
			0	1	0
			−1	$-2^3/17$	−1
			$2^3 3^1/17$	2/17	$2^3 3^1/17$
			−2/17	0	−2/17
7/2	5/2	2	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^3/5^1 7^1$	$2/5^1 7^1$	$2^3/3^1 5^1$
			0	−1	0
			1	$2^3/7$	1
			$-3^1 5^1/7$	$-2^3/3^2 7^1$	$-3^1 5^1/7$
			$2^4/3^1 7^1$	0	$2^4/3^1 7^1$
			$-2^3/3^2 7^1$	0	$-2^3/3^2 7^1$

j'	j	J	M	Δ'	Σ
7/2	5/2	4	$5\cdot7\cdot11$	$7\cdot11$	$7\cdot11$
			$2^6/3^1 5^1 7^2$	$2^3/3^1 7^2$	$2^4/3^1 5^1 7^1$
			0	1	0
			−1	−2/11	−1
			$17/2^1 11^1$	0	$17/2^1 11^1$
			−1/11	0	−1/11
7/2	5/2	6	11	$2\cdot3\cdot7\cdot11$	$2\cdot3\cdot7\cdot11$
			$2^6/3^1 7^1 11^1$	$2^3/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$
			0	−1	0
			1	0	1
			−1/3	0	−1/3
7/2	7/2	0	1	0	0
			2^3	0	0
			0	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/5$	0	0
			$2^3 3^1/5^1 7^1$	0	0
			$-2^3/3^2 5^1 7^1$	0	0
7/2	7/2	2	$3\cdot7$	$2\cdot7$	0
			$2^3/3^1 7^1$	2/7	0
			0	−1	0
			1	$2^3/7$	0
			$-3^1 5^1/7$	$-2^3/3^2 7^1$	0
			$2^4/3^1 7^1$	0	0
			$-2^3/3^2 7^1$	0	0
7/2	7/2	4	$7\cdot11$	$5\cdot7\cdot11$	0
			$2^6/5^1 7^2$	$2^3/5^1 7^2$	0
			0	1	0
			−1	−2/11	0
			$17/2^1 11^1$	0	0
			−1/11	0	0
7/2	7/2	6	$3\cdot11$	$2\cdot7\cdot11$	0
			$2^6/3^2 7^1 11^1$	$2^3/3^2 7^1 11^1$	0
			0	−1	0
			1	0	0
			−1/3	0	0
9/2	1/2	4	$5\cdot7\cdot11$	$7\cdot11$	$7\cdot11$
			$2^6/3^2 5^1 7^1$	$2^3/3^2 7^1$	$2^6/3^2 5^1 7^1$
			0	1	0
			−1	$-101/2^1 5^1 11^1$	1
			$3^1 7^1/2^3 11^1$	$7/5^1 11^1$	$-3^1 7^1/2^3 11^1$
			$-1/2^1 11^1$	0	$1/2^1 11^1$
9/2	3/2	4	$5\cdot7$	7	7
			$2^6/3^2 5^1 7^1$	$2^4/3^2 7^1$	$2^6/3^2 5^1$
			0	−1	0
			1	$101/2^1 5^1 11^1$	−1
			$-3^1 7^1/2^3 11^1$	$-7/5^1 11^1$	$3^1 7^1/2^3 11^1$
			$1/2^1 11^1$	0	$-1/2^1 11^1$
9/2	3/2	6	$2\cdot5\cdot7$	$3\cdot5$	$3\cdot5$
			$2^4/3^1 7^1 11^1$	$2^3/3^1 11^1$	$2^4/3^2 11^1$
			0	1	0
			−1	−2/5	1
			1/5	0	−1/5

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXV. $N' = 5$ $N = 3$ Normal Parity

j'	j	J	M	Δ'	Σ
9/2	5/2	2	$7 \cdot 11$ $2^3/7$	$2 \cdot 3 \cdot 7 \cdot 11$ $1/7$	$2 \cdot 3 \cdot 7 \cdot 11$ $2^3/3^1 7^1$
			0 1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$	-1 $2^1 5^1/7$ $-2^3/3^2$ $2^3/3^1 7^1 11^1$ 0	0 -1 $2^1 3^1/7$ $-2^3/3^1 7^1$ $2^3/3^2 7^1 11^1$
9/2	5/2	4	$5 \cdot 7$ $2^4 13^1/3^1 5^1 7^2$	7 $2^3 13^1/3^1 7^2$	7 $2^4 13^1/3^1 5^1 7^2$
			0 -1 $2^3/11$ $-2^3/11^1 13^1$	1 $-2^2 7^1/5^1 11^1$ $2^2 3^2/5^1 11^1 13^1$ 0	0 1 $-2^3/11$ $2^3/11^1 13^1$
9/2	5/2	6	$2 \cdot 5 \cdot 7$ $2^3/3^1 7^1 11^1$	$3 \cdot 5$ $2^3/3^2 11^1$	$3 \cdot 5$ $2^4/3^2 7^1 11^1$
			0 1 $-2/3^1 5^1$	-1 $2^1 3^1/5^1 7^1$ 0	0 -1 $2/3^1 5^1$
9/2	7/2	2	$2 \cdot 3 \cdot 7$ $2^3/3^1 7^1$	7 $2/7$	7 $2^3 3^1/7$
			0 -1 $2^1 3^1/7$ $-2^3/3^1 7^1$ $2^3/3^2 7^1 11^1$	1 $-2^1 5^1/7$ $2^3/3^2$ $-2^3/3^1 7^1 11^1$ 0	0 1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$
9/2	7/2	4	$2 \cdot 5 \cdot 7 \cdot 13$ $2^3/5^1 7^2$	$2 \cdot 7 \cdot 13$ $2/7^2$	$2 \cdot 7 \cdot 13$ $2^3 3^2/5^1 7^2$
			0 1 $-2^3/11$ $2^3/11^1 13^1$	-1 $2^2 7^1/5^1 11^1$ $-2^2 3^2/5^1 11^1 13^1$ 0	0 -1 $2^3/11$ $-2^3/11^1 13^1$
9/2	7/2	6	$2 \cdot 3 \cdot 5 \cdot 7$ $2^4/3^2 7^1 11^1$	5 $2^3/3^1 11^1$	5 $2^4/7^1 11^1$
			0 -1 $2/3^1 5^1$	1 $-2^1 3^1/5^1 7^1$ 0	0 1 $-2/3^1 5^1$
9/2	7/2	8	$5 \cdot 13$ $2^3/3^2 5^1 11^1 13^1$	$2 \cdot 5 \cdot 13$ $2^3/3^1 5^1 11^1 13^1$	$2 \cdot 5 \cdot 13$ $2^4/3^1 5^1 11^1 13^1$
			0 1	-1 0	0 -1
11/2	1/2	6	$2 \cdot 3 \cdot 7 \cdot 11$ $2^4/3^2 7^1 11^1$	11 $2^3/3^2 11^1$	11 $2^4/3^2 11^1$
			0 1 $-1/5$	-1 $2/5$ 0	0 1 $-1/5$
11/2	3/2	4	$2 \cdot 5 \cdot 7$ $2^3/3^1 5^1 7^1$	$2 \cdot 7$ $2^3/3^1 7^1$	$2 \cdot 7$ $2^4/3^1 5^1 7^1$
			0 -1 $3^1 7^1/2^3 11^1$ $-1/2^1 11^1$	1 $-101/2^1 5^1 11^1$ $7/5^1 11^1$ 0	0 -1 $3^1 7^1/2^3 11^1$ $-1/2^1 11^1$
11/2	3/2	6	$2 \cdot 3$ $2^4/3^2 11^1$	7 $2^3/3^2 11^1$	7 $2^3/3^2 7^1 11^1$
			0 1 $-1/5$	-1 $2/5$ 0	0 1 $-1/5$
11/2	5/2	4	$2 \cdot 5 \cdot 13$ $2^3/3^1 5^1 7^1$	$2 \cdot 13$ $2/3^1 7^1$	$2 \cdot 13$ $2^2 3^1/5^1 7^1$
			0 -1 $2^3/11$ $-2^3/11^1 13^1$	1 $-2^2 7^1/5^1 11^1$ $2^2 3^2/5^1 11^1 13^1$ 0	0 -1 $2^3/11$ $-2^3/11^1 13^1$
11/2	5/2	6	$3 \cdot 7$ $2^4/3^1 7^1 11^1$	2 $2^3/3^1 11^1$	2 $2^3 3^1/7^1 11^1$
			0 1 $-2/3^1 5^1$	-1 $2^1 3^1/5^1 7^1$ 0	0 1 $-2/3^1 5^1$
11/2	5/2	8	$3 \cdot 7 \cdot 11 \cdot 13$ $2^3/3^2 5^1 7^1 11^1 13^1$	$2 \cdot 3 \cdot 7 \cdot 11 \cdot 13$ $2^3/3^1 5^1 7^1 11^1 13^1$	$2 \cdot 3 \cdot 7 \cdot 11 \cdot 13$ $2^4/3^1 5^1 7^1 11^1 13^1$
			0 -1	1 0	0 -1
11/2	7/2	2	2 2^3	3 2	3 $2^3/3$
			0 1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$	-1 $2^1 5^1/7$ $-2^3/3^2$ $2^3/3^1 7^1 11^1$ 0	0 1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$
11/2	7/2	4	$2 \cdot 13$ $2^3/3^1 7^1$	$2 \cdot 5 \cdot 13$ $2/3^1 7^1$	$2 \cdot 5 \cdot 13$ $2^3/3^1 5^1 7^1$
			0 -1 $2^3/11$ $-2^3/11^1 13^1$	1 $-2^2 7^1/5^1 11^1$ $2^2 3^2/5^1 11^1 13^1$ 0	0 -1 $2^3/11$ $-2^3/11^1 13^1$
11/2	7/2	6	7 $2^3/3^1 7^1 11^1$	$2 \cdot 3$ $2^3/3^2 11^1$	$2 \cdot 3$ $2^3/3^2 7^1 11^1$
			0 1 $-2/3^1 5^1$	-1 $2^1 3^1/5^1 7^1$ 0	0 1 $-2/3^1 5^1$
11/2	7/2	8	$7 \cdot 13$ $2^4/3^1 5^1 7^1 11^1 13^1$	$2 \cdot 7 \cdot 13$ $2^3/5^1 7^1 11^1 13^1$	$2 \cdot 7 \cdot 13$ $2^3/3^1 5^1 7^1 11^1 13^1$
			0 -1	1 0	0 -1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVI. $N' = 5$ $N = 3$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	7	7	$2\cdot7$	$2\cdot7$
			$2^3/3^1 5^1$	$2^3/5$	$2/3^1 5^1$	$1/3$
			0	0	0	1
			-1	-1	1	$-2^1 3^1/5$
			$2^3/7$	$2^1 17^1/3^1 7^1$	$-2^1 13^1/7$	$17/5^1 7^1$
			$-1/7$	$-5/7$	$13/7$	$-2/5^1 7^1$
			0	$2/3^1 7^1$	$-2/7$	0
1/2	3/2	1	$2\cdot7$	$2\cdot7$	7	7
			$2/3^1 5^1$	$2^3/5$	$2^4/3^1 5^1$	$2/3$
			0	0	0	1
			1	1	1	$-3^3/5$
			$-2^3/7$	$-23/3^1 7^1$	$-19/2^1 7^1$	$29/5^1 7^1$
			$1/7$	$3/7$	$2^3/7$	$-1/7$
			0	$-1/3^1 7^1$	$-1/2^1 7^1$	0
1/2	5/2	3	1	1	3	3
			$2^4/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1$
			-1	-1	-1	-1
			2	2^3	-2^3	$1/2$
			$-1/2$	$-13/2$	$11/2$	0
			0	1	-1	0
1/2	7/2	3	3	3	1	1
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/5^1 7^1$	$2^3/5$
			1	1	1	-1
			-2	$-11/2^3$	-3	1
			$1/2$	$5/2^3$	$3/2$	$-1/2^1 3^1$
			0	$-1/2^3$	$-1/2^1 3^1$	0
3/2	1/2	1	$2\cdot7$	$2\cdot7$	7	7
			$2/3^1 5^1$	$2^3/5$	$2^4/3^1 5^1$	$2/3$
			0	0	0	-1
			-1	-1	-1	$3/5$
			$2^3/7$	$23/3^1 7^1$	$19/2^1 7^1$	$-1/7$
			$-1/7$	$-3/7$	$-2^3/7$	$-1/5^1 7^1$
			0	$1/3^1 7^1$	$1/2^1 7^1$	0
3/2	3/2	1	$2\cdot5\cdot7$	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2/3^1 5^1$	$2^3 3^1/5^3$	$2^3 7^1/3^1 5^2$	$2/3^1 5^1$
			0	0	0	1
			-1	1	1	$-2^1 3^1/5$
			$2^3/7$	$-2^4 5^1/3^2 7^1$	$-2^1 5^2/7^2$	$17/5^1 7^1$
			$-1/7$	$11/3^1 7^1$	$19/7^2$	$-2/5^1 7^1$
			0	$-2^3/3^2 7^1$	$-2/7^2$	0
3/2	3/2	3	0	$3\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			0	$2^4/3^1 5^2$	$2^3/5^2$	$2^3 11^1/5^2 7^1$
			0	1	1	-1
			0	$-3^1 5^1/7$	$-3^1 5^1/7$	$2^1 3^1/11$
			0	1	1	$-1/11$
			0	$-1/7$	$-1/7$	0
3/2	5/2	1	0	5	$2\cdot5$	$2\cdot5$
			0	$2^3/5^2$	$2^3/5^2$	$2/5$
			0	0	0	-1
			0	1	-1	$2^1 3^1/5$
			0	$-2^2 5^1/7$	$2^2 5^1/7$	$11/2^1 5^1 7^1$
			0	$19/2^1 7^1$	$-19/2^1 7^1$	$-3/5^1 7^1$
			0	$-1/7$	$1/7$	0
3/2	5/2	3	5	5	$3\cdot5$	$3\cdot5$
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^2 7^1$	$2^3/3^1 5^2 7^1$	$2^3 11^1/3^1 5^2 7^1$
			-1	-1	-1	1
			2	$5/2^3$	5	$-1/11$
			$-1/2$	$1/2^3$	$-7/2$	$-3/2^1 11^1$
			0	$-1/2^3$	$1/2$	0

j'	j	J	Δ	Σ'	Σ''	Ω'
3/2	7/2	3	1	1	3	3
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$	$2^4/5^1 7^1$
			-1	1	1	-1
			2	-3	$-2^3/3$	$5/2^1 3^1$
			$-1/2$	$3/2$	$7/2^1 3^1$	$-1/3^2$
			0	$-1/2^1 3^1$	$-1/3^2$	0
3/2	7/2	5	0	2	$3\cdot5$	$3\cdot5$
			0	$2^3/5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$
			0	-1	-1	1
			0	1	1	$-1/3$
			0	$-1/2^1 3^1$	$-1/2^1 3^1$	0
5/2	1/2	3	$2\cdot7$	$2\cdot7$	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2/5^1 7^1$	$2^3/5^1 7^1$
			-1	-1	-1	-1
			$2^3/3^2$	$2^1 7^1/3$	$-2^1 13^1/3^2$	$5/3^2$
			$-2/3^2$	$-2^1 13^1/3^2$	$2^1 11^1/3^2$	$-1/3^2$
			0	$2^3/3^2$	$-2^3/3^2$	0
5/2	3/2	1	0	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			0	$2^1 3^1/5^2$	$2^3 3^1/5^2$	$3/5$
			0	0	0	1
			0	-1	1	$-2^1 3^1/5$
			0	$2^1 5^1/7$	$-2^1 5^1/7$	$2^1 11^1/5^1 7^1$
			0	$-2^1 19^1/3^2 7^1$	$2^1 19^1/3^2 7^1$	$-2^3/3^2 5^1$
			0	$2^3/3^2 7^1$	$-2^3/3^2 7^1$	0
5/2	3/2	3	$2\cdot5\cdot7$	$2\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$	$2\cdot3\cdot5\cdot7$
			$2/5^1 7^1$	$2^4/5^2 7^1$	$2^3/5^2 7^1$	$2^1 11^1/5^2 7^1$
			1	1	1	-1
			$-2^3/3^2$	$-5/2^3 3^1$	$-5^2/3^2$	$2^6/3^2 11^1$
			$2/3^2$	$-1/3^2$	$2^1 7^1/3^2$	$-2^1 7^1/3^2 11^1$
			0	$1/2^1 3^2$	$-2/3^2$	0
5/2	5/2	1	$2\cdot5\cdot7$	$2\cdot5\cdot7$	$5\cdot7$	$5\cdot7$
			$2^3 3^1/5^1 7^1$	$2^1 3^1 11^1/5^2 7^1$	$2^1 3^2/5^2 7^1$	$3/5^1 7^1$
			0	0	0	1
			-1	-1	-1	$-2^1 3^1/5$
			$2^3/7$	$2^1 5^1/7$	$-2^1 5^1/3^1 7^1$	$2^3 3^1/5^1 7^1$
			$-2^3/3^2 7^1$	$-2^3/3^2$	$2^3 19^1/3^2 7^1$	$-2^3/3^2 5^1 7^1$
			0	$2^3/3^1 7^1 11^1$	$-2^3/3^2 7^1$	0
5/2	5/2	3	$2\cdot3\cdot5$	$2\cdot3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^3/5^1 7^1$	$2^4/5^2 7^1$	$2^3 3^1/5^2 7^1$	$2^3 11^1/5^2 7^1$
			-1	-1	-1	-1
			$13/3^2$	$5^1 7^1/3^2$	$-5/3^2$	$2^2/3^2$
			$-2/3^2$	$-19/3^2$	$2^2 7^1/3^2$	$-2^2/3^2 11^1$
			0	$2/3^2$	$-2^2/3^2$	0
5/2	5/2	5	$3\cdot5\cdot7$	$3\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^4/3^2 5^1 7^2$	$2^4/3^2 5^1 7^2$	$2^4/3^2 7^2$	$2^2 13^1/3^2 7^2$
			1	1	1	1
			$-1/2$	$-7/2$	$5/2$	$-2/13$
			0	1	-1	0
5/2	7/2	1	$2\cdot7$	$2\cdot7$	7	7
			$2^1 3^1/5^1 7^1$	$2^2 3^2/5^1 7^1$	$2^4 3^1/5^1 7^1$	$2^1 3^1/7$
			0	0	0	1
			1	1	1	$-13/5$
			$-2^3/7$	$-23/3^1 7^1$	$-19/2^1 7^1$	$2^3/7$
			$2^3/3^2 7^1$	$2^3/3^2$	$2^1 13^1/3^2 7^1$	$-2^3/5^1 7^1$
			0	$-2^3/3^2 7^1$	$-2/3^2 7^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVI. $N' = 5$ $N = 3$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	7/2	3	3 $2^3/5^1 7^1$	3 $2^6/3^1 5^1 7^1$	1 $2^3/5^1 7^1$	1 $2^3 3^2/5^1 7^1$
			1 $-13/3^2$ $2/3^2$ 0	1 $-7/2^2$ $11/2^2 3^1$ $-1/2^2 3^2$	1 $-2^2/3$ $7/2^1 3^1$ $-1/3^2$	-1 $5/2^1 3^1$ $-1/3^2$ 0
5/2	7/2	5	$2 \cdot 3 \cdot 7$ $2^4/3^2 7^2$	$2 \cdot 3 \cdot 7$ $2^6/3^1 5^1 7^2$	$5 \cdot 7$ $2^6/3^1 5^1 7^2$	$5 \cdot 7$ $2^3 3^1/5^1 7^2$
			-1 $1/2$ 0	-1 $7/2^2 3^1$ $-1/2^2 3^2$	-1 1 $-1/2^1 3^1$	1 $-1/3$ 0
7/2	1/2	3	$2 \cdot 3 \cdot 7$ $2/5^1 7^1$	$2 \cdot 3 \cdot 7$ $2^4/5^1 7^1$	$2 \cdot 7$ $2^3 3^1/5^1 7^1$	$2 \cdot 7$ $2/5^1 7^1$
			-1 $2^3/3^2$ $-2/3^2$ 0	-1 $7^2/2^2 3^2$ $-5/3^2$ $1/2^1 3^2$	-1 $41/3^2$ $-2/3$ $2/3^2$	1 $2^4/3^2$ $-2/3$ 0
7/2	3/2	3	$2 \cdot 7$ $2^1 3^1/5^1 7^1$	$2 \cdot 7$ $2^3 3^1/5^1 7^1$	$2 \cdot 3 \cdot 7$ $2^3 3^1/5^1 7^1$	$2 \cdot 3 \cdot 7$ $2^3/3^1 5^1 7^1$
			-1 $2^3/3^2$ $-2/3^2$ 0	1 $-41/3^2$ $2/3$ $-2/3^2$	1 $-2^1 53^1/3^4$ $2^1 7^1/3^2$ $-2^2/3^4$	-1 $2/3^2$ 0 0
7/2	3/2	5	0 0	7 $2^4 17^1/3^2 5^1 7^1$	$2 \cdot 3 \cdot 5 \cdot 7$ $2^2 17^1/3^2 5^1 7^1$	$2 \cdot 3 \cdot 5 \cdot 7$ $2^4/3^2 5^1 7^1$
			0 0 0	-1 $2^2 3^1/17$ $-2/17$	-1 $2^2 3^1/17$ $-2/17$	1 0 0
7/2	5/2	1	$2 \cdot 7$ $2^1 3^1/5^1 7^1$	$2 \cdot 7$ $2^2 3^2/5^1 7^1$	7 $2^4 3^1/5^1 7^1$	7 $2^1 3^1/7$
			0 -1 $2^3/7$ $-2^2/3^2 7^1$ 0	0 -1 $23/3^1 7^1$ $-2^2/3^2$ $2^2/3^2 7^1$	0 -1 $19/2^1 7^1$ $-2^1 13^1/3^2 7^1$ $2/3^2 7^1$	-1 $-1/5$ $2^4/5^1 7^1$ $-2^2/3^2 7^1$ 0
7/2	5/2	3	3 $2^3/5^1 7^1$	3 $2^6/3^1 5^1 7^1$	1 $2^3/5^1 7^1$	1 $2^4/5^1 7^1$
			-1 $13/3^2$ $-2/3^2$ 0	-1 $7/2^2$ $-11/2^2 3^1$ $1/2^2 3^2$	-1 $2^2/3$ $-7/2^1 3^1$ $1/3^2$	1 $47/2^2 3^2$ $-5/2^1 3^2$ 0
7/2	7/2	3	11 $2^3/5^1 7^1$	11 $2^4/5^1 7^1$	$3 \cdot 11$ $2^3/5^1 7^1$	$3 \cdot 11$ $2^2/5^1 7^1$
			-1 $13/3^2$ $-2/3^2$ 0	1 $-7/3$ $2^1 5^1/11$ $-2^2/3^2 11^1$	1 $-17/3^2$ $2^2 7^1/3^2 11^1$ $-2^2/3^2 11^1$	-1 $2^2/3^2$ $-2^2/3^2 11^1$ 0
7/2	7/2	5	$2 \cdot 5 \cdot 7 \cdot 13$ $2^4/3^2 5^1 7^2$	$2 \cdot 5 \cdot 7 \cdot 13$ $2^6/3^1 5^1 7^2$	$3 \cdot 7 \cdot 13$ $2^6/3^2 7^2$	$3 \cdot 7 \cdot 13$ $2^2/3^2 7^2$
			1 $-1/2$ 0	-1 $3^1 7^1/2^1 13^1$ $-2^2/3^1 13^1$	-1 $19/2^1 13^1$ $-1/13$	1 $-2/13$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVI. $N' = 5$ $N = 3$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	7/2	7	0	$2\cdot3\cdot7\cdot11\cdot13$	$3\cdot11\cdot13$	$3\cdot11\cdot13$
			0	$2^6/3^2 7^1 11^1 13^1$	$2^5/3^2 11^1 13^1$	$2^4/3^2 11^1 13^1$
			0	1	1	−1
			0	−1/3	−1/3	0
9/2	1/2	5	$2\cdot3\cdot7\cdot11$	$2\cdot3\cdot7\cdot11$	$5\cdot7\cdot11$	$5\cdot7\cdot11$
			$2^6/3^2 5^1 7^1 11^1$	$2^5/3^2 5^1 7^1 11^1$	$2^5/3^2 5^1 7^1 11^1$	$2^3 19^1/3^2 5^1 7^1 11^1$
			1	1	1	1
			$-1/2^2$	$-11/2^2$	$3^2/2^2$	$-2^1 3^1/19$
			0	1/2	−1/2	0
9/2	3/2	3	0	$5\cdot7\cdot11$	$3\cdot5\cdot7\cdot11$	$3\cdot5\cdot7\cdot11$
			0	$2^6/3^2 5^1 7^1$	$2^6/3^2 5^1 7^1$	$2^5/3^1 5^1 7^1$
			0	0	0	−1
			0	1	−1	$13/2^1 3^2$
			0	$-3^1 7^1/2^2 11^1$	$3^1 7^1/2^2 11^1$	−1/11
			0	$1/2^1 11^1$	$-1/2^1 11^1$	0
9/2	3/2	5	$7\cdot11$	$7\cdot11$	$2\cdot3\cdot5\cdot7\cdot11$	$2\cdot3\cdot5\cdot7\cdot11$
			$2^6/3^1 5^1 7^1 11^1$	$2^7/3^2 5^1 7^1 11^1$	$2^6/3^2 5^1 7^1 11^1$	$2^3 31^1/3^2 5^1 7^1 11^1$
			−1	−1	−1	1
			$1/2^2$	$-3/2^2$	3/2	$-3^1/31$
			0	$1/2^2$	$-1/2^2$	0
9/2	5/2	3	$3\cdot5$	$3\cdot5$	5	5
			$2^2/7$	$2^2/3^1 7^1$	$2^2/7$	$2^2/5^1 7^1$
			−1	−1	−1	−1
			$2^2/3^2$	$2^2/5$	$-2/3^1 5^1$	$2^2/3^2$
			$-2^2/3^2 11^1$	$-2^2 19^1/3^1 5^1 11^1$	$2^2 7^1/3^1 5^1 11^1$	$-2^2/3^2 11^1$
			0	$2^4/3^2 5^1 11^1$	$-2^4/3^2 5^1 11^1$	0
9/2	5/2	5	$2\cdot3\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	$5\cdot11\cdot13$	$5\cdot11\cdot13$
			$2^2/3^2 5^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^2/3^2 5^1 7^1 11^1$
			1	1	1	1
			−2/13	$-2^1 23^1/3^1 13^1$	$2^2/13$	−2/13
			0	$2^4/3^2 13^1$	$-2^2/3^1 13^1$	0
9/2	5/2	7	13	13	$2\cdot7\cdot13$	$2\cdot7\cdot13$
			$2^2/3^1 7^1 11^1 13^1$	$2^6/3^1 7^1 11^1 13^1$	$2^2/3^1 7^1 11^1 13^1$	$2^4/3^1 7^1 11^1 13^1$
			−1	−1	−1	−1
			0	2	−2	0
9/2	7/2	1	0	$3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			0	$2^2/3^1 5^1$	$2^2/3^1 5^1$	1/3
			0	0	0	1
			0	−1	1	$-2^1 3^1/5$
			0	$2^1 3^1/7$	$-2^1 3^1/7$	$2^2 3^1/5^1 7^1$
			0	$-2^2/3^1 7^1$	$2^2/3^1 7^1$	$-2^2/3^2 5^1 7^1$
			0	$2^2/3^2 7^1 11^1$	$-2^2/3^2 7^1 11^1$	0
9/2	7/2	3	$2\cdot5$	$2\cdot5$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			2/7	$2^4/5^1 7^1$	$2^2/5^1 7^1$	$2^1 11^1/5^1 7^1$
			1	1	1	−1
			$-2^2/3^2$	$-1/2^2 3^1$	$-17/3^2$	$2^2/3^2$
			$2^2/3^2 11^1$	−1/11	$2^2 7^1/3^2 11^1$	$-2^2/3^2 11^1$
			0	$1/3^2 11^1$	$-2^2/3^2 11^1$	0
9/2	7/2	5	$11\cdot13$	$11\cdot13$	$2\cdot3\cdot5\cdot11\cdot13$	$2\cdot3\cdot5\cdot11\cdot13$
			$2^4/3^2 5^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^4/3^2 5^1 7^1 11^1$	$2^2/3^2 5^1 7^1$
			−1	−1	−1	1
			2/13	$3/2^2 13^1$	$19/2^1 13^1$	−2/13
			0	$1/2^1 3^1 13^1$	−1/13	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVI. N' = 5 N = 3 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	7/2	7	$2\cdot3\cdot13$ $2^3/7^1 11^1 13^1$	$2\cdot3\cdot13$ $2^7/3^2 7^1 11^1 13^1$	$3\cdot7\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$3\cdot7\cdot13$ $2^4/3^2 7^1 13^1$
			1 0	1 $1/2^2 3^1$	1 $-1/3$	-1 0
11/2	1/2	5	$5\cdot7\cdot11$ $2^6/3^2 5^1 7^1 11^1$	$5\cdot7\cdot11$ $2^7/3^1 5^1 7^1 11^1$	$2\cdot3\cdot7\cdot11$ $2^6/3^2 7^1 11^1$	$2\cdot3\cdot7\cdot11$ $2^2 5^1/3^2 7^1 11^1$
			1 $-1/2^2$ 0	1 $-11/2^2 3^1$ $1/2^2 3^1$	1 $-1/2$ $1/2^2 5^1$	1 $-1/5$ 0
11/2	3/2	5	$7\cdot11\cdot13$ $2^6/3^2 5^1 7^1 11^1$	$7\cdot11\cdot13$ $2^6/3^1 5^1 7^1 11^1$	$2\cdot3\cdot5\cdot7\cdot11\cdot13$ $2^6/3^2 5^1 7^1 11^1$	$2\cdot3\cdot5\cdot7\cdot11\cdot13$ $2^3/3^2 5^1 7^1 11^1$
			1 $-1/2^2$ 0	-1 $79/2^2 3^1 13^1$ $-2/3^1 13^1$	-1 $23/2^2 13^1$ $-1/2^1 13^1$	-1 $2/13$ 0
11/2	3/2	7	0 0	$7\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$2\cdot11\cdot13$ $2^4/3^1 11^1 13^1$	$2\cdot11\cdot13$ $2^3/3^1 5^1 11^1 13^1$
			0 0	1 $-1/5$	1 $-1/5$	1 0
11/2	5/2	3	$2\cdot3$ $2/7$	$2\cdot3$ $2^4/7$	2 $2^2 3^1/7$	2 2
			-1 $2^3/3^2$ $-2^3/3^2 11^1$ 0	-1 $29/2^2 3^2$ $-17/3^2 11^1$ $1/3^2 11^1$	-1 $5^2/3^2$ $-2^6/3^2 11^1$ $2^3/3^2 11^1$	-1 $2^2/3^2$ $-2^2/3^2 11^1$ 0
11/2	5/2	5	$2\cdot3\cdot7\cdot11\cdot13$ $2^4/3^2 5^1 7^1 11^1$	$2\cdot3\cdot7\cdot11\cdot13$ $2^6/3^2 5^1 7^1 11^1$	$5\cdot7\cdot11\cdot13$ $2^6/3^2 5^1 7^1 11^1$	$5\cdot7\cdot11\cdot13$ $2^2/3^2 5^1 11^1$
			1 $-2/13$ 0	1 $-31/2^2 13^1$ $1/2^2 13^1$	1 $-23/2^2 13^1$ $1/2^1 13^1$	1 $-2/13$ 0
11/2	5/2	7	$2\cdot13$ $2^2 5^1/3^1 7^1 11^1 13^1$	$2\cdot13$ $2^7/3^1 7^1 11^1 13^1$	$7\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$7\cdot13$ $2^4/3^1 5^1 11^1 13^1$
			-1 0	$-1-1$ $3/2^2 5^1$	-1 $1/5$	0
11/2	7/2	3	$2\cdot3\cdot13$ $2/7$	$2\cdot3\cdot13$ $2^2/3^1 7^1$	$2\cdot13$ $2^2/7$	0 0
			-1 $2^3/3^2$ $-2^3/3^2 11^1$ 0	1 -1 $2^2/3^1 11^1$ $-2^2 5^1/3^2 11^1 13^1$	1 $-2/3$ $2^2/3^1 11^1$ $-2^2/3^2 11^1 13^1$	0 0 0 0
11/2	7/2	5	$3\cdot5\cdot7\cdot11\cdot13$ $2^4/3^2 5^1 7^1 11^1$	$3\cdot5\cdot7\cdot11\cdot13$ $2^4/3^1 5^1 7^1 11^1$	$2\cdot7\cdot11\cdot13$ $2^2/3^1 7^1 11^1$	0 0
			1 $-2/13$ 0	-1 $2^4/3^1 13^1$ $-2^2/3^2 13^1$	-1 $2^2/13$ $-2^2/3^1 5^1 13^1$	0 0 0
11/2	7/2	7	$2\cdot13\cdot17$ $2^2/3^1 7^1 11^1 13^1$	$2\cdot13\cdot17$ $2^6/3^1 7^1 11^1 13^1$	$7\cdot13\cdot17$ $2^2/3^1 7^1 11^1 13^1$	0 0
			-1 0	1 $-5/2^1 17^1$	1 $-2/17$	0 0
11/2	7/2	9	0 0	$2\cdot5\cdot11\cdot13\cdot17$ $2^6/3^2 5^1 11^1 13^1 17^1$	$11\cdot13\cdot17$ $2^2/3^1 5^1 11^1 13^1 17^1$	0 0
			0	-1	-1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVII. $N' = 5$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	1	7	$2\cdot7$	$2\cdot7$
			$2/3$	$1/2^1 3^1$	$2/3$
			0	1	0
			-1	$-2^3/5$	1
			$2^3 3^1/5$	$2^3 3^1/5^1 7^1$	$-2^3 3^1/5$
			$-2^3 17^1/5^1 7^1$	$-2^3 3^1/5^1 7^1$	$2^3 17^1/5^1 7^1$
			$2^3/7$	$2/5^1 7^1$	$-2^3/7$
			$-2/5^1 7^1$	0	$2/5^1 7^1$
1/2	3/2	1	2	1	1
			$2^3/3$	$2/3$	$2^3/3$
			0	-1	0
			1	-1	1
			-3	$2^1 3^3/5^1 7^1$	-3
			$2^4/7$	$-3^3/5^1 7^1$	$2^4/7$
			$-23/5^1 7^1$	$2^3/5^1 7^1$	$-23/5^1 7^1$
			$2/5^1 7^1$	0	$2/5^1 7^1$
1/2	5/2	3	3	1	1
			$2^3/3^1 7^1$	$2^4/3^1 7^1$	$2^3/3^1 7^1$
			0	-1	0
			1	$-1/2^3 5^1$	-1
			$-5/2^3$	$3/2^3 5^1$	$5/2^3$
			$3^3/2^3 5^1$	$-1/2^3 5^1$	$-3^3/2^3 5^1$
			$-1/2^3 5^1$	0	$1/2^3 5^1$
1/2	7/2	3	2	$2\cdot3$	$2\cdot3$
			$2^4 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$
			0	1	0
			-1	$2^3/3$	-1
			$13/3^3$	$-23/2^1 3^3$	$13/3^3$
			$-5^3/2^1 3^3$	$1/2^1 3^1$	$-5^3/2^1 3^3$
			$1/3^3$	0	$1/3^3$
1/2	9/2	5	$2\cdot5$	3	3
			$2^3/3^1 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			-1	$2/3$	1
			$2/3$	$-1/2^3$	$-2/3$
			$-1/2^3 3^1$	0	$1/2^3 3^1$
3/2	1/2	1	$2\cdot7$	7	7
			$2/3$	$1/3$	$2/3$
			0	-1	0
			1	$2^3/5$	1
			$-2^3 3^1/5$	$-2^3 3^3/5^1 7^1$	$-2^3 3^1/5$
			$2^3 17^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^3 17^1/5^1 7^1$
			$-2^3/7$	$-2/5^1 7^1$	$-2^3/7$
			$2/5^1 7^1$	0	$2/5^1 7^1$
3/2	3/2	1	$2\cdot5$	5	5
			$2^3/3^1 5^1$	$2/3^1 5^1$	$2^4/3^1 5^1$
			0	-1	0
			1	-1	1
			-3	$2^1 3^3/5^1 7^1$	-3
			$2^4/7$	$-3^3/5^1 7^1$	$2^4/7$
			$-23/5^1 7^1$	$2^3/5^1 7^1$	$-23/5^1 7^1$
			$2/5^1 7^1$	0	$2/5^1 7^1$
3/2	3/2	3	$2\cdot5$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2^3/5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			-1	$1/2^3 5^1$	1
			$5/2^3$	$-3/2^3 5^1$	$5/2^3$
			$-3^3/2^3 5^1$	$1/2^3 5^1$	$-3^3/2^3 5^1$
			$1/2^3 5^1$	0	$1/2^3 5^1$
3/2	5/2	1	$2\cdot5$	5	5
			$2^3/5$	$2/5$	$2^3/5$
			0	-1	0
			1	-1	-1
			-3	$2^1 3^3/5^1 7^1$	3
			$2^4/7$	$-3^3/5^1 7^1$	$-2^4/7$
			$-23/5^1 7^1$	$2^3/5^1 7^1$	$23/5^1 7^1$
			$2/5^1 7^1$	0	$-2/5^1 7^1$
3/2	5/2	3	$3\cdot5$	5	5
			$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			-1	$1/2^3 5^1$	1
			$5/2^3$	$-3/2^3 5^1$	$-5/2^3$
			$-3^3/2^3 5^1$	$1/2^3 5^1$	$3^3/2^3 5^1$
			$1/2^3 5^1$	0	$-1/2^3 5^1$
3/2	7/2	3	$2\cdot3$	2	2
			$2^4/5^1 7^1$	$2^3/5^1 7^1$	$2^4 3^1/5^1 7^1$
			0	1	0
			-1	$2^3/3$	-1
			$13/3^3$	$-23/2^1 3^3$	$13/3^3$
			$-5^3/2^1 3^3$	$1/2^1 3^1$	$-5^3/2^1 3^3$
			$1/3^3$	0	$1/3^3$
3/2	7/2	5	$2\cdot3\cdot5$	1	1
			$2^4/3^3 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^7/3^1 5^1 7^1$
			0	-1	0
			1	$-2/3$	1
			$-2/3$	$1/2^3$	$-2/3$
			$1/2^3 3^1$	0	$1/2^3 3^1$
3/2	9/2	3	$2\cdot3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^4/5^1 7^1$	$2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$
			0	1	0
			-1	$2^3/3$	1
			$13/3^3$	$-23/2^1 3^3$	$-13/3^3$
			$-5^3/2^1 3^3$	$1/2^1 3^1$	$5^3/2^1 3^3$
			$1/3^3$	0	$-1/3^3$
3/2	9/2	5	$3\cdot5$	2	2
			$2^3/3^3 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	-1	0
			1	$-2/3$	-1
			$-2/3$	$1/2^3$	$2/3$
			$1/2^3 3^1$	0	$-1/2^3 3^1$
5/2	1/2	3	$3\cdot7$	7	7
			$2^3 3^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^4 3^1/5^1 7^1$
			0	-1	0
			1	$13/3^3$	-1
			$-29/3^3$	$-2/3$	$29/3^3$
			$2^1 5^1/3^3$	$1/3^3$	$-2^1 5^1/3^3$
			$-1/3^3$	0	$1/3^3$
5/2	3/2	1	$2\cdot5$	5	5
			$2^1 3^1/5$	$3/5$	$2^1 3^1/5$
			0	-1	0
			1	2	-1
			-2	$-2^1 3^1 11^1/5^1 7^1$	2
			$2^1 5^1/7$	$2^3 29^1/3^3 5^1 7^1$	$-2^1 5^1/7$
			$-2^4/3^3 5^1$	$-2^3/3^1 5^1 7^1$	$2^4/3^3 5^1$
			$2^3/3^3 5^1 7^1$	0	$-2^3/3^3 5^1 7^1$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVII. $N' = 5$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
5/2	3/2	3	$3\cdot5$ $2^3 3^1/5^1 7^1$	5 $2^3 3^1/5^1 7^1$	5 $2^3 3^1/5^1 7^1$
			0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^3/3^3 5^1$	1 $-37/3^3 5^1$ $2^4/3^3 5^1$ $-2/3^3 5^1$ 0	0 1 $-2^2 7^1/3^3$ $2^1 23^1/3^3 5^1$ $-2^2/3^3 5^1$
5/2	5/2	1	$5\cdot7$ $2^1 3^1/5^1 7^1$	$2\cdot5\cdot7$ $3/2^1 5^1 7^1$	$2\cdot5\cdot7$ $2^1 3^2/5^1 7^1$
			0 −1 2 $-2^1 5^1/7$ $2^4/3^3 5^1$ $-2^3/3^3 5^1 7^1$	1 −2 $2^1 3^1 11^1/5^1 7^1$ $-2^3 29^1/3^3 5^1 7^1$ $2^3/3^1 5^1 7^1$ 0	0 1 −2 $2^1 5^1/7$ $-2^4/3^3 5^1$ $2^3/3^3 5^1 7^1$
5/2	5/2	3	$2\cdot5$ $2^3 3^1/5^1 7^1$	$2\cdot3\cdot5$ $2^3/5^1 7^1$	$2\cdot3\cdot5$ $2^3 3^1/5^1 7^1$
			0 1 $-2^2 7^1/3^3$ $2^1 23^1/3^3 5^1$ $-2^3/3^3 5^1$	−1 $37/3^3 5^1$ $-2^4/3^3 5^1$ $2/3^3 5^1$ 0	0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^3/3^3 5^1$
5/2	5/2	5	$2\cdot7$ $2^3 5^1/3^3 7^2$	$3\cdot5\cdot7$ $2^2 5^1/3^3 7^2$	$3\cdot5\cdot7$ $2^4 5^1/3^3 7^2$
			0 −1 $2^1 7^1/5^2$ $-2/5^2$	1 −2/5 $2/5^2$ 0	0 1 $-2^1 7^1/5^2$ $2/5^2$
5/2	7/2	1	$2\cdot7$ $2^3/7$	7 $2/7$	7 $2^3/7$
			0 1 −17/5 $2^1 3^1 13^1/5^1 7^1$ $-2^2/3^2$ $2^3/3^2 5^1 7^1$	−1 −11/5 $2^4 3^2/5^1 7^1$ $-2^3 103^1/3^2 5^1 7^1$ $2^6/3^2 5^1 7^1$ 0	0 1 −17/5 $2^1 3^1 13^1/5^1 7^1$ $-2^2/3^2$ $2^3/3^2 5^1 7^1$
5/2	7/2	3	2 $2^4 11^1/3^1 5^1 7^1$	$2\cdot3$ $2^3 11^1/3^2 5^1 7^1$	$2\cdot3$ $2^3 11^1/3^2 5^1 7^1$
			0 −1 $7/2^1 3^1$ $-2^1 5^1/3^1 11^1$ $2/3^2 11^1$	1 $-1/2$ $-13/3^1 11^1$ $2^2/3^2 11^1$ 0	0 −1 $7/2^1 3^1$ $-2^1 5^1/3^1 11^1$ $2/3^2 11^1$
5/2	7/2	5	$2\cdot5\cdot7$ $2^4 13^1/3^2 5^1 7^2$	$3\cdot7$ $2^3 13^1/3^2 5^1 7^2$	$3\cdot7$ $2^4 13^1/3^2 5^1 7^2$
			0 1 −7/13 $2/3^1 13^1$	−1 $-11/3^1 13^1$ $2^3/3^2 13^1$ 0	0 1 −7/13 $2/3^1 13^1$
5/2	9/2	3	$5\cdot11$ $2^4/3^1 5^1 7^1$	$3\cdot5\cdot11$ $2^3/3^2 5^1 7^1$	$3\cdot5\cdot11$ $2^3/3^2 5^1 7^1$
			0 1 $-7/2^1 3^1$ $2^1 5^1/3^1 11^1$ $-2/3^2 11^1$	−1 $-1/2$ $13/3^1 11^1$ $-2^2/3^2 11^1$ 0	0 −1 $7/2^1 3^1$ $-2^1 5^1/3^1 11^1$ $2/3^2 11^1$
5/2	9/2	5	$5\cdot13$ $2^3/3^2 5^1 7^1$	$2\cdot3\cdot13$ $2^3/3^2 5^1 7^1$	$2\cdot3\cdot13$ $2^7/3^2 5^1 7^1$
			0 −1 7/13 $-2/3^1 13^1$	1 $11/3^1 13^1$ $-2^3/3^2 13^1$ 0	0 1 −7/13 $2/3^1 13^1$
5/2	9/2	7	$2\cdot7\cdot11\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$11\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$11\cdot13$ $2^6/3^2 7^1 11^1 13^1$
			0 1 $-1/2^2$	−1 $-1/2^2$ 0	0 −1 $1/2^2$
7/2	1/2	3	7 $2^4 3^1/5^1 7^1$	$3\cdot7$ $2^3/5^1 7^1$	$3\cdot7$ $2^3 3^1/5^1 7^1$
			0 −1 29/3^3 $-2^1 5^1/3^3$ $1/3^3$	1 $-13/3^2$ 2/3 $-1/3^2$ 0	0 −1 29/3^3 $-2^1 5^1/3^3$ $1/3^3$
7/2	3/2	3	3 $2^3/7$	1 $2^2/7$	1 $2^3 3^1/7$
			0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^3/3^3 5^1$	1 $-37/3^2 5^1$ $2^4/3^2 5^1$ $-2/3^2 5^1$ 0	0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^2/3^2 5^1$
7/2	3/2	5	$3\cdot5$ $2^4 5^1/3^3 7^1$	2 $2^2 5^1/3^2 7^1$	2 $2^4 5^1/3^2 7^1$
			0 1 $-2^1 7^1/5^2$ $2/5^2$	−1 2/5 $-2/5^2$ 0	0 1 $-2^1 7^1/5^2$ $2/5^2$
7/2	5/2	1	7 $2^2 3^1/7$	$2\cdot7$ 3/7	$2\cdot7$ $2^1 3^1/7$
			0 1 −2 $2^1 5^1/7$ $-2^4/3^3 5^1$ $2^3/3^3 5^1 7^1$	−1 2 $-2^1 3^1 11^1/5^1 7^1$ $2^3 29^1/3^2 5^1 7^1$ $-2^3/3^1 5^1 7^1$ 0	0 1 −2 $2^1 5^1/7$ $-2^4/3^2 5^1$ $2^3/3^2 5^1 7^1$
7/2	5/2	3	1 $2^3 3^1/7$	3 $2^2/7$	3 $2^2/7$
			0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^3/3^3 5^1$	1 $-37/3^2 5^1$ $2^4/3^2 5^1$ $-2/3^2 5^1$ 0	0 −1 $2^2 7^1/3^3$ $-2^1 23^1/3^3 5^1$ $2^2/3^2 5^1$
7/2	5/2	5	$5\cdot7$ $2^4 5^1/3^3 7^2$	$2\cdot3\cdot7$ $2^2 5^1/3^3 7^2$	$2\cdot3\cdot7$ $2^4 5^1/3^3 7^2$
			0 1 $-2^1 7^1/5^2$ $2/5^2$	−1 2/5 $-2/5^2$ 0	0 1 $-2^1 7^1/5^2$ $2/5^2$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVII. N' = 5 N = 4 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	7/2	1	$2\cdot3\cdot7$	$3\cdot7$	$3\cdot7$
			$2^3/3^3 7^1$	$2/3^3 7^1$	$2^3/3^3 7^1$
			0	−1	0
			1	−11/5	1
			−17/5	$2^4 3^3/5^1 7^1$	−17/5
			$2^1 3^1 13^1/5^1 7^1$	$-2^3 103^1/3^3 5^1 7^1$	$2^1 3^1 13^1/5^1 7^1$
			$-2^3/3^3$	$2^3/3^3 5^1 7^1$	$-2^3/3^3$
			$2^4/3^3 5^1 7^1$	0	$2^3/3^3 5^1 7^1$
7/2	7/2	3	$2\cdot3\cdot11$	$2\cdot11$	$2\cdot11$
			$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			−1	1/2	−1
			$7/2^1 3^1$	$-13/3^1 11^1$	$7/2^1 3^1$
			$-2^1 5^1/3^1 11^1$	$2^3/3^3 11^1$	$-2^1 5^1/3^1 11^1$
			$2/3^3 11^1$	0	$2/3^3 11^1$
7/2	7/2	5	$2\cdot3\cdot7\cdot13$	$5\cdot7\cdot13$	$5\cdot7\cdot13$
			$2^4/3^3 7^3$	$2^3/3^1 5^1 7^3$	$2^7/3^3 5^1 7^3$
			0	−1	0
			1	$-11/3^1 13^1$	1
			−7/13	$2^3/3^3 13^1$	−7/13
			$2/3^1 13^1$	0	$2/3^1 13^1$
7/2	7/2	7	$2\cdot3\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$
			$2^7/3^4 11^1 13^1$	$2^7/3^4 7^1 11^1 13^1$	$2^3/3^4 7^1 11^1 13^1$
			0	1	0
			−1	$1/2^3$	−1
			$1/2^3$	0	$1/2^3$
7/2	9/2	1	$2\cdot3\cdot5$	$3\cdot5$	$3\cdot5$
			$2^3/3^3$	$2/3^3$	$2^3/3^3$
			0	−1	0
			1	−11/5	−1
			−17/5	$2^4 3^3/5^1 7^1$	17/5
			$2^1 3^1 13^1/5^1 7^1$	$-2^3 103^1/3^3 5^1 7^1$	$-2^1 3^1 13^1/5^1 7^1$
			$-2^3/3^3$	$2^3/3^3 5^1 7^1$	$2^3/3^3$
			$2^3/3^3 5^1 7^1$	0	$-2^3/3^3 5^1 7^1$
7/2	9/2	3	$2\cdot3\cdot5\cdot11$	$2\cdot5\cdot11$	$2\cdot5\cdot11$
			$2^4/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^3/3^1 5^1 7^1$
			0	1	0
			−1	1/2	−1
			$7/2^1 3^1$	$-13/3^1 11^1$	$-7/2^1 3^1$
			$-2^1 5^1/3^1 11^1$	$2^3/3^3 11^1$	$2^1 5^1/3^1 11^1$
			$2/3^3 11^1$	0	$-2/3^3 11^1$
7/2	9/2	5	$2\cdot3\cdot5\cdot13$	13	13
			$2^4/3^3 5^1 7^1$	$2^3/3^1 5^1 7^1$	$2^4/3^3 5^1 7^1$
			0	−1	0
			1	$-11/3^1 13^1$	−1
			−7/13	$2^3/3^3 13^1$	7/13
			$2/3^1 13^1$	0	$-2/3^1 13^1$
7/2	9/2	7	$3\cdot7\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$
			$2^3/3^4 7^1 11^1 13^1$	$2^7/3^4 7^1 11^1 13^1$	$2^3/3^4 7^1 11^1 13^1$
			0	1	0
			−1	$1/2^3$	1
			$1/2^3$	0	$-1/2^3$
9/2	1/2	5	$2\cdot5\cdot7\cdot11$	$3\cdot7\cdot11$	$3\cdot7\cdot11$
			$2^4/3^3 7^1 11^1$	$2^4/3^3 7^1 11^1$	$2^3/3^3 7^1 11^1$
			0	1	0
			−1	−3/2	1
			1/2	$1/2^3$	$-1/2$
			$-1/2^3 5^1$	0	$1/2^3 5^1$
9/2	3/2	3	$2\cdot3\cdot5\cdot11$	$2\cdot5\cdot11$	$2\cdot5\cdot11$
			$2^3/5^1 7^1$	$2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$
			0	1	0
			−1	$-23/3^3$	1
			$5^3/3^3$	$2^1 47^1/3^3 11^1$	$-5^3/3^3$
			$-2^3/3^3 11^1$	$-2^3/3^3 11^1$	$2^3/3^3 11^1$
			$2^3/3^3 11^1$	0	$-2^3/3^3 11^1$
9/2	3/2	5	$3\cdot5\cdot11$	$2\cdot11$	$2\cdot11$
			$2^6 13^1/3^3 5^1 7^1 11^1$	$2^4 13^1/3^3 5^1 7^1 11^1$	$2^3 13^1/3^3 5^1 7^1 11^1$
			0	−1	0
			1	$61/2^3 13^1$	−1
			$-23/2^3 13^1$	−2/13	$23/2^3 13^1$
			$1/2^1 13^1$	0	$-1/2^1 13^1$
9/2	5/2	3	5	$3\cdot5$	$3\cdot5$
			$2^3 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2^4/5^1 7^1$
			0	−1	0
			1	$23/3^3$	−1
			$-5^3/3^3$	$-2^1 47^1/3^3 11^1$	$5^3/3^3$
			$2^4/3^3 11^1$	$2^3/3^3 11^1$	$-2^4/3^3 11^1$
			$-2^3/3^3 11^1$	0	$2^3/3^3 11^1$
9/2	5/2	5	$5\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$
			$2^7/3^3 5^1 7^1 11^1$	$2^3/3^3 5^1 7^1 11^1$	$2^3/3^3 5^1 7^1 11^1$
			0	1	0
			−1	$-61/2^3 13^1$	1
			$23/2^3 13^1$	2/13	$-23/2^3 13^1$
			$-1/2^1 13^1$	0	$1/2^1 13^1$
9/2	5/2	7	$2\cdot7\cdot13$	13	13
			$2^4 5^1/3^1 7^1 11^1 13^1$	$2^4 5^1/3^1 7^1 11^1 13^1$	$2^6 5^1/3^1 7^1 11^1 13^1$
			0	−1	0
			1	3/5	−1
			−1/5	0	1/5
9/2	7/2	1	$3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			$2^4/3^3$	$1/3^3$	$2/3^3$
			0	−1	0
			1	$2^4/5$	−1
			$-2^3/5$	$-2^3 3^3/5^1 7^1$	$2^3/5$
			$2^6 3^1/5^1 7^1$	$2^7/3^3 5^1 7^1$	$-2^6 3^1/5^1 7^1$
			$-2^4/3^3 5^1 7^1$	$-2^4/3^3 7^1 11^1$	$2^4/3^3 5^1 7^1$
			$2^4/3^3 5^1 7^1 11^1$	0	$-2^4/3^3 5^1 7^1 11^1$
9/2	7/2	3	$3\cdot5$	5	5
			$2^3 13^1/3^1 5^1 7^1$	$2^3 13^1/3^1 5^1 7^1$	$2^3 13^1/3^1 5^1 7^1$
			0	1	0
			−1	−1	1
			2/3	$2^3/3^1 11^1$	−2/3
			$-2^3/3^1 11^1$	$-2^3 5^1/3^3 11^1 13^1$	$2^3/3^1 11^1$
			$2^3/3^3 11^1 13^1$	0	$-2^3/3^3 11^1 13^1$
9/2	7/2	5	$3\cdot5\cdot11\cdot13$	$2\cdot11\cdot13$	$2\cdot11\cdot13$
			$2^4/3^3 7^1 11^1$	$2^3/3^1 7^1 11^1$	$2^3/3^3 7^1 11^1$
			0	−1	0
			1	$2^4/3^1 13^1$	−1
			$-2^3/13$	$-2^3/3^3 13^1$	$2^3/13$
			$2^3/3^1 5^1 13^1$	0	$-2^3/3^1 5^1 13^1$
9/2	7/2	7	$2\cdot3\cdot7\cdot13$	$3\cdot13$	$3\cdot13$
			$2^4 17^1/3^4 7^1 11^1 13^1$	$2^4 17^1/3^4 7^1 11^1 13^1$	$2^4 17^1/3^4 7^1 11^1 13^1$
			0	1	0
			−1	$-5/2^1 17^1$	1
			2/17	0	−2/17

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVII. $N' = 5$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
9/2	9/2	1	$3\cdot5$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2/3^2$	$1/2^1 3^2$	$2^1 5^1/3^2$
			0	1	0
			−1	$-2^2/5$	1
			$2^2/5$	$2^2 3^2/5^1 7^1$	$-2^2/5$
			$-2^2 3^1/5^1 7^1$	$-2^7/3^2 5^1 7^1$	$2^2 3^1/5^1 7^1$
			$2^6/3^2 5^1 7^1$	$2^4/3^2 7^1 11^1$	$-2^5/3^2 5^1 7^1$
			$-2^4/3^2 5^1 7^1 11^1$	0	$2^4/3^2 5^1 7^1 11^1$
9/2	9/2	3	$2\cdot3\cdot5\cdot13$	$2\cdot5\cdot13$	$2\cdot5\cdot13$
			$2^2/3^1 5^1 7^1$	$2^2/3^1 5^1 7^1$	$2^2/3^1 7^1$
			0	−1	0
			1	1	−1
			−2/3	$-2^2/3^1 11^1$	2/3
			$2^2/3^1 11^1$	$2^2 5^1/3^2 11^1 13^1$	$-2^2/3^1 11^1$
			$-2^2/3^2 11^1 13^1$	0	$2^2/3^2 11^1 13^1$
9/2	9/2	5	$2\cdot3\cdot5\cdot11\cdot13$	$11\cdot13$	$11\cdot13$
			$2^2/3^2 7^1 11^1$	$2^2/3^1 7^1 11^1$	$2^4 5^1/3^2 7^1 11^1$
			0	1	0
			−1	$-2^4/3^1 13^1$	1
			$2^2/13$	$2^2/3^2 13^1$	$-2^2/13$
			$-2^2/3^1 5^1 13^1$	0	$2^2/3^1 5^1 13^1$
9/2	9/2	7	$2\cdot3\cdot13\cdot17$	$3\cdot7\cdot13\cdot17$	$3\cdot7\cdot13\cdot17$
			$2^6/3^4 11^1 13^1$	$2^6/3^4 7^1 11^1 13^1$	$2^6 5^1/3^4 7^1 11^1 13^1$
			0	−1	0
			1	$5/2^1 17^1$	−1
			−2/17	0	2/17
9/2	9/2	9	$2\cdot5\cdot13\cdot17$	$13\cdot17$	$13\cdot17$
			$2^6/3^1 5^1 11^1 13^1 17^1$	$2^4/3^2 11^1 13^1 17^1$	$2^6/3^2 11^1 13^1 17^1$
			0	1	0
			−1	0	1
11/2	1/2	5	$3\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$
			$2^6/3^2 7^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^8/3^2 7^1 11^1$
			0	−1	0
			1	3/2	1
			−1/2	$-1/2^2$	−1/2
			$1/2^2 5^1$	0	$1/2^2 5^1$
11/2	3/2	5	$3\cdot5\cdot11\cdot13$	$2\cdot11\cdot13$	$2\cdot11\cdot13$
			$2^6/3^2 5^1 7^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^8/3^2 5^1 7^1 11^1$
			0	−1	0
			1	$61/2^2 13^1$	1
			$-23/2^2 13^1$	−2/13	$-23/2^2 13^1$
			$1/2^1 13^1$	0	$1/2^1 13^1$
11/2	3/2	7	$7\cdot11\cdot13$	$2\cdot11\cdot13$	$2\cdot11\cdot13$
			$2^2/3^1 7^1 11^1 13^1$	$2^4/3^1 7^1 11^1 13^1$	$2^6/3^1 7^1 11^1 13^1$
			0	1	0
			−1	−3/5	−1
			1/5	0	1/5
11/2	5/2	3	2	$2\cdot3$	$2\cdot3$
			$2^2 3^1/7$	$2^2/7$	$2^2 3^1/7$
			0	1	0
			−1	$-23/3^2$	−1
			$5^2/3^2$	$2^1 47^1/3^2 11^1$	$5^2/3^2$
			$-2^6/3^2 11^1$	$-2^2/3^2 11^1$	$-2^6/3^2 11^1$
			$2^2/3^2 11^1$	0	$2^2/3^2 11^1$
11/2	5/2	5	$5\cdot7\cdot11\cdot13$	$2\cdot3\cdot7\cdot11\cdot13$	$2\cdot3\cdot7\cdot11\cdot13$
			$2^6/3^2 5^1 7^1 11^1$	$2^4/3^2 5^1 7^1 11^1$	$2^8/3^2 5^1 7^1 11^1$
			0	−1	0
			1	$61/2^2 13^1$	1
			$-23/2^2 13^1$	−2/13	$-23/2^2 13^1$
			$1/2^1 13^1$	0	$1/2^1 13^1$
11/2	5/2	7	$7\cdot13$	$2\cdot13$	$2\cdot13$
			$2^6/3^1 7^1 11^1 13^1$	$2^8/3^1 7^1 11^1 13^1$	$2^4/7^1 11^1 13^1$
			0	1	0
			−1	−3/5	−1
			1/5	0	1/5
11/2	7/2	3	13	$3\cdot13$	$3\cdot13$
			$2^2/3^1 7^1$	$2^2/3^2 7^1$	$2^5 1/3^2 7^1$
			0	1	0
			−1	−1	−1
			2/3	$2^2/3^1 11^1$	2/3
			$-2^2/3^1 11^1$	$-2^5 1/3^1 11^1 13^1$	$-2^2/3^1 11^1$
			$2^2/3^2 11^1 13^1$	0	$2^2/3^2 11^1 13^1$
11/2	7/2	5	$7\cdot11\cdot13$	$2\cdot3\cdot5\cdot7\cdot11\cdot13$	$2\cdot3\cdot5\cdot7\cdot11\cdot13$
			$2^4/3^2 7^1 11^1$	$2^2/3^2 5^1 7^1 11^1$	$2^4/3^2 7^1 11^1$
			0	−1	0
			1	$2^4/3^1 13^1$	1
			$-2^2/13$	$-2^2/3^2 13^1$	$-2^2/13$
			$2^2/3^1 5^1 13^1$	0	$2^2/3^1 5^1 13^1$
11/2	7/2	7	$2\cdot7\cdot13\cdot17$	$13\cdot17$	$13\cdot17$
			$2^6/3^2 7^1 11^1 13^1$	$2^6/3^2 7^1 11^1 13^1$	$2^6 5^1/3^2 7^1 11^1 13^1$
			0	1	0
			−1	$-5/2^1 17^1$	−1
			2/17	0	2/17
11/2	7/2	9	$2\cdot11\cdot13\cdot17$	$5\cdot11\cdot13\cdot17$	$5\cdot11\cdot13\cdot17$
			$2^6/3^2 5^1 11^1 13^1 17^1$	$2^8/3^2 5^1 11^1 13^1 17^1$	$2^7/3^2 5^1 11^1 13^1 17^1$
			0	−1	0
			1	0	1
11/2	9/2	1	$2\cdot5$	5	5
			2	1	2
			0	−1	0
			1	$2^4/5$	1
			$-2^2/5$	$-2^2 3^2/5^1 7^1$	$-2^2/5$
			$2^2 3^1/5^1 7^1$	$2^7/3^2 5^1 7^1$	$2^2 3^1/5^1 7^1$
			$-2^6/3^2 5^1 7^1$	$-2^4/3^2 7^1 11^1$	$-2^6/3^2 5^1 7^1$
			$2^4/3^2 5^1 7^1 11^1$	0	$2^4/3^2 5^1 7^1 11^1$
11/2	9/2	3	$5\cdot13$	$3\cdot5\cdot13$	$3\cdot5\cdot13$
			$2^2/3^1 5^1$	$2^2/3^2 5^1$	$2^2/3^2 5^1$
			0	1	0
			−1	−1	−1
			2/3	$2^2/3^1 11^1$	2/3
			$-2^2/3^1 11^1$	$-2^5 1/3^2 11^1 13^1$	$-2^2/3^1 11^1$
			$2^2/3^2 11^1 13^1$	0	$2^2/3^2 11^1 13^1$
11/2	9/2	5	$5\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$
			$2^6/3^2 7^1 11^1$	$2^2/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$
			0	−1	0
			1	$2^4/3^1 13^1$	1
			$-2^2/13$	$-2^2/3^2 13^1$	$-2^2/13$
			$2^2/3^1 5^1 13^1$	0	$2^2/3^1 5^1 13^1$

TABLES. Coefficients for Reduced Matrix Elements

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TABLE XXVII. $N' = 5$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
11/2	9/2	7	$2\cdot7\cdot13\cdot17$	$13\cdot17$	$13\cdot17$
			$2^8/3^97^111^113^1$	$2^6/3^97^111^113^1$	$2^4/3^97^111^113^1$
			0	1	0
			−1	$-5/2^117^1$	−1
			2/17	0	2/17
11/2	9/2	9	$5\cdot13\cdot17$	$2\cdot13\cdot17$	$2\cdot13\cdot17$
			$2^8/3^85^111^113^117^1$	$2^4/3^811^113^117^1$	$2^8/3^85^111^113^117^1$
			0	−1	0
			1	0	1

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	0	0	0	7	7
			0	0	2/3	1/2
			0	0	0	1
			0	0	1	$-2^8/3$
			0	0	$-2^83^1/5$	$2^8/3$
			0	0	$2^817^1/5^17^1$	$-2^811^1/3^15^17^1$
			0	0	$-2^8/7$	$2/5^17^1$
			0	0	$2/5^17^1$	0
1/2	3/2	2	3	3	2	2
			$2^8/3^15^1$	$2^8/3^15^1$	$2^8/3^15^1$	$2^17^1/3^15^1$
			−1	−1	−1	−1
			13/7	53/7	$-3^8/7$	$2^8/7$
			$-2^13^1/7$	-2^8	$2^811^1/7$	$-1/7$
			1/7	19/7	−17/7	0
			0	−2/7	2/7	0
1/2	5/2	2	2	2	3	3
			$2^8/3^15^1$	$2^8/5$	$2^4/3^15^1$	$2^8/5$
			1	1	1	−1
			−13/7	$-59/3^17^1$	−23/7	$31/2^87^1$
			$2^13^1/7$	$43/3^17^1$	$37/2^17^1$	$-37/2^83^17^1$
			−1/7	$-2^8/7$	$-11/2^17^1$	$5/2^83^17^1$
			0	$1/3^17^1$	$1/2^17^1$	0
1/2	7/2	4	$2\cdot5$	$2\cdot5$	2	2
			$2^8/3^15^17^1$	$2^8/3^15^17^1$	$2^4/3^15^17^1$	$2^8/3^17^1$
			1	1	1	1
			−1	−5	3	$-1/3^15^1$
			$1/2^13^1$	$17/2^13^1$	−5/2	$-1/3^15^1$
			0	−1/3	1/3	0
1/2	9/2	4	2	2	$2\cdot5$	$2\cdot5$
			$2^4/3^15^17^1$	$2^8/3^17^1$	$2^6/3^15^17^1$	$2^8/3^15^1$
			−1	−1	−1	1
			1	7/5	3/2	−2/3
			$-1/2^13^1$	$-13/2^13^15^1$	−1/2	$1/2^83^1$
			0	$1/2^13^15^1$	$1/2^83^1$	0
3/2	1/2	2	0	$3\cdot7$	$2\cdot7$	$2\cdot7$
			0	2/3	2/3	$2^8/3^15^1$
			0	1	1	−1
			0	$-2^83^1/5$	$-2^83^1/5$	$2^8/7$
			0	$2^817^1/5^17^1$	$2^817^1/5^17^1$	$-1/7$
			0	$-2^8/7$	$-2^8/7$	0
			0	$2/5^17^1$	$2/5^17^1$	0
3/2	3/2	0	0	0	2	2
			0	0	$2^8/3$	1
			0	0	0	−1
			0	0	−1	1/3
			0	0	3	$2^8/3^15^1$
			0	0	$-2^4/7$	$-31/3^15^17^1$
			0	0	$23/5^17^1$	$2/5^17^1$
			0	0	$-2/5^17^1$	0
3/2	3/2	2	3	3	2	2
			$2^8/3^15^1$	$2^8/3^15^1$	$2^8/3^15^1$	$2^8/3^15^1$
			−1	−1	−1	1
			13/7	13/7	$3^111^1/7$	$11/2^87^1$
			$-2^13^1/7$	$-2^13^1/7$	−31/7	$-11/2^87^1$
			1/7	1/7	$2^15^1/7$	$3/2^87^1$
			0	0	−1/7	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
3/2	5/2	2	7	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^2/3^1 5^1$	$2^2/5$	$2^2/3^1 5^1$	$2^1 3^1/5^1 7^1$
			-1	1	1	-1
			13/7	$-11^1 43^1/3^1 7^2$	$-131/7^2$	$2^1 3^1/7$
			$-2^1 3^1/7$	$2^2 47^1/3^1 7^2$	$2^2 23^1/7^2$	$-19/3^2 7^1$
			1/7	$-37/7^2$	$-5^2/7^2$	$2/3^2 7^1$
			0	$2^1 5^1/3^1 7^2$	$2/7^2$	0
3/2	5/2	4	0	$5\cdot7$	7	7
			0	$2^2/7^2$	$2^2/7^2$	$2^2 13^1/5^1 7^2$
			0	-1	-1	1
			0	$5/2^2$	$5/2^2$	$-2^1 3^1/13$
			0	$-3^2/2^2 5^1$	$-3^2/2^2 5^1$	1/13
			0	$1/2^2 5^1$	$1/2^2 5^1$	0
3/2	7/2	2	0	$3\cdot7$	$2\cdot7$	$2\cdot7$
			0	$2^2 3^1/5^1 7^2$	$2^1 3^2/5^1 7^2$	$2^2 3^1/5^1 7^1$
			0	0	0	1
			0	-1	1	1/7
			0	$13/3^2$	$-13/3^2$	$-67/2^1 3^2 7^1$
			0	$-5^2/2^1 3^2$	$5^2/2^1 3^2$	$5/3^2 7^1$
			0	$1/3^2$	$-1/3^2$	0
3/2	7/2	4	$2\cdot7$	$2\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^2/3^1 5^1 7^1$	$2^1/3^1 7^2$	$2^1/3^1 5^1 7^2$	$2^1/3^1 5^1 7^2$
			1	1	1	-1
			-1	$-1/5$	-3	$-2^2/3$
			$1/2^1 3^1$	$-11/2^1 3^1 5^1$	3/2	$5/2^2 3^1$
			0	$1/3^1 5^1$	$-1/2^1 3^1$	0
3/2	9/2	4	$2\cdot11$	$2\cdot11$	$2\cdot5\cdot11$	$2\cdot5\cdot11$
			$2^2/3^1 5^1 7^1$	$2^2/3^1 7^1$	$2^1/3^1 5^1 7^1$	$2^2/3^1 5^1 7^1$
			1	-1	-1	1
			-1	$83/5^1 11^1$	$3^1 5^1/11$	$-19/3^1 11^1$
			$1/2^1 3^1$	$-167/2^1 3^1 5^1 11^1$	$-3^2/2^1 11^1$	$2/3^1 11^1$
			0	$7/3^1 5^1 11^1$	$1/3^1 11^1$	0
3/2	9/2	6	0	$2\cdot3\cdot5\cdot7\cdot11$	$5\cdot11$	$5\cdot11$
			0	$2^2/3^1 5^1 7^1 11^1$	$2^2/5^1 7^1 11^1$	$2^2/3^1 5^1 7^1 11^1$
			0	1	1	-1
			0	$-2/3$	$-2/3$	$1/2^2$
			0	$1/2^2 3^1$	$1/2^2 3^1$	0
5/2	1/2	2	0	$2\cdot7$	$3\cdot7$	$3\cdot7$
			0	$2^2 3^1/5^1 7^1$	$2^2 3^1/5^1 7^1$	$2/5$
			0	0	0	-1
			0	1	-1	$3^2/7$
			0	$-29/3^2$	$29/3^2$	$-2^1 17^1/3^2 7^1$
			0	$2^1 5^1/3^2$	$-2^1 5^1/3^2$	$5/3^2 7^1$
			0	$-1/3^2$	$1/3^2$	0
5/2	3/2	2	7	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^2 3^1/5^1 7^1$	$2^1 3^2/5^1 7^1$	$2^1 3^1/5^1 7^1$	$2^2/5^1 7^1$
			-1	-1	-1	-1
			$2^2/7$	$2^1 37^1/3^1 7^1$	$-2/7$	$2^1 3^1/7$
			$-2^1 17^1/3^2 7^1$	$-2^1 853^1/3^4 7^1$	$2^1 89^1/3^2 7^1$	$-19/3^2 7^1$
			$2^2/3^2 7^1$	$2^4 31^1/3^4 7^1$	$-2^4 5^1/3^2 7^1$	$2/3^2 7^1$
			0	$-2^2 5^1/3^4 7^1$	$2^2/3^2 7^1$	0
5/2	3/2	4	$5\cdot7$	$5\cdot7$	7	7
			$2^2/7^2$	$2^2/7^2$	$2^2/7^2$	$2^4 13^1/3^1 5^1 7^2$
			1	1	1	1
			$-2/3$	-2^2	$2^2/3$	$-2^1 3^1/13$
			$2/3^1 5^1$	2	$-2^1 13^1/3^1 5^1$	1/13
			0	$-2^2/3^1 5^1$	$2^2/3^1 5^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. N' = 5 N = 4 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	5/2	0	0	0	3	3
			0	0	2	3/2
			0	0	0	1
			0	0	1	−2
			0	0	−2	$2^1 13^1/3^1 5^1$
			0	0	$2^1 5^1/7$	$-2^6/3^1 5^1 7^1$
			0	0	$-2^4/3^2 5^1$	$2^3/3^2 5^1$
			0	0	$2^3/3^2 5^1 7^1$	0
5/2	5/2	2	7	7	2·3·7	2·3·7
			$2^2 3^1/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^3/5^1 7^1$	$2^1 3^2/5^1 7^1$
			1	1	1	−1
			$-2^3/7$	$-2^3/7$	−23/7	$2^6/3^2 7^1$
			$2^1 17^1/3^2 7^1$	$2^1 17^1/3^2 7^1$	$2^1 29^1/3^1 7^1$	$-2^1 41^1/3^2 7^1$
			$-2^2/3^2 7^1$	$-2^3/3^2 7^1$	$-2^1 5^2/3^2 7^1$	$2^2/3^4$
			0	0	$2^2/3^2 7^1$	0
5/2	5/2	4	2·5·7	2·5·7	2·7	2·7
			$2^2/7^2$	$2^3/7^2$	$2^4/7^2$	$2^1 127^1/3^1 5^1 7^2$
			−1	−1	−1	1
			2/3	2/3	3/2	$-2^1 37^1/127$
			$-2/3^1 5^1$	$-2/3^1 5^1$	−3/5	$2^1 7^1/127$
			0	0	$1/3^1 5^1$	0
5/2	7/2	2	3·7	3·7	2·7	2·7
			$2^2 5^1/3^2 7^1$	$2^3/3^1 7^1$	$2^3/3^1 7^1$	$2^1 3^1/5^1 7^1$
			−1	−1	−1	−1
			$3^1 5^1/7$	$13^1 41^1/3^1 5^1 7^1$	$31/5^1 7^1$	$2^3/7$
			$-2^4/3^1 7^1$	$-2^1 659^1/3^2 5^1 7^1$	$2^1 37^1/3^1 5^1 7^1$	$-2^2/3^2 7^1$
			$2^3/3^2 7^1$	$2^2 5^1/3^1 7^1$	$-2^2 5^1/3^2 7^1$	0
			0	$-2^3/3^2 5^1$	$2^3/3^2 5^1 7^1$	0
5/2	7/2	4	2·7·11	2·7·11	2·5·7·11	2·5·7·11
			$2^4/5^1 7^2$	$2^3/3^1 7^2$	$2^4/3^1 5^1 7^2$	$2^2/5^1 7^2$
			1	1	1	1
			$-17/2^1 11^1$	$-3^1 89^1/2^1 5^1 11^1$	$3^3/2^1 11^1$	−2/11
			1/11	$2^1 3^3/5^1 11^1$	$-2^1 3^1/11$	0
			0	$-2^1 7^1/3^1 5^1 11^1$	$2/3^1 11^1$	0
5/2	7/2	6	3·7·11	3·7·11	2·11	2·11
			$2^4/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^2/3^1 7^1 11^1$
			−1	−1	−1	−1
			1/3	3	−7/3	0
			0	−2/3	2/3	0
5/2	9/2	2	2·3·7	2·3·7	7	7
			$2^2/3^2 7^1$	$2^3/3^1 7^1$	$2^4/3^1 7^1$	$2^2 3^1/7$
			1	1	1	−1
			$-3^1 5^1/7$	$-67/3^1 7^1$	$-2^1 13^1/7$	$19/2^1 7^1$
			$2^4/3^1 7^1$	$5^3/3^2 7^1$	$109/2^1 3^1 7^1$	$-2^1 13^1/3^2 7^1$
			$-2^2/3^2 7^1$	$-2^3/3^1 7^1$	$-2^1 17^1/3^2 7^1$	$2/3^2 7^1$
			0	$2^3/3^2 7^1$	$2/3^2 7^1$	0
5/2	9/2	4	7·11	7·11	5·7·11	5·7·11
			$2^4/5^1 7^2$	$2^3/3^1 7^2$	$2^6/3^1 5^1 7^2$	$2^2 3^1/5^1 7^2$
			−1	−1	−1	1
			$17/2^1 11^1$	$3^1 37^1/2^1 5^1 11^1$	$3^1 5^1/11$	$-19/3^1 11^1$
			−1/11	$-2^2 3^1/5^1 11^1$	$-3^3/2^1 11^1$	$2/3^1 11^1$
			0	$2/3^1 5^1 11^1$	$1/3^1 11^1$	0
5/2	9/2	6	3·5·11	3·5·11	2·5·7·11	2·5·7·11
			$2^4/3^2 7^1 11^1$	$2^3/3^2 5^1 11^1$	$2^4/3^2 5^1 7^1 11^1$	$2^4/3^1 5^1 7^1 11^1$
			1	1	1	−1
			−1/3	−3/7	−2/3	$1/2^2$
			0	$1/2^1 3^1 7^1$	$1/2^2 3^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	1/2	4	0	$5\cdot7$	7	7
			0	$2^3 3^1/5^1 7^1$	$2^4 3^1/5^1 7^1$	$2^3/3^2 7^1$
			0	−1	−1	−1
			0	$29/3^3$	$29/3^3$	$2^3/5$
			0	$-2^1 5^1/3^3$	$-2^1 5^1/3^3$	−1/5
			0	$1/3^3$	$1/3^3$	0
7/2	3/2	2	$2\cdot3\cdot7$	$2\cdot3\cdot7$	7	7
			$2^3/5^1 7^1$	$2^3 3^1/5^1 7^1$	$2^4 3^1/5^1 7^1$	$2^1 3^2/5^1 7^1$
			−1	−1	−1	−1
			$2^3/7$	13/7	$31/2^1 7^1$	$2^3/3^1 7^1$
			$-2^1 17^1/3^2 7^1$	$-2^1 11^2/3^2 7^1$	$-2^3 13^1/3^2 7^1$	$-2^1 3^1/7$
			$2^3/3^2 7^1$	$2^1 29^1/3^2 7^1$	3/7	$2^2 5^1/3^2 7^1$
			0	$-2^3/3^2 7^1$	$-2/3^2 7^1$	0
7/2	3/2	4	7	7	$5\cdot7$	$5\cdot7$
			$2^3 3^1/7^2$	$2^5 5^1/7^2$	$2^4/7^2$	$2^2 53^1/3^2 5^1 7^2$
			1	1	1	1
			−2/3	$-2^3/3^2$	$-11/3^2$	$-2^1 23^1/53$
			$2/3^1 5^1$	$2^1 29^1/3^2 5^2$	$2^2/3^2$	$2^1 5^1/53$
			0	$-2^3/3^2 5^2$	$-2/3^2 5^1$	0
7/2	5/2	2	$2\cdot3\cdot7$	$2\cdot3\cdot7$	7	7
			$2^3 3^1/5^1 7^1$	$2^1 3^2/5^1 7^1$	$2^2 3^2/5^1 7^1$	$2^2/5^1 7^1$
			−1	1	1	−1
			$2^3/7$	$-2^1 71^1/3^2 7^1$	$-2^1 17^1/3^1 7^1$	$2^3/7$
			$-2^1 17^1/3^2 7^1$	$2^1 1439^1/3^2 7^1$	$2^1 293^1/3^4 7^1$	$-2^3/3^2 7^1$
			$2^3/3^2 7^1$	$-2^4 47^1/3^2 7^1$	$-2^7/3^4 7^1$	0
			0	$2^3/3^2$	$2^3/3^4 7^1$	0
7/2	5/2	4	$7\cdot11$	$7\cdot11$	$5\cdot7\cdot11$	$5\cdot7\cdot11$
			$2^3/7^2$	$2^5 5^1/7^2$	$2^3/7^2$	$2^3/3^1 5^1 7^2$
			1	−1	−1	1
			−2/3	$2^3 3^1/11$	$2^3/3^1 11^1$	−2/11
			$2/3^1 5^1$	$-2^1 3^1 17^1/5^2 11^1$	$-2^1 5^1/3^1 11^1$	0
			0	$2^2 7^1/3^1 5^2 11^1$	$2^2/3^1 5^1 11^1$	0
7/2	5/2	6	0	$2\cdot3\cdot7\cdot11$	11	11
			0	$2^2 5^2/3^2 7^1 11^1$	$2^4 5^2/3^2 7^1 11^1$	$2^4/3^2 7^1 11^1$
			0	1	1	−1
			0	$-2^1 7^1/5^2$	$-2^1 7^1/5^2$	0
			0	$2/5^2$	$2/5^2$	0
7/2	7/2	0	0	0	2	2
			0	0	$2^2/3$	1
			0	0	0	−1
			0	0	−1	−1/3
			0	0	17/5	2
			0	0	$-2^1 3^1 13^1/5^1 7^1$	$-2^2 19^1/3^1 5^1 7^1$
			0	0	$2^3/3^2$	$2^3/3^2 5^1$
			0	0	$-2^3/3^2 5^1 7^1$	0
7/2	7/2	2	7	7	$2\cdot3\cdot7$	$2\cdot3\cdot7$
			$2^3/3^1 7^1$	$2^3/3^1 7^1$	$2^3/3^2 7^1$	$2^2/3^2 7^1$
			−1	−1	−1	1
			$3^1 5^1/7$	$3^1 5^1/7$	37/7	$3^1 23^1/2^1 7^1$
			$-2^4/3^1 7^1$	$-2^4/3^1 7^1$	−31/7	$-2^1 5^2/3^1 7^1$
			$2^3/3^2 7^1$	$2^3/3^2 7^1$	$2^6/3^2 7^1$	$2/3^2$
			0	0	$-2^3/3^2 7^1$	0
7/2	7/2	4	$2\cdot5\cdot7\cdot11$	$2\cdot5\cdot7\cdot11$	$2\cdot7\cdot11$	$2\cdot7\cdot11$
			$2^4/3^1 5^1 7^2$	$2^5/3^1 5^1 7^2$	$2^6/3^1 5^1 7^2$	$2^2/3^1 7^2$
			1	1	1	1
			$-17/2^1 11^1$	$-17/2^1 11^1$	$-73/2^2 11^1$	$-101/5^1 11^1$
			1/11	1/11	$5^3/2^2 11^1$	$2^1 7^1/5^1 11^1$
			0	0	$-1/2^1 11^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	7/2	6	$7\cdot11$ $2^4/3^2 7^1 11^1$	$7\cdot11$ $2^6/3^2 7^1 11^1$	$2\cdot3\cdot11$ $2^5/3^2 7^1 11^1$	$2\cdot3\cdot11$ $2^5/3^2 7^1 11^1$
			-1 $1/3$ 0	-1 $1/3$ 0	-1 $7/3^2$ $-1/3^2$	-1 $7/2^2 3^1$ 0
7/2	9/2	2	$7\cdot11$ $2^3/3^1 7^1$	$7\cdot11$ $2^3/3^1 7^1$	$2\cdot3\cdot7\cdot11$ $2^3/3^2 7^1$	$2\cdot3\cdot7\cdot11$ $2/3^2 7^1$
			-1 $3^1 5^1/7$ $-2^4/3^1 7^1$ $2^3/3^2 7^1$ 0	1 $-3^3/7$ $2^1 29^1/3^1 7^1$ $-2^2 101^1/3^2 7^1 11^1$ $2^3/3^1 7^1 11^1$	1 $-19/7$ $2^1 5^1/7$ $-2^2 41^1/3^2 7^1 11^1$ $2^3/3^2 7^1 11^1$	-1 $2^1 3^1/7$ $-2^2/3^1 7^1$ $2^3/3^2 7^1 11^1$ 0
7/2	9/2	4	$2\cdot7\cdot11\cdot13$ $2^4/3^1 5^1 7^2$	$2\cdot7\cdot11\cdot13$ $2^3/3^1 7^2$	$2\cdot5\cdot7\cdot11\cdot13$ $2^4/3^1 5^1 7^2$	$2\cdot5\cdot7\cdot11\cdot13$ $2^3/3^1 5^1 7^2$
			1 $-17/2^1 11^1$ $1/11$ 0	-1 $139/2^1 5^1 11^1$ $-2^1 127^1/5^1 11^1 13^1$ $2^1 3^2/5^1 11^1 13^1$	-1 $23/2^1 11^1$ $-2^1 17^1/11^1 13^1$ $2/11^1 13^1$	1 $-2^2/11$ $2^2/11^1 13^1$ 0
7/2	9/2	6	$5\cdot11$ $2^4/3^2 7^1 11^1$	$5\cdot11$ $2^4/3^2 11^1$	$2\cdot3\cdot5\cdot7\cdot11$ $2^4/3^2 7^1 11^1$	$2\cdot3\cdot5\cdot7\cdot11$ $2^3/3^2 7^1 11^1$
			-1 $1/3$ 0	1 $-59/3^1 5^1 7^1$ $2/5^1 7^1$	1 $-23/3^2 5^1$ $2/3^2 5^1$	-1 $2/3^1 5^1$ 0
7/2	9/2	8	0 0	$2\cdot5\cdot11\cdot13$ $2^6/3^2 5^1 11^1 13^1$	$5\cdot11\cdot13$ $2^3/3^2 5^1 11^1 13^1$	$5\cdot11\cdot13$ $2^3/3^2 5^1 11^1 13^1$
			0 0	-1 $1/2^2$	-1 $1/2^2$	1 0
9/2	1/2	4	0 0	$2\cdot7\cdot11$ $2^6/3^2 7^1 11^1$	$2\cdot5\cdot7\cdot11$ $2^5/3^2 7^1 11^1$	$2\cdot5\cdot7\cdot11$ $2^3/3^2 5^1 7^1$
			0 0 0 0	0 -1 $1/2$ $-1/2^2 5^1$	0 1 $-1/2$ $1/2^2 5^1$	1 $-23/2^1 11^1$ $7/2^2 11^1$ 0
9/2	3/2	4	2 $2^3 3^1/5^1 7^1$	2 $2^3/7$	$2\cdot5$ $2^3/5^1 7^1$	$2\cdot5$ $2^3/3^2 7^1$
			1 $-19/3^1 11^1$ $2/3^1 11^1$ 0	1 $-1013/3^{2\,3\,1} 11^1$ $2^5/3^2 5^1$ $-2^2 7^1/3^2 5^1 11^1$	1 $47/3^2 11^1$ $-2^2 5^1/3^2 11^1$ $2^3/3^2 11^1$	1 $-2^1 31^1/5^1 11^1$ $2^3/5^1 11^1$ 0
9/2	3/2	6	$2\cdot3\cdot5\cdot7$ $2^3/3^2 5^1 7^1 11^1$	$2\cdot3\cdot5\cdot7$ $2^3/3^2 5^1 7^1 11^1$	5 $2^6/3^1 5^1 7^1 11^1$	5 $2^2 3^1/5^1 7^1 11^1$
			-1 $1/2^2$ 0	-1 $11/2^2$ $-1/2$	-1 $-3^2/2^2$ $1/2$	-1 $2^2/3^2$ 0
9/2	5/2	2	0 0	$2\cdot3\cdot7\cdot11$ $2^2/7^2$	$7\cdot11$ $2^2 3^1/7^2$	$7\cdot11$ $2/7$
			0 0 0 0 0	0 1 $-5^2/3^2$ $2^6/3^2 11^1$ $-2^2/3^2 11^1$	0 -1 $5^2/3^2$ $-2^6/3^2 11^1$ $2^2/3^2 11^1$	-1 $13/7$ $-2^2 5^1/3^2 7^1$ $2^2/7^1 11^1$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	5/2	4	7 $2^3/5^1 7^1$	7 $2^4/7^2$	$5 \cdot 7$ $2^3/5^1 7^2$	$5 \cdot 7$ $2^6/3^1 7^2$
			-1 $19/3^1 11^1$ $-2/3^1 11^1$ 0	-1 $-3/5^1 11^1$ $2^3 3^1/5^1 11^1$ $-2^2/3^1 5^1 11^1$	-1 $71/3^1 11^1$ $-5^2/3^1 11^1$ $2/3^1 11^1$	1 $-157/2^2 5^1 11^1$ $3^2/2^1 5^1 11^1$ 0
9/2	5/2	6	$3 \cdot 5$ $2^6/3^1 5^1 7^1 11^1$	$3 \cdot 5$ $2^7/3^2 5^1 11^1$	$2 \cdot 5 \cdot 7$ $2^7/3^2 5^1 7^1 11^1$	$2 \cdot 5 \cdot 7$ $2^2 29^1/3^2 5^1 7^1 11^1$
			1 $-1/2^2$ 0	1 $-1/2^1 7^1$ $-1/2^2 7^1$	1 $-7/2^3$ $1/2^3$	-1 $3^2/29$ 0
9/2	7/2	2	$2 \cdot 7$ $2^3/3$	$2 \cdot 7$ $2/3$	$3 \cdot 7$ $2^3/3^2$	$3 \cdot 7$ $2^3/3^2 7^1$
			-1 $2^1 3^1/7$ $-2^3/3^1 7^2$ $2^3/3^2 7^1 11^1$ 0	-1 $2^3 3^1 5^1/7^2$ $-2^3 23^1/3^1 7^2$ $2^3 31^1/3^2 7^2 11^1$ $-2^4/3^1 7^2 11^1$	-1 $2^4/7^2$ $2^3/7^2$ $-2^3/3^2 7^2 11^1$ $2^4/3^2 7^2 11^1$	-1 $2^1 3^1/7$ $-2^2/3^1 7^1$ $2^3/3^2 7^1 11^1$ 0
9/2	7/2	4	$7 \cdot 13$ $2^3/3^1 7^1$	$7 \cdot 13$ $2^2 5^1/3^1 7^2$	$5 \cdot 7 \cdot 13$ $2^3/3^1 7^2$	$5 \cdot 7 \cdot 13$ $2^3/3^1 5^1 7^2$
			1 $-2^3/11$ $2^3/11^1 13^1$ 0	1 $-2^1 37^1/5^1 11^1$ $2^3 59^1/5^1 11^1 13^1$ $-2^3 3^3/5^2 11^1 13^1$	1 $2/11$ $-2^2 5^1/11^1 13^1$ $2^3/5^1 11^1 13^1$	1 $-2^2/11$ $2^2/11^1 13^1$ 0
9/2	7/2	6	$2 \cdot 5$ $2^3/3^2 7^1 11^1$	$2 \cdot 5$ $2^3/3^2 11^1$	$3 \cdot 5 \cdot 7$ $2^4/3^2 7^1 11^1$	$3 \cdot 5 \cdot 7$ $2^4/3^2 7^1 11^1$
			-1 $2/3^1 5^1$ 0	-1 $2^3 29^1/3^1 5^1 7^1$ $-2^3/5^1 7^1$	-1 $-2^2 7^1/3^2 5^1$ $2^2/3^2 5^1$	-1 $2/3^1 5^1$ 0
9/2	7/2	8	$5 \cdot 13$ $2^4/3^2 5^1 11^1 13^1$	$5 \cdot 13$ $2^4/3^2 5^1 11^1 13^1$	$2 \cdot 5 \cdot 13$ $2^5/3^2 5^1 11^1 13^1$	$2 \cdot 5 \cdot 13$ $2^5/3^2 5^1 11^1 13^1$
			1 0	1 -2	1 2	1 0
9/2	9/2	0	0 0	0 0	$5 \cdot 11$ $2/3$	$5 \cdot 11$ $1/2$
			0 0 0 0 0 0	0 0 0 0 0 0	0 1 $-2^3/5$ $2^3 3^1/5^1 7^1$ $-2^6/3^2 5^1 7^1$ $2^4/3^2 5^1 7^1 11^1$	1 $-2^3/3$ $2^3/5$ $-2^5/3^1 5^1 7^1$ $2^4/3^2 5^1 7^1$ 0
9/2	9/2	2	1 $2^3/3$	1 $2^3/3$	$2 \cdot 3$ $2^3/3^2$	$2 \cdot 3$ $2^1 11^1/3^2$
			1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$ 0	1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$ 0	1 $-19/7$ $2^1 5^1/7$ $-2^2 41^1/3^2 7^1 11^1$ $2^3/3^2 7^1 11^1$	-1 $2^1 3^1/7$ $-2^2/3^1 7^1$ $2^3/3^2 7^1 11^1$ 0
9/2	9/2	4	$2 \cdot 13$ $2^3/3^1 7^1$	$2 \cdot 13$ $2^3/3^1 7^1$	$2 \cdot 5 \cdot 13$ $2^4/3^1 5^1 7^1$	$2 \cdot 5 \cdot 13$ $2^1 11^1/3^1 5^1 7^1$
			-1 $2^3/11$ $-2^3/11^1 13^1$ 0	-1 $2^3/11$ $-2^3/11^1 13^1$ 0	-1 $23/2^1 11^1$ $-2^1 17^1/11^1 13^1$ $2/11^1 13^1$	1 $-2^3/11$ $2^3/11^1 13^1$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. N' = 5 N = 4 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	9/2	6	$5\cdot7$ $2^6/3^37^111^1$	$5\cdot7$ $2^6/3^37^111^1$	$2\cdot3\cdot5$ $2^6/3^37^111^1$	$2\cdot3\cdot5$ $2^4/3^37^1$
			1 $-2/3^15^1$ 0	1 $-2/3^15^1$ 0	1 $-23/3^25^1$ $2/3^25^1$	-1 $2/3^15^1$ 0
9/2	9/2	8	$5\cdot13$ $2^8/3^25^111^113^1$	$5\cdot13$ $2^6/3^25^111^113^1$	$2\cdot5\cdot13$ $2^7/3^25^111^113^1$	$2\cdot5\cdot13$ $2^8/3^25^113^1$
			-1 0	-1 0	-1 $1/2^2$	1 0
11/2	1/2	6	0 0	$2\cdot11$ $2^6/3^211^1$	$3\cdot7\cdot11$ $2^6/3^37^111^1$	$3\cdot7\cdot11$ $2^4/3^37^111^1$
			0 0 0	1 $-1/2$ $1/2^25^1$	1 $-1/2$ $1/2^25^1$	1 $-1/5$ 0
11/2	3/2	4	1 $2^4/5^17^1$	1 $2^6/7$	5 $2^6/5^17^1$	5 $2^4/3^15^1$
			1 $-19/3^111^1$ $2/3^111^1$ 0	1 $-7^2/5^111^1$ 1/5 $-2/3^15^111^1$	1 $-2^6/3^111^1$ $31/2^63^111^1$ $-1/2^13^111^1$	1 $-3^17^1/2^211^1$ $1/2^111^1$ 0
11/2	3/2	6	2 $2^8/3^17^111^1$	2 $2^6/3^211^1$	$3\cdot7$ $2^7/3^37^111^1$	$3\cdot7$ $2^8/3^211^1$
			-1 $1/2^2$ 0	-1 $11/2^27^1$ $-1/5^17^1$	-1 1/2 $-1/2^25^1$	-1 1/5 0
11/2	5/2	4	$2\cdot13$ $2^8/5^17^1$	$2\cdot13$ $2^2/7$	$2\cdot5\cdot13$ $2^8/5^17^1$	$2\cdot5\cdot13$ $2^2/3^15^17^1$
			1 $-19/3^111^1$ $2/3^111^1$ 0	-1 $167/3^15^111^1$ $-2^617^1/3^15^111^113^1$ $2^83^1/5^111^113^1$	-1 $3^2/11$ $-2^73^1/11^113^1$ $2^83^111^113^1$	-1 $2^2/11$ $-2^2/11^113^1$ 0
11/2	5/2	6	2 $2^8/3^17^111^1$	2 $2^8/3^111^1$	$3\cdot7$ $2^8/3^17^111^1$	$3\cdot7$ $2^8/3^17^111^1$
			-1 $1/2^2$ 0	1 $-13/2^27^1$ $3/2^15^17^1$	1 $-5/2^23^1$ $1/2^13^15^1$	1 $-2/3^15^1$ 0
11/2	5/2	8	0 0	$2\cdot3\cdot7\cdot11\cdot13$ $2^4/3^17^111^113^1$	$3\cdot7\cdot11\cdot13$ $2^6/3^27^111^113^1$	$3\cdot7\cdot11\cdot13$ $2^8/3^25^17^111^113^1$
			0 0	-1 1/5	-1 1/5	-1 0
11/2	7/2	2	$2\cdot3$ $2^2/3^2$	$2\cdot3$ $2^8/3$	1 $2^4/3$	1 2^13^1
			-1 $2^13^1/7$ $-2^8/3^17^1$ $2^8/3^27^111^1$ 0	-1 $31/3^17^1$ $-2^119^1/3^27^1$ $2^25^1/3^17^111^1$ $-2^8/3^27^111^1$	-1 $5^2/2^17^1$ $-17/3^17^1$ $2^143^1/3^27^111^1$ $-2^2/3^27^111^1$	-1 $2^13^1/7$ $-2^2/3^17^1$ $2^8/3^27^111^1$ 0
11/2	7/2	4	$5\cdot13$ $2^2/5^17^1$	$5\cdot13$ $2^8/3^17^1$	13 $2^4/3^17^1$	13 $2^2/7$
			1 $-2^8/11$ $2^8/11^113^1$ 0	1 $-2^13^1/11$ $2^83^1/11^113^1$ $-2^8/3^15^111^113^1$	1 $-3^2/11$ $2^83^1/11^113^1$ $-2^8/3^111^113^1$	1 $-2^2/11$ $2^2/11^113^1$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXVIII. $N' = 5$ $N = 4$ Abnormal Parity

j'	j	J	Λ	Σ'	Σ''	Ω'
11/2	7/2	6	3 $2^6 5^1/3^3 7^1 11^1$	3 $2^7/3^3 11^1$	$2 \cdot 7$ $2^7/3^2 7^1 11^1$	$2 \cdot 7$ $2^3/7^1 11^1$
			-1 $2/3^1 5^1$ 0	-1 $3/2^1 7^1$ $-1/3^1 5^1 7^1$	-1 $5/2^2 3^1$ $-1/2^1 3^1 5^1$	-1 $2/3^1 5^1$ 0
11/2	7/2	8	$7 \cdot 13$ $2^4/3^3 11^1 13^1$	$7 \cdot 13$ $2^5/3^1 7^1 11^1 13^1$	$2 \cdot 7 \cdot 13$ $2^3/3^2 7^1 11^1 13^1$	$2 \cdot 7 \cdot 13$ $2^4/5^1 7^1 11^1 13^1$
			1 0	1 $-2/3^2 5^1$	1 $-1/5$	1 0
11/2	9/2	2	$3 \cdot 13$ $2^3/3^2$	$3 \cdot 13$ $2/3$	$2 \cdot 13$ $2/3$	0 0
			-1 $2^1 3^1/7$ $-2^3/3^1 7^1$ $2^3/3^2 7^1 11^1$ 0	1 $-2^2 5^1/3^1 7^1$ $2^3/3^2$ $-2^3/3^1 7^1 11^1$ $2^4/3^2 7^1 13^1$	1 $-2^3/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$ $2^4/3^2 7^1 11^1 13^1$	0 0 0 0 0
11/2	9/2	4	13 $2^3/7$	13 $2^2 5^1/3^1 7^1$	$5 \cdot 13$ $2^3/3^1 7^1$	0 0
			1 $-2^3/11$ $2^3/11^1 13^1$ 0	-1 $2^1 3^1 7^1/5^1 11^1$ $-2^2 3^3/5^1 11^1 13^1$ $2^3/3^1 5^2 13^1$	-1 $2^1 3^1/11$ $-2^2 3^1/11^1 13^1$ $2^3/3^1 5^1 11^1 13^1$	0 0 0 0
11/2	9/2	6	$2 \cdot 3 \cdot 5 \cdot 17$ $2^3/3^2 7^1 11^1$	$2 \cdot 3 \cdot 5 \cdot 17$ $2^4/3^2 11^1$	$5 \cdot 7 \cdot 17$ $2^3/3^2 7^1 11^1$	0 0
			-1 $2/3^1 5^1$ 0	1 $-2^2 3^1/5^1 7^1$ $2^2 11^1/3^1 5^1 7^1 17^1$	1 $-2^2/3^1 5^1$ $2^2/3^1 5^1 17^1$	0 0 0
11/2	9/2	8	$5 \cdot 13 \cdot 19$ $2^4/3^2 5^1 11^1 13^1$	$5 \cdot 13 \cdot 19$ $2^4/3^1 5^1 11^1 13^1$	$2 \cdot 5 \cdot 13 \cdot 19$ $2^3/3^2 5^1 11^1 13^1$	0 0
			1 0	-1 $2^1 11^1/3^2 19^1$	-1 $2/19$	0 0
11/2	9/2	10	0 0	$2 \cdot 13 \cdot 17 \cdot 19$ $2^5/3^1 5^1 13^1 17^1 19^1$	$5 \cdot 11 \cdot 13 \cdot 17 \cdot 19$ $2^6/3^1 5^1 11^1 13^1 17^1 19^1$	0 0
			0	1	1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIX. N' = 5 N = 5 Normal Parity

j'	j	J	M	Δ'	Σ
1/2	1/2	0	2	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^{1}5^{1}/3$	0	0
			$2^{3}17^{1}/3^{1}5^{1}$	0	0
			$-2^{3}31^{1}/3^{1}5^{1}7^{1}$	0	0
			$2^{1}3^{3}/5^{1}7^{1}$	0	0
			$-2^{3}/3^{1}5^{1}7^{1}$	0	0
3/2	1/2	2	1	0	$2\cdot3$
			$2^{3}13^{1}/3^{1}5^{1}$	0	$2^{1}13^{1}/3^{1}5^{1}$
			0	0	0
			-1	0	-1
			$2^{5}5^{1}/7^{1}13^{1}$	0	$2^{5}5^{1}/7^{1}13^{1}$
			$-2^{3}5^{3}/7^{1}13^{1}$	0	$-2^{3}5^{3}/7^{1}13^{1}$
			$2^{3}3^{1}/7^{1}13^{1}$	0	$2^{3}3^{1}/7^{1}13^{1}$
			$-2/7^{1}13^{1}$	0	$-2/7^{1}13^{1}$
3/2	3/2	0	1	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^{1}5^{1}/3$	0	0
			$2^{3}17^{1}/3^{1}5^{1}$	0	0
			$-2^{3}31^{1}/3^{1}5^{1}7^{1}$	0	0
			$2^{1}3^{3}/5^{1}7^{1}$	0	0
			$-2^{3}/3^{1}5^{1}7^{1}$	0	0
3/2	3/2	2	1	0	0
			$2^{3}13^{1}/3^{1}5^{1}$	0	0
			0	0	0
			-1	0	0
			$2^{5}5^{1}/7^{1}13^{1}$	0	0
			$-2^{3}5^{3}/7^{1}13^{1}$	0	0
			$2^{3}3^{1}/7^{1}13^{1}$	0	0
			$-2/7^{1}13^{1}$	0	0
5/2	1/2	2	$2\cdot3$	1	1
			$2^{3}/5$	2	$2^{4}/5$
			0	0	0
			-1	-1	1
			$5^{3}/2^{1}7^{1}$	$2^{1}3^{1}/7$	$-5^{3}/2^{1}7^{1}$
			$-5^{1}13^{1}/3^{3}7^{1}$	$-19/3^{3}7^{1}$	$5^{1}13^{1}/3^{3}7^{1}$
			$29/2^{1}3^{3}7^{1}$	$2/3^{3}7^{1}$	$-29/2^{1}3^{3}7^{1}$
			$-1/3^{3}7^{1}$	0	$1/3^{3}7^{1}$
5/2	3/2	2	$3\cdot7$	$2\cdot7$	$2\cdot7$
			$2^{4}/5^{1}7^{1}$	$2/7$	$2^{3}/7$
			0	0	0
			1	1	-1
			$-5^{3}/2^{1}7^{1}$	$-2^{1}3^{1}/7$	$5^{3}/2^{1}7^{1}$
			$5^{1}13^{1}/3^{3}7^{1}$	$19/3^{3}7^{1}$	$-5^{1}13^{1}/3^{3}7^{1}$
			$-29/2^{1}3^{3}7^{1}$	$-2/3^{3}7^{1}$	$29/2^{1}3^{3}7^{1}$
			$1/3^{3}7^{1}$	0	$-1/3^{3}7^{1}$
5/2	3/2	4	$2\cdot7$	$2\cdot5\cdot7$	$2\cdot5\cdot7$
			$2^{4}13^{1}/5^{1}7^{2}$	$2^{3}13^{1}/3^{1}5^{1}7^{2}$	$2^{3}13^{1}/5^{1}7^{2}$
			0	0	0
			-1	-1	1
			$37/3^{1}13^{1}$	$2^{1}3^{1}/13$	$-37/3^{1}13^{1}$
			$-11/3^{1}13^{1}$	$-1/13$	$11/3^{1}13^{1}$
			$1/3^{1}13^{1}$	0	$-1/3^{1}13^{1}$
5/2	5/2	0	$2\cdot3$	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^{1}5^{1}/3$	0	0
			$2^{1}29^{1}/3^{1}5^{1}$	0	0
			$-2^{3}47^{1}/3^{1}5^{1}7^{1}$	0	0
			$2^{3}37^{1}/3^{3}5^{1}7^{1}$	0	0
			$-2^{4}/3^{3}5^{1}7^{1}$	0	0
5/2	5/2	2	$3\cdot7$	0	0
			$2^{3}13^{1}/3^{1}5^{1}7^{1}$	0	0
			0	0	0
			-1	0	0
			$2^{5}5^{1}/13$	0	0
			$-2^{1}5^{1}23^{1}/3^{1}7^{1}13^{1}$	0	0
			$2^{3}17^{1}/3^{3}7^{1}13^{1}$	0	0
			$-2^{3}/3^{3}7^{1}13^{1}$	0	0
5/2	5/2	4	7	0	0
			$2^{3}11^{1}/3^{1}5^{1}7^{1}$	0	0
			0	0	0
			1	0	0
			$-2^{1}3^{1}/7$	0	0
			$2^{1}3^{3}/7^{1}11^{1}$	0	0
			$-2^{3}/3^{1}7^{1}11^{1}$	0	0
7/2	1/2	4	2	$2\cdot5$	$2\cdot5$
			$2^{4}13^{1}/3^{1}5^{1}7^{1}$	$2^{3}13^{1}/3^{3}5^{1}7^{1}$	$2^{3}13^{1}/3^{1}5^{1}7^{1}$
			0	0	0
			1	1	1
			$-37/3^{1}13^{1}$	$-2^{1}3^{1}/13$	$-37/3^{1}13^{1}$
			$11/3^{1}13^{1}$	$1/13$	$11/3^{1}13^{1}$
			$-1/3^{1}13^{1}$	0	$-1/3^{1}13^{1}$
7/2	3/2	2	$2\cdot7$	$3\cdot7$	$3\cdot7$
			$2^{4}3^{1}/5^{1}7^{1}$	$2^{3}/7$	$2^{3}/5^{1}7^{1}$
			0	0	0
			-1	-1	-1
			$5^{3}/2^{1}7^{1}$	$2^{1}3^{1}/7$	$5^{3}/2^{1}7^{1}$
			$-5^{1}13^{1}/3^{3}7^{1}$	$-19/3^{3}7^{1}$	$-5^{1}13^{1}/3^{3}7^{1}$
			$29/2^{1}3^{3}7^{1}$	$2/3^{3}7^{1}$	$29/2^{1}3^{3}7^{1}$
			$-1/3^{3}7^{1}$	0	$-1/3^{3}7^{1}$
7/2	3/2	4	$2\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^{4}13^{1}/3^{1}5^{1}7^{2}$	$2^{3}13^{1}/3^{3}7^{2}$	$2^{4}13^{1}/3^{1}5^{1}7^{2}$
			0	0	0
			1	1	1
			$-37/3^{1}13^{1}$	$-2^{1}3^{1}/13$	$-37/3^{1}13^{1}$
			$11/3^{1}13^{1}$	$1/13$	$11/3^{1}13^{1}$
			$-1/3^{1}13^{1}$	0	$-1/3^{1}13^{1}$
7/2	5/2	2	$2\cdot7$	0	$3\cdot7$
			$2^{3}13^{1}/3^{1}5^{1}7^{1}$	0	$2^{3}13^{1}/3^{3}5^{1}$
			0	0	0
			-1	0	-1
			$2^{5}5^{1}/13$	0	$2^{5}5^{1}/13$
			$-2^{1}5^{1}23^{1}/3^{1}7^{1}13^{1}$	0	$-2^{1}5^{1}23^{1}/3^{1}7^{1}13^{1}$
			$2^{3}17^{1}/3^{3}7^{1}13^{1}$	0	$2^{3}17^{1}/3^{3}7^{1}13^{1}$
			$-2^{3}/3^{3}7^{1}13^{1}$	0	$-2^{3}/3^{3}7^{1}13^{1}$
7/2	5/2	4	$2\cdot5\cdot7\cdot11$	0	$2\cdot7\cdot11$
			$2^{3}/3^{1}5^{1}7^{1}$	0	$2^{3}/3^{1}5^{1}$
			0	0	0
			1	0	1
			$-2^{1}3^{1}/7$	0	$-2^{1}3^{1}/7$
			$2^{1}3^{3}/7^{1}11^{1}$	0	$2^{1}3^{3}/7^{1}11^{1}$
			$-2^{3}/3^{1}7^{1}11^{1}$	0	$-2^{3}/3^{1}7^{1}11^{1}$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIX. N' = 5 N = 5 Normal Parity

j'	j	J	M	Δ'	Σ
7/2	5/2	6	$2\cdot11$	0	$3\cdot7\cdot11$
			$2^4/3^2 7^1$	0	$2^4/3^2 7^1$
			0	0	0
			-1	0	-1
			$2^4/3^1 11^1$	0	$2^4/3^1 11^1$
			$-2/3^1 11^1$	0	$-2/3^1 11^1$
7/2	7/2	0	2	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^1 5^1/3$	0	0
			$2^1 29^1/3^1 5^1$	0	0
			$-2^2 47^1/3^1 5^1 7^1$	0	0
			$2^3 37^1/3^2 5^1 7^1$	0	0
			$-2^4/3^2 5^1 7^1$	0	0
7/2	7/2	2	$2\cdot3\cdot7$	0	0
			$2^2 13^1/3^2 7^1$	0	0
			0	0	0
			-1	0	0
			$2^2 5^1/13$	0	0
			$-2^1 5^1 23^1/3^1 7^1 13^1$	0	0
			$2^3 17^1/3^2 7^1 13^1$	0	0
			$-2^3/3^2 7^1 13^1$	0	0
7/2	7/2	4	$2\cdot7\cdot11$	0	0
			$2^3/5^1 7^1$	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/7$	0	0
			$2^1 3^2/7^1 11^1$	0	0
			$-2^2/3^1 7^1 11^1$	0	0
7/2	7/2	6	$2\cdot3\cdot11$	0	0
			$2^4/3^2 7^1$	0	0
			0	0	0
			-1	0	0
			$2^4/3^1 11^1$	0	0
			$-2/3^1 11^1$	0	0
9/2	1/2	4	$5\cdot11$	11	11
			$2^6/3^1 5^1 7^1$	$2^4/3^2 5^1$	$2^6/3^1 5^1 7^1$
			0	0	0
			1	1	-1
			$-2^6/3^1 11^1$	$-3^1 7^1/2^2 11^1$	$2^6/3^1 11^1$
			$31/2^2 3^1 11^1$	$1/2^1 11^1$	$-31/2^2 3^1 11^1$
			$-1/2^1 3^1 11^1$	0	$1/2^1 3^1 11^1$
9/2	3/2	4	5	1	1
			$2^6/3^1 5^1 7^1$	$2^6/3^2 5^1$	$2^6/3^1 5^1$
			0	0	0
			-1	-1	1
			$2^6/3^1 11^1$	$3^1 7^1/2^2 11^1$	$-2^6/3^1 11^1$
			$-31/2^2 3^1 11^1$	$-1/2^1 11^1$	$31/2^2 3^1 11^1$
			$1/2^1 3^1 11^1$	0	$-1/2^1 3^1 11^1$
9/2	3/2	6	$2\cdot5$	$3\cdot5\cdot7$	$3\cdot5\cdot7$
			$2^6/3^1 7^1 11^1$	$2^4/3^2 7^1 11^1$	$2^6/3^2 7^1 11^1$
			0	0	0
			1	1	-1
			$-1/2$	$-1/5$	$1/2$
			$1/2^2 5^1$	0	$-1/2^2 5^1$
9/2	5/2	2	$2\cdot7\cdot11$	$3\cdot7\cdot11$	$3\cdot7\cdot11$
			$2^3 3^1 7^1$	$2/7$	$2^4/3^2 7^1$
			0	0	0
			-1	-1	1
			$5^2/2^1 7^1$	$2^1 3^1/7$	$-5^2/2^1 7^1$
			$-17/3^1 7^1$	$-2^2/3^1 7^1$	$17/3^1 7^1$
			$2^1 43^1/3^2 7^1 11^1$	$2^3/3^2 7^1 11^1$	$-2^1 43^1/3^2 7^1 11^1$
			$-2^2/3^2 7^1 11^1$	0	$2^2/3^2 7^1 11^1$
9/2	5/2	4	$2\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^4 13^1/3^1 5^1 7^2$	$2^2 13^1/5^1 7^2$	$2^4 13^1/3^1 5^1 7^2$
			0	0	0
			1	1	-1
			$-3^2/11$	$-2^2/11$	$3^2/11$
			$2^2 3^1/11^1 13^1$	$2^2/11^1 13^1$	$-2^2 3^1/11^1 13^1$
			$-2^2/3^1 11^1 13^1$	0	$2^2/3^1 11^1 13^1$
9/2	5/2	6	$5\cdot7$	$2\cdot3\cdot5$	$2\cdot3\cdot5$
			$2^6/3^2 7^1 11^1$	$2^2/3^1 7^1 11^1$	$2^6/3^2 7^1 11^1$
			0	0	0
			-1	-1	1
			$5/2^2 3^1$	$2/3^1 5^1$	$-5/2^2 3^1$
			$-1/2^1 3^1 5^1$	0	$1/2^1 3^1 5^1$
9/2	7/2	2	$3\cdot7$	$2\cdot7$	$2\cdot7$
			$2^4/3^2 7^1$	$2/7$	$2^2/7$
			0	0	0
			1	1	-1
			$-5^2/2^1 7^1$	$-2^1 3^1/7$	$5^2/2^1 7^1$
			$17/3^1 7^1$	$2^2/3^1 7^1$	$-17/3^1 7^1$
			$-2^1 43^1/3^2 7^1 11^1$	$-2^2/3^2 7^1 11^1$	$2^1 43^1/3^2 7^1 11^1$
			$2^2/3^2 7^1 11^1$	0	$-2^2/3^2 7^1 11^1$
9/2	7/2	4	$5\cdot7\cdot13$	$7\cdot13$	$7\cdot13$
			$2^4/5^1 7^2$	$2^2 3^1/5^1 7^2$	$2^2 3^2/5^1 7^2$
			0	0	0
			-1	-1	1
			$3^2/11$	$2^2/11$	$-3^2/11$
			$-2^2 3^1/11^1 13^1$	$-2^2/11^1 13^1$	$2^2 3^1/11^1 13^1$
			$2^2/3^1 11^1 13^1$	0	$-2^2/3^1 11^1 13^1$
9/2	7/2	6	$3\cdot5\cdot7$	$2\cdot5$	$2\cdot5$
			$2^7/3^2 7^1 11^1$	$2^2/3^1 7^1 11^1$	$2^6/3^1 7^1 11^1$
			0	0	0
			1	1	-1
			$-5/2^2 3^1$	$-2/3^1 5^1$	$5/2^2 3^1$
			$1/2^1 3^1 5^1$	0	$-1/2^1 3^1 5^1$
9/2	7/2	8	$2\cdot5\cdot13$	$5\cdot13$	$5\cdot13$
			$2^6/3^2 11^1 13^1$	$2^4/3^2 5^1 11^1 13^1$	$2^6/3^2 11^1 13^1$
			0	0	0
			-1	-1	1
			$1/5$	0	$-1/5$
9/2	9/2	0	$2\cdot5$	0	0
			1	0	0
			0	0	0
			1	0	0
			$-2^1 5^1/3$	0	0
			$2^2/3$	0	0
			$-2^4/3^1 7^1$	0	0
			$2^4/3^2 7^1$	0	0
			$-2^6/3^2 5^1 7^1 11^1$	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIX. $N' = 5$ $N = 5$ Normal Parity

j'	j	J	M	Δ'	Σ
9/2	9/2	2	$3\cdot11$	0	0
			$2^8 13^1/3^8 11^1$	0	0
			0	0	0
			−1	0	0
			$2^8/7$	0	0
			$-2^8/3^1 7^1$	0	0
			$2^6/3^8 7^1 11^1$	0	0
			$-2^4/3^8 7^1 11^1 13^1$	0	0
9/2	9/2	4	$5\cdot11\cdot13$	0	0
			$2^8/7^1 11^1$	0	0
			0	0	0
			1	0	0
			$-2^1 3^1/11$	0	0
			$2^8 3^1/11^1 13^1$	0	0
			$-2^8/3^1 5^1 11^1 13^1$	0	0
9/2	9/2	6	$3\cdot5\cdot11$	0	0
			$2^8 17^1/3^8 7^1 11^8$	0	0
			0	0	0
			−1	0	0
			$2^8/3^1 5^1$	0	0
			$-2^8/3^1 5^1 17^1$	0	0
9/2	9/2	8	$5\cdot11\cdot13$	0	0
			$2^8 19^1/3^8 5^1 11^8 13^1$	0	0
			0	0	0
			1	0	0
			−2/19	0	0
11/2	1/2	6	$2\cdot3\cdot11$	$7\cdot11$	$7\cdot11$
			$2^8/3^8 7^1 11^1$	$2^4/3^8 7^1 11^1$	$2^6/3^8 7^1 11^1$
			0	0	0
			−1	−1	−1
			1/2	1/5	1/2
			$-1/2^8 5^1$	0	$-1/2^8 5^1$
11/2	3/2	4	$2\cdot5$	2	2
			$2^8/5^1 7^1$	$2^4/3^1 5^1$	$2^6/5^1 7^1$
			0	0	0
			1	1	1
			$-2^8/3^1 11^1$	$-3^1 7^1/2^8 11^1$	$-2^6/3^1 11^1$
			$31/2^8 3^1 11^1$	$1/2^1 11^1$	$31/2^8 3^1 11^1$
			$-1/2^1 3^1 11^1$	0	$-1/2^1 3^1 11^1$
11/2	3/2	6	$2\cdot3\cdot7$	1	1
			$2^6/3^8 7^1 11^1$	$2^4/3^8 11^1$	$2^8/3^8 7^1 11^1$
			0	0	0
			−1	−1	−1
			1/2	1/5	1/2
			$-1/2^8 5^1$	0	$-1/2^8 5^1$
11/2	5/2	4	$5\cdot13$	13	13
			$2^4/3^1 5^1 7^1$	$2^8/5^1 7^1$	$2^8 3^1/5^1 7^1$
			0	0	0
			1	1	1
			$-3^8/11$	$-2^8/11$	$-3^8/11$
			$2^6 3^1/11^1 13^1$	$2^6/11^1 13^1$	$2^6 3^1/11^1 13^1$
			$-2^8/3^1 11^1 13^1$	0	$-2^8/3^1 11^1 13^1$
11/2	5/2	6	$2\cdot3\cdot7$	1	1
			$2^6/3^8 7^1 11^1$	$2^8/7^1 11^1$	$2^8/7^1 11^1$
			0	0	0
			−1	−1	−1
			$5/2^8 3^1$	$2/3^1 5^1$	$5/2^8 3^1$
			$-1/2^1 3^1 5^1$	0	$-1/2^1 3^1 5^1$
11/2	5/2	8	$2\cdot3\cdot7\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$	$3\cdot7\cdot11\cdot13$
			$2^8/3^8 7^1 11^1 13^1$	$2^4/3^8 5^1 7^1 11^1 13^1$	$2^6/3^8 7^1 11^1 13^1$
			0	0	0
			1	1	1
			−1/5	0	−1/5
11/2	7/2	2	1	$2\cdot3$	$2\cdot3$
			$2^4/3$	2	$2^4/3^8$
			0	0	0
			−1	−1	−1
			$5^8/2^1 7^1$	$2^1 3^1/7$	$5^8/2^1 7^1$
			$-17/3^1 7^1$	$-2^8/3^1 7^1$	$-17/3^1 7^1$
			$2^1 43^1/3^8 7^1 11^1$	$2^8/3^8 7^1 11^1$	$2^1 43^1/3^8 7^1 11^1$
			$-2^8/3^8 7^1 11^1$	0	$-2^8/3^8 7^1 11^1$
11/2	7/2	4	13	$5\cdot13$	$5\cdot13$
			$2^4/3^1 7^1$	$2^8/5^1 7^1$	$2^4/3^1 5^1 7^1$
			0	0	0
			1	1	1
			$-3^8/11$	$-2^8/11$	$-3^8/11$
			$2^8 3^1/11^1 13^1$	$2^8/11^1 13^1$	$2^8 3^1/11^1 13^1$
			$-2^8/3^1 11^1 13^1$	0	$-2^8/3^1 11^1 13^1$
11/2	7/2	6	$2\cdot7$	3	3
			$2^7/3^8 7^1 11^1$	$2^4/3^1 7^1 11^1$	$2^6/3^8 7^1 11^1$
			0	0	0
			−1	−1	−1
			$5/2^8 3^1$	$2/3^1 5^1$	$5/2^8 3^1$
			$-1/2^1 3^1 5^1$	0	$-1/2^1 3^1 5^1$
11/2	7/2	8	$2\cdot7\cdot13$	$7\cdot13$	$7\cdot13$
			$2^6/3^8 7^1 11^1 13^1$	$2^4/3^1 5^1 7^1 11^1 13^1$	$2^6/3^8 7^1 11^1 13^1$
			0	0	0
			1	1	1
			−1/5	0	−1/5
11/2	9/2	2	$11\cdot13$	0	$2\cdot3\cdot11\cdot13$
			$2^8 3^1 11^1$	0	$2/3^8$
			0	0	0
			−1	0	−1
			$2^8/7$	0	$2^8/7$
			$-2^6/3^1 7^1$	0	$-2^6/3^1 7^1$
			$2^6/3^8 7^1 11^1$	0	$2^6/3^8 7^1 11^1$
			$-2^4/3^8 7^1 11^1 13^1$	0	$-2^4/3^8 7^1 11^1 13^1$
11/2	9/2	4	$2\cdot5\cdot11\cdot13$	0	$2\cdot11\cdot13$
			$2^8/3^1 7^1 11^1$	0	$2^8/3^1 7^1$
			0	0	0
			1	0	1
			$-2^1 3^1/11$	0	$-2^1 3^1/11$
			$2^8 3^1/11^1 13^1$	0	$2^8 3^1/11^1 13^1$
			$-2^8/3^1 5^1 11^1 13^1$	0	$-2^8/3^1 5^1 11^1 13^1$
11/2	9/2	6	$2\cdot5\cdot7\cdot11\cdot17$	0	$3\cdot5\cdot11\cdot17$
			$2^8/3^8 7^1 11^8$	0	$2^8/3^8 7^1 11^1$
			0	0	0
			−1	0	−1
			$2^8/3^1 5^1$	0	$2^8/3^1 5^1$
			$-2^8/3^1 5^1 17^1$	0	$-2^8/3^1 5^1 17^1$
11/2	9/2	8	$5\cdot11\cdot13\cdot19$	0	$2\cdot5\cdot11\cdot13\cdot19$
			$2^8/3^8 5^1 11^8 13^1$	0	$2^4/3^8 5^1 11^1 13^1$
			0	0	0
			1	0	1
			−2/19	0	−2/19

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXIX. $N' = 5$ $N = 5$ Normal Parity

j'	j	J	M	Δ'	Σ
11/2	9/2	10	$2\cdot5\cdot13\cdot17\cdot19$	0	$11\cdot13\cdot17\cdot19$
			$2^6/3^15^111^113^117^119^1$	0	$2^6/3^15^111^113^117^119^1$
			0	0	0
			-1	0	-1
11/2	11/2	0	3	0	0
			2	0	0
			0	0	0
			1	0	0
			$-2^15^1/3$	0	0
			$2^3/3$	0	0
			$-2^4/3^17^1$	0	0
			$2^4/3^27^1$	0	0
			$-2^6/3^25^17^111^1$	0	0
11/2	11/2	2	$3\cdot7\cdot11\cdot13$	0	0
			$2^2/3^111^1$	0	0
			0	0	0
			-1	0	0
			$2^3/7$	0	0
			$-2^3/3^17^1$	0	0
			$2^4/3^27^111^1$	0	0
			$-2^4/3^27^111^113^1$	0	0
11/2	11/2	4	$2\cdot7\cdot11\cdot13$	0	0
			$2^4/3^17^111^1$	0	0
			0	0	0
			1	0	0
			$-2^13^1/11$	0	0
			$2^23^1/11^113^1$	0	0
			$-2^6/3^15^111^113^1$	0	0
11/2	11/2	6	$2\cdot3\cdot11\cdot17$	0	0
			$2^25^1/3^27^111^2$	0	0
			0	0	0
			-1	0	0
			$2^3/3^15^1$	0	0
			$-2^3/3^15^117^1$	0	0
11/2	11/2	8	$2\cdot3\cdot11\cdot13\cdot19$	0	0
			$2^4/3^211^213^1$	0	0
			0	0	0
			1	0	0
			$-2/19$	0	0
11/2	11/2	10	$2\cdot13\cdot17\cdot19$	0	0
			$2^6/3^15^111^113^117^119^1$	0	0
			0	0	0
			-1	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
1/2	1/2	1	1	1	2	0
			2/3	2/3	1/3	0
			−1	−1	−1	0
			$2^3/5$	$2^1 17^1/5$	$-2^1 3^3/5$	0
			$-2^3 13^1/5^1 7^1$	$-2^3 3^1 31^1/5^1 7^1$	$2^3 67^1/5^1 7^1$	0
			$2^4/5^1 7^1$	$2^3 3^3/5^1 7^1$	$-2^3 23^1/5^1 7^1$	0
			$-2/5^1 7^1$	$-2^1 5^1/7$	$2^1 23^1/5^1 7^1$	0
			0	$2^3/5^1 7^1$	$-2^3/5^1 7^1$	0
3/2	1/2	1	2	2	1	1
			1/3	$2^3/3$	$2^3/3$	1
			−1	−1	−1	−1
			$2^3/5$	$29/2^1 5^1$	$3^1 7^1/5$	$2^3/5$
			$-2^3 13^1/5^1 7^1$	$-2^3 3^1 11^1/5^1 7^1$	$-2^3 53^1/5^1 7^1$	$-2^3 13^1/5^1 7^1$
			$2^4/5^1 7^1$	$2^1 3^1 11^1/5^1 7^1$	$2^3 29^1/5^1 7^1$	$2^4/5^1 7^1$
			$-2/5^1 7^1$	$-2/5$	$-2^1 13^1/5^1 7^1$	$-2/5^1 7^1$
			0	$1/5^1 7^1$	$2/5^1 7^1$	0
3/2	3/2	1	2·5	2·5	5	0
			1/3	2/3	2/3	0
			−1	1	1	0
			$2^3/5$	$-2^3 23^1/5^3$	$-2^1 3^1 11^1/5^3$	0
			$-2^3 13^1/5^1 7^1$	$2^3 3^3/7$	$2^3 29^1/5^1 7^1$	0
			$2^4/5^1 7^1$	$-2^3 3^1/5^1 7^1$	$-2^3/5$	0
			$-2/5^1 7^1$	$2^1 53^1/5^3 7^1$	$2^1 29^1/5^3 7^1$	0
			0	$-2^3/5^3 7^1$	$-2^3/5^3 7^1$	0
3/2	3/2	3	0	3·5	5	0
			0	$2^3 13^1/3^1 5^3$	$2^3 13^1/5^3$	0
			0	−1	−1	0
			0	$2^3 5^1/7^1 13^1$	$2^3 5^1/7^1 13^1$	0
			0	$-2^3 5^3/7^1 13^1$	$-2^3 5^3/7^1 13^1$	0
			0	$2^3 3^1/7^1 13^1$	$2^3 3^1/7^1 13^1$	0
			0	$-2/7^1 13^1$	$-2/7^1 13^1$	0
5/2	1/2	3	2	2	2·3	2·3
			$2^4/5^1 7^1$	$2^4/5^1 7^1$	$2^3/5^1 7^1$	$2/5^1 7^1$
			1	1	1	−1
			$-7/2^1 3^1$	−11/2	$19/2^1 3^1$	$-2^1 11^1/3^3$
			$2^3/3^3$	$41/3^3$	−11/3	$11/3^3$
			$-1/2^1 3^3$	$-23/2^1 3^3$	$7/2^1 3^1$	$-2/3^3$
			0	$1/3^3$	$-1/3^3$	0
5/2	3/2	1	0	2·5	5	5
			0	$2^3 3^1/5^3$	$2^4 3^1/5^3$	$2^1 3^1/5$
			0	0	0	0
			0	1	−1	1
			0	$-5^3/2^1 7^1$	$5^3/2^1 7^1$	$-2^1 3^1/7$
			0	$5^1 13^1/3^3 7^1$	$-5^1 13^1/3^3 7^1$	$19/3^3 7^1$
			0	$-29/2^1 3^3 7^1$	$29/2^1 3^3 7^1$	$-2/3^3 7^1$
			0	$1/3^3 7^1$	$-1/3^3 7^1$	0
5/2	3/2	3	2·5	2·5	2·3·5	2·3·5
			$2^3/5^1 7^1$	$2^3/5^3 7^1$	$2^3/5^3 7^1$	$2^3/5^1 7^1$
			−1	−1	−1	1
			$7/2^1 3^1$	$5/2^3$	$2^1 5^1/3$	$-17/3^3$
			$-2^3/3^3$	$5/2^3 3^3$	−5/2	$7/3^3$
			$1/2^1 3^3$	$-7/2^3 3^3$	2/3	$-1/3^3$
			0	$1/2^3 3^3$	$-1/2^1 3^3$	0
5/2	5/2	1	5·7	5·7	2·5·7	0
			$2^3/7$	2/7	1/7	0
			−1	−1	−1	0
			$2^3/5$	$2^1 59^1/5^3$	$2^1 7^1/5^3$	0
			$-2^1 3^1/5$	$-2^1 3^1$	2/5	0
			$2^3 13^1/3^3 5^1 7^1$	$2^3 233^1/3^3 5^1 7^1$	$-2^3 43^1/3^3 5^1 7^1$	0
			$-2^3/3^3 5^1 7^1$	$-2^3 107^1/3^3 5^3 7^1$	$2^3 29^1/3^3 5^3 7^1$	0
			0	$2^4/3^1 5^3 7^1$	$-2^4/3^3 5^3 7^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
5/2	5/2	3	$3\cdot5$ $2^3 13^1/3^1 5^1 7^1$	$3\cdot5$ $2^4 13^1/3^1 5^3 7^1$	5 $2^3 13^1/5^3 7^1$	0 0
			1 $-2^1 19^1/3^1 13^1$ $2^1 7^1/3^1 13^1$ $-2^3/3^3 13^1$ 0	1 $-5^1 23^1/3^1 13^1$ $2^4 5^1/3^1 13^1$ $-2^1 29^1/3^3 13^1$ $2^3/3^3 13^1$	1 $2^3 5^1/3^3 13^1$ $-2^1 5^1/13$ $2^3/3^3 13^1$ $-2^3/3^3 13^1$	0 0 0 0 0
5/2	5/2	5	$2\cdot3\cdot5\cdot7$ $2^3/3^3 5^1 7^1$	$2\cdot3\cdot5\cdot7$ $2^3/3^3 5^1 7^1$	7 $2^3/3^3 7^1$	0 0
			-1 $2^3/7$ $-2/3^1 7^1$ 0	-1 $2^1 13^1/7$ $-2^1 17^1/3^1 7^1$ $2^3/3^1 7^1$	-1 $-2^1 3^3/7$ $2^1 5^1/7$ $-2^3/3^1 7^1$	0 0 0 0
7/2	1/2	3	$2\cdot3$ $2^3/5^1 7^1$	$2\cdot3$ $2^4/5^1 7^1$	2 $2^3 3^1/5^1 7^1$	2 $2^3 3^1/7$
			1 $-7/2^1 3^1$ $2^3/3^3$ $-1/2^1 3^3$ 0	1 $-41/2^3 3^1$ $23/2^3 3^1$ $-5/2^3 3^1$ $1/2^3 3^3$	1 $-17/3^3$ $61/2^1 3^3$ $-7/3^3$ $1/2^1 3^3$	1 $-5^3/3^3$ $1/3$ $-1/3^3$ 0
7/2	3/2	3	2 $2^3 3^1/5^1 7^1$	2 $2^3 3^1/5^1 7^1$	$2\cdot3$ $2^4 3^1/5^1 7^1$	$2\cdot3$ $2^3 3^1/5^1 7^1$
			1 $-7/2^1 3^1$ $2^3/3^3$ $-1/2^1 3^3$ 0	-1 $17/3^3$ $-61/2^1 3^3$ $7/3^3$ $-1/2^1 3^3$	-1 $89/2^1 3^3$ $-73/3^4$ $31/2^1 3^4$ $-1/3^4$	-1 $2^1 31^1/3^4$ $-7/3^3$ $2/3^4$ 0
7/2	3/2	5	0 0	1 $2^3 13^1/3^1 5^1 7^1$	$2\cdot3\cdot5$ $2^4 13^1/3^3 5^1 7^1$	$2\cdot3\cdot5$ $2^3 13^1/3^3 5^1 7^1$
			0 0 0 0	1 $-37/3^1 13^1$ $11/3^1 13^1$ $-1/3^1 13^1$	1 $-37/3^1 13^1$ $11/3^1 13^1$ $-1/3^1 13^1$	1 $-2^1 3^1/13$ $1/13$ 0
7/2	5/2	1	7 $2/7$	7 $2^3/7$	$2\cdot7$ $2^3/7$	$2\cdot7$ 1
			-1 $2^3/5$ $-2^1 3^1/5$ $2^3 13^1/3^3 5^1 7^1$ $-2^3/3^3 5^1 7^1$ 0	-1 $29/2^1 5^1$ $-2^4/5$ $449/3^3 5^1 7^1$ $-2^3 19^1/3^3 5^1 7^1$ $2^3/3^3 5^1 7^1$	-1 $3^1 7^1/5$ $-2^1 13^1/5$ $2^1 397^1/3^3 5^1 7^1$ $-2^4/5^1 7^1$ $2^3/3^3 5^1 7^1$	-1 $2^3/5$ $-2^1 3^1/5$ $2^3 13^1/3^3 5^1 7^1$ $-2^3/3^3 5^1 7^1$ 0
7/2	5/2	3	$2\cdot3$ $2^3 13^1/3^1 5^1 7^1$	$2\cdot3$ $2^3 13^1/3^3 5^1 7^1$	2 $2^4 13^1/3^1 5^1 7^1$	2 $2^1 13^1/3^1 5^1$
			1 $-2^1 19^1/3^1 13^1$ $2^1 7^1/3^1 13^1$ $-2^3/3^3 13^1$ 0	1 $-127/2^3 13^1$ $89/2^3 3^1 13^1$ $-43/2^3 3^3 13^1$ $1/2^1 3^3 13^1$	1 $-3^1 17^1/2^1 13^1$ $47/3^1 13^1$ $-31/3^3 13^1$ $2/3^3 13^1$	1 $-2^1 19^1/3^1 13^1$ $2^1 7^1/3^1 13^1$ $-2^3/3^3 13^1$ 0
7/2	5/2	5	$3\cdot7$ $2^3/3^3 7^1$	$3\cdot7$ $2^3/3^1 5^1 7^1$	$2\cdot5\cdot7$ $2^4/3^1 5^1 7^1$	$2\cdot5\cdot7$ $2^3/3^3 5^1$
			-1 $2^3/7$ $-2/3^1 7^1$ 0	-1 $83/2^1 3^3 7^1$ $-2^1 13^1/3^3 7^1$ $1/3^3 7^1$	-1 $23/3^1 7^1$ $-2^1 11^1/3^3 7^1$ $2/3^3 7^1$	-1 $2^3/7$ $-2/3^1 7^1$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
7/2	7/2	1	$3\cdot7$	$3\cdot7$	$2\cdot3\cdot7$	0
			$2^1 3^1/7$	$2^3/7$	$2/7$	0
			-1	1	1	0
			$2^3/5$	$-2^4 11^1/3^2 5^1$	$-2^1 7^2/3^2 5^1$	0
			$-2^1 3^1/5$	$2^1 107^1/3^2 5^1$	$2^1 47^1/3^2 5^1$	0
			$2^2 13^1/3^2 5^1 7^1$	$-2^2 269^1/3^2 5^1 7^1$	$-2^2 193^1/3^2 5^1 7^1$	0
			$-2^3/3^2 5^1 7^1$	$2^2 29^1/3^4 7^1$	$2^2 43^1/3^4 5^1 7^1$	0
			0	$-2^4/3^4 5^1 7^1$	$-2^4/3^4 5^1 7^1$	0
7/2	7/2	3	$2\cdot11$	$2\cdot11$	$2\cdot3\cdot11$	0
			$2^2 13^1/3^1 5^1 7^1$	$2^2 13^1/3^1 5^1 7^1$	$2^2 13^1/3^1 5^1 7^1$	0
			1	-1	-1	0
			$-2^1 19^1/3^1 13^1$	$2^1 11^1/13$	$2^3/3$	0
			$2^1 7^1/3^1 13^1$	$-2^1 19^1/3^1 13^1$	$-2/3$	0
			$-2^3/3^2 13^1$	$2^2 5^1/3^2 11^1$	$2^2 19^1/3^2 11^1 13^1$	0
			0	$-2^4/3^2 11^1 13^1$	$-2^2/3^2 11^1 13^1$	0
7/2	7/2	5	$5\cdot7\cdot13$	$5\cdot7\cdot13$	$2\cdot3\cdot7\cdot13$	0
			$2^2/3^2 5^1 7^1$	$2^4/3^1 5^1 7^1$	$2^2/3^2 7^1$	0
			-1	1	1	0
			$2^3/7$	$-2^2 61^1/3^1 7^1 13^1$	$-2^1 37^1/7^1 13^1$	0
			$-2/3^1 7^1$	$2^1 103^1/3^2 7^1 13^1$	$2^1 29^1/3^1 7^1 13^1$	0
			0	$-2^4/3^2 7^1 13^1$	$-2^2/3^1 7^1 13^1$	0
7/2	7/2	7	0	$3\cdot7\cdot11\cdot13$	$2\cdot3\cdot11\cdot13$	0
			0	$2^2/3^2 7^1 13^1$	$2^4/3^2 13^1$	0
			0	-1	-1	0
			0	$2^4/3^1 11^1$	$2^4/3^1 11^1$	0
			0	$-2/3^1 11^1$	$-2/3^1 11^1$	0
9/2	1/2	5	$2\cdot3\cdot11$	$2\cdot3\cdot11$	$5\cdot11$	$5\cdot11$
			$2^2/3^1 5^1 7^1 11^1$	$2^2/3^1 5^1 7^1 11^1$	$2^2/3^1 5^1 7^1 11^1$	$2^2/3^2 5^1 7^1 11^1$
			-1	-1	-1	1
			$2/3$	2^2	$-2^2/3$	$3^2/2^2$
			$-1/2^2 3^1$	$-7/2^2$	$19/2^2 3^1$	$-1/2$
			0	$1/2^1 3^1$	$-1/2^1 3^1$	0
9/2	3/2	3	0	$5\cdot11$	$3\cdot5\cdot11$	$3\cdot5\cdot11$
			0	$2^2/3^1 5^1 7^1$	$2^2/3^2 5^1 7^1$	$2^4/3^2 5^1$
			0	0	0	0
			0	-1	1	-1
			0	$2^2/3^1 11^1$	$-2^2/3^1 11^1$	$3^1 7^1/2^2 11^1$
			0	$-31/2^2 3^1 11^1$	$31/2^2 3^1 11^1$	$-1/2^1 11^1$
			0	$1/2^1 3^1 11^1$	$-1/2^1 3^1 11^1$	0
9/2	3/2	5	11	11	$2\cdot3\cdot5\cdot11$	$2\cdot3\cdot5\cdot11$
			$2^2/5^1 7^1 11^1$	$2^1/3^1 5^1 7^1 11^1$	$2^2/3^2 5^1 7^1 11^1$	$2^4/3^2 5^1 11^1$
			1	1	1	-1
			$-2/3$	$1/2^1 3^1$	$-7/3$	$3/2$
			$1/2^2 3^1$	$-1/3$	$11/2^2 3^1$	$-1/2^2$
			0	$1/2^2 3^1$	$-1/2^2 3^1$	0
9/2	5/2	3	$2\cdot3\cdot5$	$2\cdot3\cdot5$	$2\cdot5$	$2\cdot5$
			$2^2/3^1 7^1$	$2^4/3^2 7^1$	$2^2/3^1 7^1$	$2/3^1 7^1$
			1	1	1	-1
			$-7/2^1 3^1$	$-29/2^1 5^1$	$-3/2^1 5^1$	$-2/3^1 5^1$
			$2^1 5^1/3^1 11^1$	$2^2 71^1/3^1 5^1 11^1$	$-67/3^1 5^1 11^1$	$2^2 7^1/3^1 5^1 11^1$
			$-2/3^2 11^1$	$-2^1 7^1/3^2 5^1$	$2^1 31^1/3^2 5^1 11^1$	$-2^2/3^2 5^1 11^1$
			0	$2^2/3^2 5^1 11^1$	$-2^2/3^2 5^1 11^1$	0
9/2	5/2	5	$3\cdot11\cdot13$	$3\cdot11\cdot13$	$2\cdot5\cdot11\cdot13$	$2\cdot5\cdot11\cdot13$
			$2^4/3^2 5^1 11^1$	$2^2/3^1 5^1 7^1 11^1$	$2^4/3^1 5^1 7^1 11^1$	$2^2/3^2 5^1 7^1 11^1$
			-1	-1	-1	1
			$7/13$	$223/3^2 13^1$	$-19/3^1 13^1$	$2^2/13$
			$-2/3^1 13^1$	$-2^1 109^1/3^2 13^1$	$2^2 11^1/3^2 13^1$	$-2^2/3^1 13^1$
			0	$2^4/3^2 13^1$	$-2^2/3^2 13^1$	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	5/2	7	$2\cdot13$ $2^7/3^3 7^1 11^1 13^1$	$2\cdot13$ $2^7/3^3 7^1 11^1 13^1$	$7\cdot13$ $2^6/3^3 7^1 11^1 13^1$	$7\cdot13$ $2^3/3^3 7^1 11^1 13^1$
			1 $-1/2^3$ 0	1 $-11/2^3$ 1/2	1 $3^3/2^3$ $-1/2$	-1 -2 0
9/2	7/2	1	0 0	$2\cdot3\cdot5\cdot11$ $2^3/3^2 5^1$	$3\cdot5\cdot11$ $2^4/3^2 5^1$	$3\cdot5\cdot11$ 2/5
			0 0 0 0 0 0	0 1 $-5^3/2^1 7^1$ $17/3^1 7^1$ $-2^1 43^1/3^2 7^1 11^1$ $2^3/3^2 7^1 11^1$	0 -1 $5^3/2^1 7^1$ $-17/3^1 7^1$ $2^1 43^1/3^2 7^1 11^1$ $-2^3/3^2 7^1 11^1$	0 1 $-2^1 3^1/7$ $2^3/3^1 7^1$ $-2^3/3^2 7^1 11^1$ 0
9/2	7/2	3	5 $2^3/3^1 7^1$	5 $2^6/3^1 5^1 7^1$	$3\cdot5$ $2^3/3^1 5^1 7^1$	$3\cdot5$ $2^3 3^1/5^1 7^1$
			-1 $7/2^1 3^1$ $-2^1 5^1/3^1 11^1$ $2/3^2 11^1$ 0	-1 $5/2^3$ $37/2^3 3^1 11^1$ $-7/3^2 11^1$ $1/2^1 3^2 11^1$	-1 $2^1 5^1/3$ $-137/2^1 3^1 11^1$ $2^1 19^1/3^2 11^1$ $-2/3^2 11^1$	1 $-17/3^2$ $2^3 7^1/3^2 11^1$ $-2^3/3^2 11^1$ 0
9/2	7/2	5	$2\cdot11\cdot13$ $2^4/3^2 5^1 11^1$	$2\cdot11\cdot13$ $2^3/3^1 5^1 7^1 11^1$	$3\cdot5\cdot11\cdot13$ $2^6/3^2 5^1 7^1 11^1$	$3\cdot5\cdot11\cdot13$ $2^4/3^1 5^1 7^1 11^1$
			1 $-7/13$ $2/3^1 13^1$ 0	1 $-2^4/3^1 13^1$ $-1/2^3 3^2 13^1$ $1/2^1 3^2 13^1$	1 $-17/13$ $29/2^1 3^1 13^1$ $-1/3^1 13^1$	-1 $19/2^1 13^1$ $-1/13$ 0
9/2	7/2	7	$3\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$3\cdot13$ $2^{10}/3^2 7^1 11^1 13^1$	$2\cdot3\cdot7\cdot13$ $2^3/3^2 7^1 11^1 13^1$	$2\cdot3\cdot7\cdot13$ $2^4/3^1 7^1 11^1 13^1$
			-1 $1/2^3$ 0	-1 $19/2^3 3^1$ $1/2^3 3^1$	-1 2/3 $-1/2^3 3^1$	1 $-1/3$ 0
9/2	9/2	1	$3\cdot5\cdot11$ $2^1 3^1/11$	$3\cdot5\cdot11$ 2/11	$2\cdot3\cdot5\cdot11$ 1/11	0 0
			-1 $2^3/5$ $-2^3 3^1/5^1 7^1$ $2^3/3^2 5^1 7^1$ $-2^4/3^2 5^1 7^1 11^1$ 0	-1 $2^1 101^1/3^2 5^1$ $-2^3 157^1/3^2 5^1 7^1$ $2^4 71^1/3^2 5^1 7^1$ $-2^3 269^1/3^2 5^1 7^1 11^1$ $2^3/3^4 7^1 11^1$	-1 $2^1 23^1/3^2 5^1$ $-2^3/3^2 5^1 7^1$ $-2^4/3^2 5^1$ $2^4 43^1/3^2 5^1 7^1 11^1$ $-2^3/3^4 5^1 7^1 11^1$	0 0 0 0 0 0
9/2	9/2	3	$5\cdot11\cdot13$ $2^3 7^1/3^1 5^1 11^1$	$5\cdot11\cdot13$ $2^4/3^1 5^1 11^1$	$3\cdot5\cdot11\cdot13$ $2^3/3^1 5^1 11^1$	0 0
			1 $-2/3$ $2^3/3^1 11^1$ $-2^3/3^3 11^1 13^1$ 0	1 $-13/7$ $2^1 89^1/3^1 7^1 11^1$ $-2^3 239^1/3^3 7^1 11^1 13^1$ $2^5 5^1/3^3 7^1 11^1 13^1$	1 $-2^3/3^1 7^1$ $-2^6/3^1 7^1 11^1$ $2^4 19^1/3^3 7^1 11^1 13^1$ $-2^4/3^3 7^1 11^1 13^1$	0 0 0 0 0
9/2	9/2	5	$2\cdot13$ $2^5 5^1/3^3 7^1 11^1$	$2\cdot13$ $2^5 5^1/3^1 7^1 11^1$	$3\cdot5\cdot13$ $2^5 5^1/3^3 7^1 11^1$	0 0
			-1 $2^3/13$ $-2^3/3^1 5^1 13^1$ 0	-1 $2^1 23^1/3^1 13^1$ $-2^3 37^1/3^2 5^1 13^1$ $2^3/3^2 5^1 13^1$	-1 $-2^1 7^1/5^1 13^1$ $2^3 29^1/3^1 5^2 13^1$ $-2^3/3^1 5^2 13^1$	0 0 0 0
9/2	9/2	7	$2\cdot3\cdot7\cdot11\cdot13\cdot17$ $2^4/3^1 7^1 11^2 13^1$	$2\cdot3\cdot7\cdot11\cdot13\cdot17$ $2^7/3^3 7^1 11^2 13^1$	$3\cdot11\cdot13\cdot17$ $2^6/3^3 11^2 13^1$	0 0
			1 $-2/17$ 0	1 $-107/2^1 3^1 17^1$ $5/3^1 17^1$	1 $2^3/3^1 17^1$ $-2^3/3^1 17^1$	0 0 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
9/2	9/2	9	$2\cdot11\cdot13\cdot17$ $2^6/3^5 11^5 13^1 17^1$	$2\cdot11\cdot13\cdot17$ $2^5/3^5 11^5 13^1 17^1$	$5\cdot11\cdot13\cdot17$ $2^5/3^1 5^1 11^5 13^1 17^1$	0 0
			-1 0	-1 2	-1 -2	0 0
11/2	1/2	5	$5\cdot11$ $2^6/3^1 5^1 7^1 11^1$	$5\cdot11$ $2^7/5^1 7^1 11^1$	$2\cdot3\cdot11$ $2^6/3^1 7^1 11^1$	$2\cdot3\cdot11$ $2^4/3^5 11^1$
			-1 $2/3$ $-1/2^2 3^1$ 0	-1 $17/2^1 3^2$ $-2/3^2$ $1/2^2 3^2$	-1 1 $-1/2^2$ $1/2^2 3^1 5^1$	-1 $1/2$ $-1/2^2 5^1$ 0
11/2	3/2	5	$11\cdot13$ $2^6/3^1 5^1 7^1 11^1$	$11\cdot13$ $2^6/5^1 7^1 11^1$	$2\cdot3\cdot5\cdot11\cdot13$ $2^6/3^1 5^1 7^1 11^1$	$2\cdot3\cdot5\cdot11\cdot13$ $2^6/3^5 5^1 7^1 11^1$
			-1 $2/3$ $-1/2^2 3^1$ 0	1 $-2^1 59^1/3^2 13^1$ $7^1 17^1/2^2 3^2 13^1$ $-2/3^2 13^1$	1 $-2^2 3^1/13$ $11/2^2 13^1$ $-1/2^1 3^1 13^1$	1 $-23/2^2 13^1$ $1/2^1 13^1$ 0
11/2	3/2	7	0 0	$11\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$2\cdot7\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$2\cdot7\cdot11\cdot13$ $2^4/3^1 7^1 11^1 13^1$
			0 0 0	-1 $1/2$ $-1/2^2 5^1$	-1 $1/2$ $-1/2^2 5^1$	-1 $1/5$ 0
11/2	5/2	3	3 $2^6/3^1 7^1$	3 $2^4/3^1 7^1$	1 $2^2/7$	1 $2^2 3^2/7$
			1 $-7/2^1 3^1$ $2^1 5^1/3^1 11^1$ $-2/3^2 11^1$ 0	1 $-41/2^2 3^1$ $197/2^2 3^1 11^1$ $-1/3^2$ $1/2^1 3^2 11^1$	1 $-17/3^2$ $59/2^1 3^1 11^1$ $-2^1 7^1/3^2 11^1$ $2/3^2 11^1$	1 $-5^2/3^2$ $2^4/3^2 11^1$ $-2^2/3^2 11^1$ 0
11/2	5/2	5	$3\cdot7\cdot11\cdot13$ $2^6/3^5 5^1 7^1 11^1$	$3\cdot7\cdot11\cdot13$ $2^7/3^5 5^1 7^1 11^1$	$2\cdot5\cdot7\cdot11\cdot13$ $2^6/3^5 5^1 7^1 11^1$	$2\cdot5\cdot7\cdot11\cdot13$ $2^4/3^1 5^1 7^1 11^1$
			-1 $7/13$ $-2/3^1 13^1$ 0	-1 $19/2^1 13^1$ $-41/2^2 3^1 13^1$ $1/2^2 3^1 13^1$	-1 $2^2 3^1/13$ $-11/2^2 13^1$ $1/2^1 3^1 13^1$	-1 $23/2^2 13^1$ $-1/2^1 13^1$ 0
11/2	5/2	7	13 $2^6 5^1/3^2 7^1 11^1 13^1$	13 $2^{10}/3^2 7^1 11^1 13^1$	$2\cdot7\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$2\cdot7\cdot13$ $2^4/7^1 11^1 13^1$
			1 $-1/2^2$ 0	1 $-11/2^2$ $3/2^2 5^1$	1 $-1/2$ $1/2^2 5^1$	1 $-1/5$ 0
11/2	7/2	3	$3\cdot13$ $2^6/3^1 7^1$	$3\cdot13$ $2^4/3^2 7^1$	13 $2^4/3^1 7^1$	13 $2^2/3^1 7^1$
			1 $-7/2^1 3^1$ $2^1 5^1/3^1 11^1$ $-2/3^2 11^1$ 0	-1 2 $-5^1 13^1/2^1 3^1 11^1$ $2^1 103^1/3^2 11^1 13^1$ $-2^1 5^1/3^2 11^1 13^1$	-1 $3/2$ $-19/3^1 11^1$ $2^1 7^2/3^2 11^1 13^1$ $-2^2/3^2 11^1 13^1$	-1 $2/3$ $-2^2/3^1 11^1$ $2^2/3^2 11^1 13^1$ 0
11/2	7/2	5	$2\cdot3\cdot5\cdot7\cdot11\cdot13$ $2^4/3^2 5^1 7^1 11^1$	$2\cdot3\cdot5\cdot7\cdot11\cdot13$ $2^4/3^1 5^1 7^1 11^1$	$7\cdot11\cdot13$ $2^4/3^1 7^1 11^1$	$7\cdot11\cdot13$ $2^2/3^2 7^1 11^1$
			-1 $7/13$ $-2/3^1 13^1$ 0	1 $-103/3^2 13^1$ $2^2 17^1/3^2 13^1$ $-2^2/3^2 13^1$	1 $-29/3^1 13^1$ $2^4/3^2 13^1$ $-2^2/3^2 5^1 13^1$	1 $-2^2/13$ $2^2/3^1 5^1 13^1$ 0
11/2	7/2	7	$13\cdot17$ $2^4/3^2 7^1 11^1 13^1$	$13\cdot17$ $2^2/3^2 7^1 11^1 13^1$	$2\cdot7\cdot13\cdot17$ $2^7/3^2 7^1 11^1 13^1$	$2\cdot7\cdot13\cdot17$ $2^4/3^2 7^1 11^1 13^1$
			1 $-1/2^2$ 0	-1 $59/2^2 17^1$ $-5/2^2 17^1$	-1 $3^2/2^2 17^1$ $-1/2^1 17^1$	-1 $2/17$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
11/2	7/2	9	0 0	$5\cdot11\cdot13\cdot17$ $2^7/3^8 11^1 13^1 17^1$	$2\cdot11\cdot13\cdot17$ $2^8/3^8 11^1 13^1 17^1$	$2\cdot11\cdot13\cdot17$ $2^8/3^8 5^1 11^1 13^1 17^1$
			0 0	1 $-1/5$	1 $-1/5$	1 0
11/2	9/2	1	$2\cdot5\cdot11$ $1/11$	$2\cdot5\cdot11$ $2^8/11$	$5\cdot11$ $2^8/11$	$5\cdot11$ 1
			-1 $2^8/5$ $-2^8 3^1/5^1 7^1$ $2^8/3^8 5^1 7^1$ $-2^4/3^8 5^1 7^1 11^1$ 0	-1 $29/2^1 5^1$ $-2^8 19^1/5^1 7^1$ $2^8 47^1/3^8 5^1 7^1$ $-2^8/3^8 5^1 11^1$ $2^8/3^8 5^1 7^1 11^1$	-1 $3^1 7^1/5$ $-2^7/5^1 7^1$ $2^8 43^1/3^8 5^1 7^1$ $-2^4 3^1/5^1 7^1 11^1$ $2^4/3^8 5^1 7^1 11^1$	-1 $2^8/5$ $-2^8 3^1/5^1 7^1$ $2^8/3^8 5^1 7^1$ $-2^4/3^8 5^1 7^1 11^1$ 0
11/2	9/2	3	$2\cdot3\cdot5\cdot11\cdot13$ $2^8/3^1 5^1 11^1$	$2\cdot3\cdot5\cdot11\cdot13$ $2^8/3^8 5^1 11^1$	$2\cdot5\cdot11\cdot13$ $2^4/3^1 5^1 11^1$	$2\cdot5\cdot11\cdot13$ $2/3^1 5^1$
			1 $-2/3$ $2^8/3^1 11^1$ $-2^8/3^8 11^1 13^1$ 0	1 $-7/2^8$ $31/2^2 3^1 11^1$ $-61/2^1 3^8 11^1 13^1$ $1/3^8 11^1 13^1$	1 $-3/2$ $19/3^1 11^1$ $-2^1 7^2/3^8 11^1 13^1$ $2^8/3^8 11^1 13^1$	1 $-2/3$ $2^8/3^1 11^1$ $-2^8/3^8 11^1 13^1$ 0
11/2	9/2	5	$3\cdot13$ $2^4 5^1/3^8 7^1 11^1$	$3\cdot13$ $2^8/3^1 7^1 11^1$	$2\cdot5\cdot13$ $2^8/3^1 7^1 11^1$	$2\cdot5\cdot13$ $2^8/3^8 7^1$
			-1 $2^8/13$ $-2^8/3^1 5^1 13^1$ 0	-1 $89/2^1 3^8 13^1$ $-2^1 7^1/3^8 13^1$ $2/3^8 5^1 13^1$	-1 $29/3^1 13^1$ $-2^4/3^8 13^1$ $2^8/3^8 5^1 13^1$	-1 $2^8/13$ $-2^8/3^1 5^1 13^1$ 0
11/2	9/2	7	$2\cdot11\cdot13\cdot17$ $2^8/3^8 11^8 13^1$	$2\cdot11\cdot13\cdot17$ $2^8/3^8 7^1 11^8 13^1$	$7\cdot11\cdot13\cdot17$ $2^8/3^8 7^1 11^8 13^1$	$7\cdot11\cdot13\cdot17$ $2^4/3^8 7^1 11^1 13^1$
			1 $-2/17$ 0	1 $-83/2^8 17^1$ $1/2^4 17^1$	1 $-3^8/2^8 17^1$ $1/2^1 17^1$	1 $-2/17$ 0
11/2	9/2	9	$11\cdot13\cdot17$ $2^8/3^1 11^8 13^1 17^1$	$11\cdot13\cdot17$ $2^7 5^1/3^8 11^8 13^1 17^1$	$2\cdot5\cdot11\cdot13\cdot17$ $2^8/3^8 11^8 13^1 17^1$	$2\cdot5\cdot11\cdot13\cdot17$ $2^4/3^8 5^1 11^1 13^1 17^1$
			-1 0	-1 $1/2^1 5^8$	-1 $1/5$	-1 0
11/2	11/2	1	$2\cdot11\cdot13$ $5/11$	$2\cdot11\cdot13$ $2/11$	$11\cdot13$ $2/11$	0 0
			-1 $2^8/5$ $-2^8 3^1/5^1 7^1$ $2^8/3^8 5^1 7^1$ $-2^4/3^8 5^1 7^1 11^1$ 0	1 -2^8 $2^8 3^1/7$ $-2^8/3^8 7^1$ $2^4 5^1/3^8 7^1 11^1$ $-2^8/3^8 5^1 7^1 11^1 13^1$	1 -2 $2^8/7$ $-2^4/3^8 7^1$ $2^4/3^8 7^1 11^1$ $-2^8/3^8 5^1 7^1 11^1 13^1$	0 0 0 0 0 0
11/2	11/2	3	$3\cdot11\cdot13$ $2^8/3^1 11^1$	$3\cdot11\cdot13$ $2^8/3^1 11^1$	$11\cdot13$ $2^8/11$	0 0
			1 $-2/3$ $2^8/3^1 11^1$ $-2^8/3^8 11^1 13^1$ 0	-1 $2^8/3$ $-2^4/3^1 11^1$ $2^4 5^1/3^8 11^1 13^1$ $-2^4/3^8 5^1 11^1 13^1$	-1 $2^8/3^8$ $-2^8/3^1 11^1$ $2^8/3^8 11^1 13^1$ $-2^4/3^8 5^1 11^1 13^1$	0 0 0 0 0
11/2	11/2	5	$3\cdot5\cdot13\cdot17$ $2^4/3^8 7^1 11^1$	$3\cdot5\cdot13\cdot17$ $2^8/3^8 7^1 11^1$	$2\cdot13\cdot17$ $2^4 5^1/3^8 7^1 11^1$	0 0
			-1 $2^8/13$ $-2^8/3^1 5^1 13^1$ 0	1 $-2^8/13$ $2^8/3^1 13^1$ $-2^4/3^1 5^1 13^1 17^1$	1 $-2^1 3^1/13$ $2^8/5^1 13^1$ $-2^8/3^1 5^1 13^1 17^1$	0 0 0 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXX. $N' = 5$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
11/2	11/2	7	$7\cdot11\cdot13\cdot17\cdot19$ $2^8/3^27^111^213^1$	$7\cdot11\cdot13\cdot17\cdot19$ $2^7/3^27^111^213^1$	$2\cdot11\cdot13\cdot17\cdot19$ $2^8/3^211^213^1$	0 0
			1 $-2/17$ 0	-1 $5/17$ $-2^13^1/17^119^1$	-1 $2^3/17$ $-2^3/17^119^1$	0 0 0
11/2	11/2	9	$3\cdot5\cdot7\cdot11\cdot13\cdot17$ $2^8/3^25^111^213^117^1$	$3\cdot5\cdot7\cdot11\cdot13\cdot17$ $2^8/3^211^213^117^1$	$2\cdot3\cdot7\cdot11\cdot13\cdot17$ $2^8/3^111^213^117^1$	0 0
			-1 0	1 $-2^3/5^17^1$	1 $-2/3^17^1$	0 0
11/2	11/2	11	0 0	$2\cdot7\cdot11\cdot13\cdot17\cdot19$ $2^7/3^15^17^111^113^117^119^1$	$2\cdot3\cdot7\cdot13\cdot17\cdot19$ $2^8/3^25^17^113^117^119^1$	0 0
			0	-1	-1	0

TABLE XXXI. $N' = 6$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	1/2	6	$11\cdot13$ $2^8/3^111^113^1$	$2\cdot3\cdot7\cdot11\cdot13$ $2^8/3^211^113^1$	$2\cdot3\cdot7\cdot11\cdot13$ $2^8/3^17^111^113^1$
			0 1 $-2/5$ $1/2^13^15^1$	-1 $2^3/5$ $-1/2^15^1$ 0	0 1 $-2/5$ $1/2^13^15^1$
13/2	3/2	6	$2\cdot5\cdot7\cdot11\cdot13$ $2^4/3^17^111^113^1$	$3\cdot5\cdot11\cdot13$ $2^3/3^211^113^1$	$3\cdot5\cdot11\cdot13$ $2^4/7^111^113^1$
			0 1 $-3^3/5^3$ $2/3^15^3$	-1 $2^329^1/5^37^1$ $-2^33^1/5^37^1$ 0	0 1 $-3^3/5^3$ $2/3^15^3$
13/2	3/2	8	$2\cdot5\cdot7\cdot11\cdot13$ $2^7/3^15^37^111^113^1$	$5\cdot7\cdot11\cdot13$ $2^8/5^37^111^113^1$	$5\cdot7\cdot11\cdot13$ $2^8/5^37^111^113^1$
			0 -1 $1/2^13^1$	1 $-1/3$ 0	0 -1 $1/2^13^1$
13/2	5/2	4	7 $2^8/3^17^1$	$5\cdot7$ $2^3/3^17^1$	$5\cdot7$ $2^8/3^15^17^1$
			0 -1 $31/2^311^1$ $-19/11^113^1$ $1/11^113^1$	1 $-3^17^3/2^15^111^1$ $2^1131^1/5^111^113^1$ $-2^13^3/5^111^113^1$ 0	0 -1 $31/2^311^1$ $-19/11^113^1$ $1/11^113^1$
13/2	5/2	6	$3\cdot5\cdot7\cdot13$ $2^8/3^17^111^113^1$	$2\cdot5\cdot13$ $2^4/3^111^113^1$	$2\cdot5\cdot13$ $2^7/3^17^111^113^1$
			0 1 $-3^3/5^3$ $2/3^15^3$	-1 $2^329^1/5^37^1$ $-2^33^1/5^37^1$ 0	0 1 $-3^3/5^3$ $2/3^15^3$
13/2	5/2	8	$5\cdot7\cdot11$ $2^7/5^37^111^113^1$	$2\cdot5\cdot7\cdot11$ $2^43^1/5^37^111^113^1$	$2\cdot5\cdot7\cdot11$ $2^7/3^15^37^111^113^1$
			0 -1 $1/2^13^1$	1 $-1/3$ 0	0 -1 $1/2^13^1$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXI. $N' = 6$ $N = 4$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	7/2	4	$2\cdot5\cdot7$	$2\cdot7$	$2\cdot7$
			$2^4/3^27^1$	$2^15^1/3^27^1$	$2^211^1/3^27^1$
			0	1	0
			−1	$-2^13^17^1/5^111^1$	−1
			$2^13^1/11$	$2^23^1/5^111^113^1$	$2^13^1/11$
			$-2^23^1/11^113^1$	$-2^4/3^15^213^1$	$-2^23^1/11^113^1$
			$2^4/3^15^111^113^1$	0	$2^4/3^15^111^113^1$
13/2	7/2	6	$7\cdot13\cdot17$	$2\cdot3\cdot13\cdot17$	$2\cdot3\cdot13\cdot17$
			$2^5/3^17^111^113^1$	$2^5/3^211^113^1$	$2^4/3^27^113^1$
			0	−1	0
			1	$2^23^1/5^17^1$	1
			$-2^3/3^15^1$	$-2^211^1/3^15^17^117^1$	$-2^2/3^15^1$
			$2^3/3^15^117^1$	0	$2^3/3^15^117^1$
13/2	7/2	8	$3\cdot7\cdot11\cdot19$	$2\cdot3\cdot7\cdot11\cdot19$	$2\cdot3\cdot7\cdot11\cdot19$
			$2^6/3^25^17^111^113^1$	$2^5/3^15^17^111^113^1$	$2^4/3^25^17^113^1$
			0	1	0
			−1	$-2^111^1/3^219^1$	−1
			2/19	0	2/19
13/2	7/2	10	$3\cdot5\cdot11\cdot13\cdot17\cdot19$	$2\cdot3\cdot13\cdot17\cdot19$	$2\cdot3\cdot13\cdot17\cdot19$
			$2^7/3^25^111^113^117^119^1$	$2^6/3^25^113^117^119^1$	$2^6/3^25^113^117^119^1$
			0	−1	0
			1	0	1
13/2	9/2	2	$2\cdot7$	$3\cdot7$	$3\cdot7$
			2	1	$2^2/3$
			0	−1	0
			1	$2^25^1/3^17^1$	1
			$-2^2/7$	$-2^2/3^2$	$-2^2/7$
			$2^2/3^17^1$	$2^2/3^17^111^1$	$2^2/3^17^1$
			$-2^5/3^27^111^1$	$-2^4/3^27^113^1$	$-2^5/3^27^111^1$
			$2^4/3^27^111^113^1$	0	$2^4/3^27^111^113^1$
13/2	9/2	4	$5\cdot7$	7	7
			$2^5/3^27^1$	$2^45^1/3^27^1$	$2^5/3^27^1$
			0	1	0
			−1	$-2^13^17^1/5^111^1$	−1
			$2^13^1/11$	$2^23^1/5^111^113^1$	$2^13^1/11$
			$-2^23^1/11^113^1$	$-2^5/3^15^213^1$	$-2^23^1/11^113^1$
			$2^5/3^15^111^113^1$	0	$2^5/3^15^111^113^1$
13/2	9/2	6	$2\cdot5\cdot7\cdot13\cdot17$	$3\cdot5\cdot13\cdot17$	$3\cdot5\cdot13\cdot17$
			$2^4/3^17^111^113^1$	$2^5/3^211^113^1$	$2^5/3^27^111^113^1$
			0	−1	0
			1	$2^23^1/5^17^1$	1
			$-2^3/3^15^1$	$-2^211^1/3^15^17^117^1$	$-2^2/3^15^1$
			$2^3/3^15^117^1$	0	$2^3/3^15^117^1$
13/2	9/2	8	$2\cdot3\cdot5\cdot7\cdot19$	$3\cdot5\cdot7\cdot19$	$3\cdot5\cdot7\cdot19$
			$2^6/3^25^17^111^113^1$	$2^4/3^25^17^111^113^1$	$2^6/3^25^17^111^113^1$
			0	1	0
			−1	$-2^111^1/3^219^1$	−1
			2/19	0	2/19
13/2	9/2	10	$3\cdot5\cdot17\cdot19$	$2\cdot3\cdot11\cdot17\cdot19$	$2\cdot3\cdot11\cdot17\cdot19$
			$2^6/3^25^113^117^119^1$	$2^4/3^25^113^117^119^1$	$2^6/3^25^111^113^117^119^1$
			0	−1	0
			1	0	1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXII. N' = 6 N = 4 Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	1/2	7	0 0	$2\cdot7\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$11\cdot13$ $2^5/3^1 11^1 13^1$	$11\cdot13$ $2^6/3^1 5^1 11^1 13^1$
			0 0 0	1 $-2/5$ $1/2^1 3^1 5^1$	1 $-2/5$ $1/2^1 3^1 5^1$	1 $-1/2^1 3^1$ 0
13/2	3/2	5	$3\cdot5\cdot7\cdot11$ $2^8/3^1 5^1 7^1 11^1$	$3\cdot5\cdot7\cdot11$ $2^7/3^1 5^1 7^1 11^1$	$2\cdot7\cdot11$ $2^8/3^1 7^1 11^1$	$2\cdot7\cdot11$ $2^8/3^1 11^1$
			1 $-23/2^8 13^1$ $1/2^1 13^1$ 0	1 $-71/2^8 13^1$ $1/2^8$ $-1/2^8 3^1 13^1$	1 $-19/2^1 13^1$ $37/2^5 13^1$ $-1/2^1 5^1 13^1$	1 $-5/13$ $2/5^1 13^1$ 0
13/2	3/2	7	11 $2^8/7^1 11^1 13^1$	11 $2^8/3^1 7^1 11^1 13^1$	$2\cdot7\cdot11$ $2^7/3^1 7^1 11^1 13^1$	$2\cdot7\cdot11$ $2^8/3^1 5^1 11^1 13^1$
			-1 $1/5$ 0	-1 $13/2^8 5^1$ $-1/2^4 3^1$	-1 $2/5$ $-1/2^1 3^1 5^1$	-1 $1/2^1 3^1$ 0
13/2	5/2	5	$2\cdot5\cdot7\cdot11$ $2^8/3^1 5^1 7^1 11^1$	$2\cdot5\cdot7\cdot11$ $2^8/5^1 7^1 11^1$	$3\cdot7\cdot11$ $2^8/3^1 7^1 11^1$	$3\cdot7\cdot11$ $2^8/3^1 7^1 11^1$
			1 $-23/2^8 13^1$ $1/2^1 13^1$ 0	-1 $7^1 17^1/2^8 3^1 13^1$ $-2/13$ $1/3^8 13^1$	-1 $3^1 11^1/2^8 13^1$ $-7/5^1 13^1$ $1/3^1 5^1 13^1$	-1 $2^8/13$ $-2^8/3^1 5^1 13^1$ 0
13/2	5/2	7	$2\cdot11\cdot17$ $2^8/3^1 7^1 11^1 13^1$	$2\cdot11\cdot17$ $2^7/3^1 7^1 11^1 13^1$	$7\cdot11\cdot17$ $2^8/3^1 7^1 11^1 13^1$	$7\cdot11\cdot17$ $2^8/3^1 5^1 7^1 11^1 13^1$
			-1 $1/5$ 0	1 $-2^8/5^1 17^1$ $1/2^1 17^1$	1 $-29/5^1 17^1$ $2/5^1 17^1$	1 $-2/17$ 0
13/2	5/2	9	0 0	$2\cdot5\cdot7\cdot11\cdot13\cdot17$ $2^7/3^1 5^1 7^1 11^1 13^1 17^1$	$7\cdot11\cdot13\cdot17$ $2^7/5^1 7^1 11^1 13^1 17^1$	$7\cdot11\cdot13\cdot17$ $2^8/3^1 5^1 7^1 11^1 13^1 17^1$
			0 0	-1 $1/2^1 3^1$	-1 $1/2^1 3^1$	-1 0
13/2	7/2	3	2 $2/3$	2 $2^4/3$	$2\cdot3$ $2^8/3$	$2\cdot3$ 2
			-1 $2/3$ $-2^8/3^1 11^1$ $2^8/3^8 11^1 13^1$ 0	-1 $13/2^8 3^1$ $-23/2^1 3^1 11^1$ $53/3^8 11^1 13^1$ $-2/3^8 11^1 13^1$	-1 $11/3^2$ $-2^1 7^1/3^1 11^1$ $2^8 17^1/3^8 11^1 13^1$ $-2^8/3^8 11^1 13^1$	-1 $2/3$ $-2^8/3^1 11^1$ $2^8/3^8 11^1 13^1$ 0
13/2	7/2	5	$2\cdot7\cdot11$ $2^8/3^8 7^1 11^1$	$2\cdot7\cdot11$ $2^7/3^8 7^1 11^1$	$3\cdot5\cdot7\cdot11$ $2^7/3^8 7^1 11^1$	$3\cdot5\cdot7\cdot11$ $2^8/3^1 7^1 11^1$
			1 $-2^8/13$ $2^8/3^1 5^1 13^1$ 0	1 $-7^8/2^8 13^1$ $5/2^1 3^1 13^1$ $-1/2^1 3^1 5^1 13^1$	1 $-3^1 11^1/2^8 13^1$ $7/5^1 13^1$ $-1/3^1 5^1 13^1$	1 $-2^8/13$ $2^8/3^1 5^1 13^1$ 0
13/2	7/2	7	$2\cdot3\cdot17$ $2^8 5^1/3^1 7^1 11^1 13^1$	$2\cdot3\cdot17$ $2^7/3^1 7^1 11^1 13^1$	$3\cdot7\cdot17$ $2^8/3^1 7^1 11^1 13^1$	$3\cdot7\cdot17$ $2^4 3^1/5^1 7^1 11^1 13^1$
			-1 $2/17$ 0	-1 $137/2^8 5^1 17^1$ $-3/2^8 5^1 17^1$	-1 $29/5^1 17^1$ $-2/5^1 17^1$	-1 $2/17$ 0
13/2	7/2	9	$2\cdot3\cdot7\cdot11\cdot17$ $2^8/3^8 5^1 11^1 13^1 17^1$	$2\cdot3\cdot7\cdot11\cdot17$ $2^8/3^8 7^1 11^1 13^1 17^1$	$3\cdot5\cdot7\cdot11\cdot17$ $2^8/3^8 5^1 7^1 11^1 13^1 17^1$	$3\cdot5\cdot7\cdot11\cdot17$ $2^8/3^1 5^1 7^1 11^1 13^1 17^1$
			1 0	1 $-1/2^8 5^1$	1 $-1/2^1 3^1$	1 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXII. $N' = 6$ $N = 4$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	9/2	3	$2\cdot5$	$2\cdot5$	$2\cdot3\cdot5$	0
			$2^3/3$	$2^2/3$	$2/3$	0
			-1	1	1	0
			$2/3$	$-2^2/3$	$-2^3/3^2$	0
			$-2^3/3^111^1$	$2^4/3^111^1$	$2^3/3^111^1$	0
			$2^5/3^211^113^1$	$-2^45^1/3^211^113^1$	$-2^5/3^211^113^1$	0
			0	$2^4/3^25^111^113^1$	$2^4/3^25^111^113^1$	0
13/2	9/2	5	$2\cdot7\cdot11\cdot17$	$2\cdot7\cdot11\cdot17$	$3\cdot5\cdot7\cdot11\cdot17$	0
			$2^4/3^27^111^1$	$2^5/3^27^111^1$	$2^5/3^27^111^1$	0
			1	-1	-1	0
			$-2^3/13$	$2^3/13$	$2^13^1/13$	0
			$2^3/3^15^113^1$	$-2^2/3^113^1$	$-2^2/5^113^1$	0
			0	$2^4/3^15^113^117^1$	$2^3/3^15^113^117^1$	0
13/2	9/2	7	$3\cdot17\cdot19$	$3\cdot17\cdot19$	$2\cdot3\cdot7\cdot17\cdot19$	0
			$2^4/3^17^111^113^1$	$2^5/3^17^111^113^1$	$2^4/3^17^111^113^1$	0
			-1	1	1	0
			$2/17$	$-5/17$	$-2^2/17$	0
			0	$2^13^1/17^119^1$	$2^2/17^119^1$	0
13/2	9/2	9	$3\cdot7\cdot11\cdot17$	$3\cdot7\cdot11\cdot17$	$2\cdot3\cdot5\cdot7\cdot11\cdot17$	0
			$2^6/3^25^111^113^117^1$	$2^7/3^211^113^117^1$	$2^6/3^25^111^113^117^1$	0
			1	-1	-1	0
			0	$2^25^17^1$	$2/3^17^1$	0
13/2	9/2	11	0	$3\cdot5\cdot7\cdot11\cdot13\cdot17\cdot19$	$5\cdot7\cdot13\cdot17\cdot19$	0
			0	$2^7/3^25^17^111^113^117^119^1$	$2^6/3^25^17^113^117^119^1$	0
			0	1	1	0

TABLE XXXIII. $N' = 6$ $N = 5$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	1/2	7	$2\cdot7\cdot11\cdot13$	$11\cdot13$	$11\cdot13$
			$2^6/3^17^111^113^1$	$2^6/3^17^111^113^1$	$2^7/3^17^111^113^1$
			0	1	0
			-1	$-2^13^1/5$	-1
			$2/5$	$1/2^13^1$	$2/5$
			$-1/2^13^15^1$	0	$-1/2^13^15^1$
13/2	3/2	5	$7\cdot11$	$2\cdot3\cdot5\cdot7\cdot11$	$2\cdot3\cdot5\cdot7\cdot11$
			$2^6/3^17^111^1$	$2^4/3^15^17^111^1$	$2^6/3^27^111^1$
			0	-1	0
			1	$167/2^13^113^1$	1
			$-19/2^113^1$	$-107/2^23^113^1$	$-19/2^113^1$
			$37/2^25^113^1$	$2/3^113^1$	$37/2^25^113^1$
			$-1/2^15^113^1$	0	$-1/2^15^113^1$
13/2	3/2	7	$7\cdot11$	$2\cdot11$	$2\cdot11$
			$2^7/3^17^111^113^1$	$2^6/3^17^111^113^1$	$2^65^1/3^17^111^113^1$
			0	1	0
			-1	$-2^13^1/5$	-1
			$2/5$	$1/2^13^1$	$2/5$
			$-1/2^13^15^1$	0	$-1/2^13^15^1$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXIII. $N' = 6$ $N = 5$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	5/2	5	$2\cdot3\cdot7\cdot11$ $2^5/3^2 7^1 11^1$	$5\cdot7\cdot11$ $2^4/3^1 5^1 7^1 11^1$	$5\cdot7\cdot11$ $2^6/3^2 7^1 11^1$
			0 1 $-3^1 11^1/2^2 13^1$ $7/5^1 13^1$ $-1/3^1 5^1 13^1$	-1 $83/2^2 13^1$ $-2^4/3^1 13^1$ $1/3^1 13^1$ 0	0 1 $-3^1 11^1/2^2 13^1$ $7/5^1 13^1$ $-1/3^1 5^1 13^1$
13/2	5/2	7	$2\cdot7\cdot11\cdot17$ $2^6/3^2 7^1 11^1 13^1$	$11\cdot17$ $2^6/3^2 7^1 11^1 13^1$	$11\cdot17$ $2^6 5^1/3^2 7^1 11^1 13^1$
			0 -1 $29/5^1 17^1$ $-2/5^1 17^1$	1 $-149/2^1 5^1 17^1$ $3/2^1 17^1$ 0	0 -1 $29/5^1 17^1$ $-2/5^1 17^1$
13/2	5/2	9	$2\cdot7\cdot11\cdot13\cdot17$ $2^7/3^1 5^1 7^1 11^1 13^1 17^1$	$5\cdot7\cdot11\cdot13\cdot17$ $2^6/3^2 5^1 7^1 11^1 13^1 17^1$	$5\cdot7\cdot11\cdot13\cdot17$ $2^8/3^2 5^1 7^1 11^1 13^1 17^1$
			0 1 $-1/2^1 3^1$	-1 $1/2$ 0	0 1 $-1/2^1 3^1$
13/2	7/2	3	$2\cdot3$ $2^3/3$	2 $2^3/3$	2 2^3
			0 -1 $11/3^3$ $-2^1 7^1/3^1 11^1$ $2^3 17^1/3^3 11^1 13^1$ $-2^3/3^3 11^1 13^1$	1 $-2^1 5^1/3$ $61/3^1 11^1$ $-2^3 101^1/3^3 11^1 13^1$ $2^3 5^1/3^3 11^1 13^1$ 0	0 -1 $11/3^3$ $-2^1 7^1/3^1 11^1$ $2^3 17^1/3^3 11^1 13^1$ $-2^3/3^3 11^1 13^1$
13/2	7/2	5	$3\cdot5\cdot7\cdot11$ $2^7/3^2 7^1 11^1$	$2\cdot7\cdot11$ $2^6/3^2 7^1 11^1$	$2\cdot7\cdot11$ $2^6/3^2 7^1 11^1$
			0 1 $-3^1 11^1/2^2 13^1$ $7/5^1 13^1$ $-1/3^1 5^1 13^1$	-1 $83/2^2 13^1$ $-2^4/3^1 13^1$ $1/3^1 13^1$ 0	0 1 $-3^1 11^1/2^2 13^1$ $7/5^1 13^1$ $-1/3^1 5^1 13^1$
13/2	7/2	7	$3\cdot7\cdot17$ $2^6/3^1 7^1 11^1 13^1$	$2\cdot3\cdot17$ $2^5/3^1 7^1 11^1 13^1$	$2\cdot3\cdot17$ $2^4/7^1 11^1 13^1$
			0 -1 $29/5^1 17^1$ $-2/5^1 17^1$	1 $-149/2^1 5^1 17^1$ $3/2^1 17^1$ 0	0 -1 $29/5^1 17^1$ $-2/5^1 17^1$
13/2	7/2	9	$3\cdot5\cdot7\cdot11\cdot17$ $2^8/3^2 5^1 7^1 11^1 13^1 17^1$	$2\cdot3\cdot7\cdot11\cdot17$ $2^6/3^2 7^1 11^1 13^1 17^1$	$2\cdot3\cdot7\cdot11\cdot17$ $2^7/3^2 5^1 7^1 11^1 13^1 17^1$
			0 1 $-1/2^1 3^1$	-1 $1/2$ 0	0 1 $-1/2^1 3^1$
13/2	9/2	3	$3\cdot5\cdot11$ $2^3/3^1 11^1$	$5\cdot11$ $2/3^1 11^1$	$5\cdot11$ $2^3/11$
			0 -1 $2^3/3^3$ $-2^3/3^1 11^1$ $2^3/3^3 11^1 13^1$ $-2^4/3^2 5^1 11^1 13^1$	1 $-2^3/3$ $2^4/3^1 11^1$ $-2^4 5^1/3^2 11^1 13^1$ $2^4/3^2 5^1 11^1 13^1$ 0	0 -1 $2^3/3^2$ $-2^3/3^1 11^1$ $2^3/3^2 11^1 13^1$ $-2^4/3^2 5^1 11^1 13^1$
13/2	9/2	5	$2\cdot3\cdot5\cdot7\cdot17$ $2^6/3^2 7^1 11^1$	$7\cdot17$ $2^4/3^2 7^1 11^1$	$7\cdot17$ $2^7/3^2 7^1 11^1$
			0 1 $-2^1 3^1/13$ $2^3/5^1 13^1$ $-2^3/3^1 5^1 13^1 17^1$	-1 $2^3/13$ $-2^3/3^1 13^1$ $2^4/3^1 5^1 13^1 17^1$ 0	0 1 $-2^1 3^1/13$ $2^3/5^1 13^1$ $-2^3/3^1 5^1 13^1 17^1$

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXIII. $N' = 6$ $N = 5$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	9/2	7	$3\cdot7\cdot11\cdot17\cdot19$ $2^8/3^1 7^1 11^2 13^1$	$2\cdot3\cdot11\cdot17\cdot19$ $2^4/3^1 7^1 11^2 13^1$	$2\cdot3\cdot11\cdot17\cdot19$ $2^8/7^1 11^2 13^1$
			0 −1 $2^8/17$ $-2^8/17^1 19^1$	1 −5/17 $2^1 3^1/17^1 19^1$ 0	0 −1 $2^8/17$ $-2^8/17^1 19^1$
13/2	9/2	9	$3\cdot5\cdot7\cdot17$ $2^7/3^2 5^1 11^1 13^1 17^1$	$2\cdot3\cdot7\cdot17$ $2^6/3^2 11^1 13^1 17^1$	$2\cdot3\cdot7\cdot17$ $2^8/3^2 5^1 11^1 13^1 17^1$
			0 1 $-2/3^1 7^1$	−1 $2^8/5^1 7^1$ 0	0 1 $-2/3^1 7^1$
13/2	9/2	11	$2\cdot5\cdot7\cdot11\cdot13\cdot17\cdot19$ $2^6/3^2 5^1 7^1 11^1 13^1 17^1 19^1$	$2\cdot3\cdot5\cdot7\cdot13\cdot17\cdot19$ $2^8/3^2 5^1 7^1 11^1 13^1 17^1 19^1$	$2\cdot3\cdot5\cdot7\cdot13\cdot17\cdot19$ $2^7/3^2 5^1 7^1 11^1 13^1 17^1 19^1$
			0 −1	1 0	0 −1
13/2	11/2	1	$2\cdot7$ 2	7 1	7 2
			0 1 −2 $2^8/7$ $-2^4/3^2 7^1$ $2^4/3^2 7^1 11^1$ $-2^8/3^2 5^1 7^1 11^1 13^1$	−1 2^8 $-2^8 3^1/7$ $2^6/3^2 7^1$ $-2^4 5^1/3^2 7^1 11^1$ $2^6/3^1 5^1 7^1 11^1 13^1$ 0	0 1 −2 $2^8/7$ $-2^4/3^2 7^1$ $2^4/3^2 7^1 11^1$ $-2^8/3^2 5^1 7^1 11^1 13^1$
13/2	11/2	3	$2\cdot3\cdot11$ $2^8/11$	$2\cdot11$ $2^8/11$	$2\cdot11$ $2^8/11$
			0 −1 $2^8/3^2$ $-2^8/3^1 11^1$ $2^6/3^2 11^1 13^1$ $-2^4/3^2 5^1 11^1 13^1$	1 $-2^8/3$ $2^4/3^1 11^1$ $-2^4 5^1/3^2 11^1 13^1$ $2^4/3^2 5^1 11^1 13^1$ 0	0 −1 $2^8/3^2$ $-2^8/3^1 11^1$ $2^6/3^2 11^1 13^1$ $-2^4/3^2 5^1 11^1 13^1$
13/2	11/2	5	$3\cdot5\cdot7\cdot17$ $2^8/3^2 7^1 11^1$	$2\cdot7\cdot17$ $2^8/3^1 7^1 11^1$	$2\cdot7\cdot17$ $2^4/3^2 7^1 11^1$
			0 1 $-2^1 3^1/13$ $2^8/5^1 13^1$ $-2^8/3^1 5^1 13^1 17^1$	−1 $2^8/13$ $-2^8/3^1 13^1$ $2^4/3^1 5^1 13^1 17^1$ 0	0 1 $-2^1 3^1/13$ $2^8/5^1 13^1$ $-2^8/3^1 5^1 13^1 17^1$
13/2	11/2	7	$2\cdot7\cdot11\cdot17\cdot19$ $2^8 5^1/3^2 7^1 11^2 13^1$	$11\cdot17\cdot19$ $2^5 5^1/3^2 7^1 11^2 13^1$	$11\cdot17\cdot19$ $2^4 5^1/3^2 7^1 11^2 13^1$
			0 −1 $2^8/17$ $-2^8/17^1 19^1$	1 −5/17 $2^1 3^1/17^1 19^1$ 0	0 −1 $2^8/17$ $-2^8/17^1 19^1$
13/2	11/2	9	$5\cdot7\cdot17$ $2^6/3^1 5^1 11^1 13^1 17^1$	$2\cdot7\cdot17$ $2^4/3^2 11^1 13^1 17^1$	$2\cdot7\cdot17$ $2^8/3^2 5^1 11^1 13^1 17^1$
			0 1 $-2/3^1 7^1$	−1 $2^8/5^1 7^1$ 0	0 1 $-2/3^1 7^1$
13/2	11/2	11	$2\cdot3\cdot7\cdot11\cdot17\cdot19$ $2^7/3^2 5^1 7^1 11^1 13^1 17^1 19^1$	$2\cdot7\cdot17\cdot19$ $2^6/3^2 5^1 7^1 11^1 13^1 17^1 19^1$	$2\cdot7\cdot17\cdot19$ $2^8/3^2 5^1 7^1 11^1 13^1 17^1 19^1$
			0 −1	1 0	0 −1

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXIV. $N' = 6$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	1/2	6	$3\cdot11\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$3\cdot11\cdot13$ $2^7/3^2 11^1 13^1$	$2\cdot7\cdot11\cdot13$ $2^7/3^1 7^1 11^1 13^1$	$2\cdot7\cdot11\cdot13$ $2^8/3^1 11^1 13^1$
			-1 $1/2$ $-1/2^2 5^1$ 0	-1 $5/7$ $-19/2^2 5^1 7^1$ $1/2^2 5^1 7^1$	-1 $3/2^2$ $-3/2^2 5^1$ $1/2^2 3^1 5^1$	-1 $2/5$ $-1/2^1 3^1 5^1$ 0
13/2	3/2	6	$2\cdot3\cdot5\cdot11\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$2\cdot3\cdot5\cdot11\cdot13$ $2^6/3^2 11^1 13^1$	$5\cdot7\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$	$5\cdot7\cdot11\cdot13$ $2^6/3^1 7^1 11^1 13^1$
			-1 $1/2$ $-1/2^2 5^1$ 0	1 $-53/2^1 5^1 7^1$ $107/2^2 5^2 7^1$ $-3/2^1 5^2 7^1$	1 $-7/2^1 5^1$ $13/2^2 5^2$ $-1/2^1 3^1 5^2$	1 $-3^2/5^2$ $2/3^1 5^2$ 0
13/2	3/2	8	0 0	$2\cdot5\cdot7\cdot11\cdot13$ $2^6/5^1 7^1 11^1 13^1$	$5\cdot7\cdot11\cdot13$ $2^7/3^1 5^1 7^1 11^1 13^1$	$5\cdot7\cdot11\cdot13$ $2^7/3^1 5^2 7^1 11^1 13^1$
			0 0 0	-1 $2/5$ $-1/2^1 3^1 5^1$	-1 $2/5$ $-1/2^1 3^1 5^1$	-1 $1/2^1 3^1$ 0
13/2	5/2	4	$2\cdot5\cdot7$ $2^6/3^1 5^1 7^1$	$2\cdot5\cdot7$ $2^4/3^1 7^1$	$2\cdot7$ $2^6/3^1 7^1$	$2\cdot7$ $2^3/7$
			1 $-3^2/11$ $2^2 3^1/11^1 13^1$ $-2^3/3^1 11^1 13^1$ 0	1 $-13/11$ $3^1 19^1/11^1 13^1$ $-2^3/3^1 5^1 11^1$ $2^3/3^1 5^1 11^1 13^1$	1 $-2^1 7^1/11$ $3^2 29^1/2^2 11^1 13^1$ $-5^3/3^1 11^1 13^1$ $1/3^1 11^1 13^1$	1 $-31/2^2 11^1$ $19/11^1 13^1$ $-1/11^1 13^1$ 0
13/2	5/2	6	$5\cdot13$ $2^7/3^1 7^1 11^1 13^1$	$5\cdot13$ $2^6/3^2 11^1 13^1$	$2\cdot3\cdot5\cdot7\cdot13$ $2^6/3^2 7^1 11^1 13^1$	$2\cdot3\cdot5\cdot7\cdot13$ $2^4/7^1 11^1 13^1$
			-1 $5/2^2 3^1$ $-1/2^1 3^1 5^1$ 0	-1 $3^4/2^2 5^1 7^1$ $-31/2^1 5^2 7^1$ $2/3^1 5^2 7^1$	-1 $7/2^1 5^1$ $-13/2^2 5^2$ $1/2^1 3^1 5^2$	-1 $3^2/5^2$ $-2/3^1 5^2$ 0
13/2	5/2	8	$5\cdot7\cdot11$ $2^6/3^2 7^1 11^1 13^1$	$5\cdot7\cdot11$ $2^6/5^1 7^1 11^1 13^1$	$2\cdot5\cdot7\cdot11$ $2^7/3^1 5^1 7^1 11^1 13^1$	$2\cdot5\cdot7\cdot11$ $2^8 3^1/5^2 7^1 11^1 13^1$
			1 $-1/5$ 0	1 $-13/3^2 5^1$ $2/3^2 5^1$	1 $-2/5$ $1/2^1 3^1 5^1$	1 $-1/2^1 3^1$ 0
13/2	7/2	4	$2\cdot7$ $2^2/7$	$2\cdot7$ $2^2 5^1/3^1 7^1$	$2\cdot5\cdot7$ $2^3/3^1 7^1$	$2\cdot5\cdot7$ $2^2/3^2 7^1$
			1 $-3^2/11$ $2^2 3^1/11^1 13^1$ $-2^2/3^1 11^1 13^1$ 0	-1 $223/3^1 5^1 11^1$ $-2^1 181^1/5^1 11^1 13^1$ $2^2 179^1/3^1 5^2 11^1 13^1$ $-2^2/3^2 5^2 13^1$	-1 $5^1 7^1/3^1 11^1$ $-2^1 23^1/11^1 13^1$ $2^2 19^1/3^1 5^1 11^1 13^1$ $-2^2/3^2 5^1 11^1 13^1$	-1 $2^1 3^1/11$ $-2^2 3^1/11^1 13^1$ $2^2/3^1 5^1 11^1 13^1$ 0
13/2	7/2	6	$2\cdot3\cdot13\cdot17$ $2^7/3^2 7^1 11^1 13^1$	$2\cdot3\cdot13\cdot17$ $2^6/3^2 11^1 13^1$	$7\cdot13\cdot17$ $2^7/3^1 7^1 11^1 13^1$	$7\cdot13\cdot17$ $2^4/3^1 7^1 11^1 13^1$
			-1 $5/2^2 3^1$ $-1/2^1 3^1 5^1$ 0	1 $-19/2^2 7^1$ $73/5^1 7^1 17^1$ $-11/3^1 5^1 7^1 17^1$	1 $-7/2^2 3^1$ $23/3^1 5^1 17^1$ $-1/3^1 5^1 17^1$	1 $-2^2/3^1 5^1$ $2^2/3^1 5^1 17^1$ 0
13/2	7/2	8	$2\cdot3\cdot7\cdot11\cdot19$ $2^4/3^2 7^1 11^1 13^1$	$2\cdot3\cdot7\cdot11\cdot19$ $2^4/3^1 7^1 11^1 13^1$	$3\cdot7\cdot11\cdot19$ $2^6/3^2 7^1 11^1 13^1$	$3\cdot7\cdot11\cdot19$ $2^6/3^2 5^1 7^1 11^1 13^1$
			1 $-1/5$ 0	-1 $101/3^1 5^1 19^1$ $-2^1 11^1/3^2 5^1 19^1$	-1 $31/5^1 19^1$ $-2/5^1 19^1$	-1 $2/19$ 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXIV. $N' = 6$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	7/2	10	0 0	$2\cdot3\cdot13\cdot17\cdot19$ $2^{7}/3^{2}5^{1}13^{1}17^{1}19^{1}$	$3\cdot5\cdot11\cdot13\cdot17\cdot19$ $2^{8}/3^{2}5^{1}11^{1}13^{1}17^{1}19^{1}$	$3\cdot5\cdot11\cdot13\cdot17\cdot19$ $2^{6}/3^{2}5^{1}11^{1}13^{1}17^{1}19^{1}$
			0 0	1 $-1/2^{1}3^{1}$	1 $-1/2^{1}3^{1}$	1 0
13/2	9/2	2	$2\cdot3\cdot7\cdot11$ $2/3^{1}11^{1}$	$2\cdot3\cdot7\cdot11$ $2^{3}/11$	$7\cdot11$ $2^{3}/11$	$7\cdot11$ 1
			-1 $2^{3}/7$ $-2^{3}/3^{1}7^{1}$ $2^{5}/3^{2}7^{1}11^{1}$ $-2^{4}/3^{2}7^{1}11^{1}13^{1}$ 0	-1 $13/7$ $-2^{3}/3^{2}7^{1}$ $2^{3}19^{1}/3^{2}7^{1}11^{1}$ $-2^{4}/3^{2}7^{1}13^{1}$ $2^{4}/3^{2}7^{1}11^{1}13^{1}$	-1 $31/2^{1}7^{1}$ $-2^{2}/3$ $2^{2}53^{1}/3^{2}7^{1}11^{1}$ $-2^{3}/3^{2}7^{1}11^{1}13^{1}$ $2^{3}/3^{2}7^{1}11^{1}13^{1}$	-1 $2^{3}/7$ $-2^{3}/3^{1}7^{1}$ $2^{5}/3^{2}7^{1}11^{1}$ $-2^{4}/3^{2}7^{1}11^{1}13^{1}$ 0
13/2	9/2	4	$2\cdot7\cdot11$ $2^{3}/7^{1}11^{1}$	$2\cdot7\cdot11$ $2^{4}5^{1}/3^{1}7^{1}11^{1}$	$2\cdot5\cdot7\cdot11$ $2^{3}/3^{1}7^{1}11^{1}$	$2\cdot5\cdot7\cdot11$ $2^{3}/3^{2}7^{1}$
			1 $-2^{1}3^{1}/11$ $2^{2}3^{1}/11^{1}13^{1}$ $-2^{3}/3^{1}5^{1}11^{1}13^{1}$ 0	1 $-2^{3}31^{1}/3^{1}5^{1}11^{1}$ $2^{7}/5^{1}11^{1}13^{1}$ $-2^{4}/3^{1}5^{2}13^{1}$ $2^{4}/3^{2}5^{2}11^{1}13^{1}$	1 $-5^{1}7^{1}/3^{1}11^{1}$ $2^{1}23^{1}/11^{1}13^{1}$ $-2^{2}19^{1}/3^{1}5^{1}11^{1}13^{1}$ $2^{3}/3^{2}5^{1}11^{1}13^{1}$	1 $-2^{1}3^{1}/11$ $2^{2}3^{1}/11^{1}13^{1}$ $-2^{3}/3^{1}5^{1}11^{1}13^{1}$ 0
13/2	9/2	6	$2\cdot3\cdot5\cdot11\cdot13\cdot17$ $2^{6}5^{1}/3^{2}7^{1}11^{2}13^{1}$	$2\cdot3\cdot5\cdot11\cdot13\cdot17$ $2^{6}/3^{2}11^{2}13^{1}$	$5\cdot7\cdot11\cdot13\cdot17$ $2^{7}/3^{1}7^{1}11^{2}13^{1}$	$5\cdot7\cdot11\cdot13\cdot17$ $2^{3}/3^{1}7^{1}11^{1}13^{1}$
			-1 $2^{3}/3^{1}5^{1}$ $-2^{3}/3^{1}5^{1}17^{1}$ 0	-1 $5/2^{1}7^{1}$ $-2^{1}11^{1}/5^{1}7^{1}17^{1}$ $2/3^{1}5^{1}7^{1}17^{1}$	-1 $7/2^{2}3^{1}$ $-23/3^{1}5^{1}17^{1}$ $1/3^{1}5^{1}17^{1}$	-1 $2^{2}/3^{1}5^{1}$ $-2^{2}/3^{1}5^{1}17^{1}$ 0
13/2	9/2	8	$2\cdot3\cdot5\cdot7\cdot11\cdot19$ $2^{4}/3^{2}11^{2}13^{1}$	$2\cdot3\cdot5\cdot7\cdot11\cdot19$ $2^{5}/3^{1}7^{1}11^{2}13^{1}$	$3\cdot5\cdot7\cdot11\cdot19$ $2^{7}/3^{2}7^{1}11^{2}13^{1}$	$3\cdot5\cdot7\cdot11\cdot19$ $2^{6}/3^{2}5^{1}7^{1}11^{1}13^{1}$
			1 $-2/19$ 0	1 $-2^{3}11^{1}/3^{1}5^{1}19^{1}$ $2^{3}/3^{2}5^{1}19^{1}$	1 $-31/5^{1}19^{1}$ $2/5^{1}19^{1}$	1 $-2/19$ 0
13/2	9/2	10	$3\cdot17\cdot19$ $2^{6}/5^{1}11^{1}13^{1}17^{1}19^{1}$	$3\cdot17\cdot19$ $2^{7}/3^{2}5^{1}13^{1}17^{1}19^{1}$	$2\cdot3\cdot5\cdot11\cdot17\cdot19$ $2^{7}/3^{2}5^{1}11^{1}13^{1}17^{1}19^{1}$	$2\cdot3\cdot5\cdot11\cdot17\cdot19$ $2^{4}/3^{2}5^{1}13^{1}17^{1}19^{1}$
			-1 0	-1 $1/3^{1}11^{1}$	-1 $1/2^{1}3^{1}$	-1 0
13/2	11/2	2	$7\cdot11$ $2^{1}5^{1}/11$	$7\cdot11$ $2^{1}3^{1}/11$	$2\cdot3\cdot7\cdot11$ $2/11$	0 0
			-1 $2^{3}/7$ $-2^{3}/3^{1}7^{1}$ $2^{5}/3^{2}7^{1}11^{1}$ $-2^{4}/3^{2}7^{1}11^{1}13^{1}$ 0	1 $-2^{1}5^{2}/3^{1}7^{1}$ $2^{2}5^{1}/3^{2}$ $-2^{4}5^{1}/3^{1}7^{1}11^{1}$ $2^{4}5^{1}/3^{2}7^{1}13^{1}$ $-2^{5}/3^{4}5^{1}7^{1}11^{1}$	1 $-2^{1}5^{1}/7$ $2^{2}5^{1}/3^{2}7^{1}$ $-2^{4}5^{1}/3^{2}7^{1}11^{1}$ $2^{4}5^{1}/3^{2}7^{1}11^{1}13^{1}$ $-2^{5}/3^{4}5^{1}7^{1}11^{1}13^{1}$	0 0 0 0 0 0
13/2	11/2	4	$2\cdot7\cdot11\cdot17$ $2^{4}/3^{1}7^{1}11^{1}$	$2\cdot7\cdot11\cdot17$ $2^{2}5^{1}/3^{1}7^{1}11^{1}$	$2\cdot5\cdot7\cdot11\cdot17$ $2^{3}/3^{1}7^{1}11^{1}$	0 0
			1 $-2^{1}3^{1}/11$ $2^{2}3^{1}/11^{1}13^{1}$ $-2^{3}/3^{1}5^{1}11^{1}13^{1}$ 0	-1 $2^{3}7^{1}/5^{1}11^{1}$ $-2^{3}3^{1}/5^{1}11^{1}13^{1}$ $2^{3}/3^{1}5^{2}13^{1}$ $-2^{4}/3^{1}5^{2}11^{1}17^{1}$	-1 $2^{3}/11$ $-2^{3}3^{1}/11^{1}13^{1}$ $2^{3}/3^{1}5^{1}11^{1}13^{1}$ $-2^{4}/3^{1}5^{1}11^{1}13^{1}17^{1}$	0 0 0 0 0
13/2	11/2	6	$2\cdot11\cdot13\cdot17\cdot19$ $2^{4}5^{1}/3^{1}7^{1}11^{2}13^{1}$	$2\cdot11\cdot13\cdot17\cdot19$ $2^{4}5^{1}/3^{2}11^{2}13^{1}$	$3\cdot7\cdot11\cdot13\cdot17\cdot19$ $2^{5}5^{1}/3^{2}7^{1}11^{2}13^{1}$	0 0
			-1 $2^{3}/3^{1}5^{1}$ $-2^{3}/3^{1}5^{1}17^{1}$ 0	1 $-2^{1}3^{2}/5^{1}7^{1}$ $2^{2}11^{1}/5^{1}7^{1}17^{1}$ $-2^{2}13^{1}/3^{1}5^{1}7^{1}17^{1}19^{1}$	1 $-2/5$ $2^{2}/5^{1}17^{1}$ $-2^{3}/3^{1}5^{1}17^{1}19^{1}$	0 0 0 0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXIV. $N' = 6$ $N = 5$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	11/2	8	$7\cdot11\cdot19$	$7\cdot11\cdot19$	$2\cdot7\cdot11\cdot19$	0
			$2^5/3^4 11^2 13^1$	$2^4/11^2 13^1$	$2^5/3^1 11^2 13^1$	0
			1	−1	−1	0
			−2/19	$2^2 11^1/3^2 19^1$	$2^2/19$	0
			0	$-2^2 13^1/3^2 7^1 19^1$	$-2^2/3^1 7^1 19^1$	0
13/2	11/2	10	$2\cdot17\cdot19\cdot23$	$2\cdot17\cdot19\cdot23$	$5\cdot11\cdot17\cdot19\cdot23$	0
			$2^6/3^1 5^1 11^1 13^1 17^1 19^1$	$2^6/3^1 5^1 13^1 17^1 19^1$	$2^6/3^1 5^1 11^1 13^1 17^1 19^1$	0
			−1	1	1	0
			0	$-2^1 13^1/11^1 23^1$	−2/23	0
13/2	11/2	12	0	$2\cdot7\cdot17\cdot19\cdot23$	$2\cdot3\cdot7\cdot13\cdot17\cdot19\cdot23$	0
			0	$2^6/3^2 5^1 7^1 17^1 19^1 23^1$	$2^7/3^2 5^1 7^1 13^1 17^1 19^1 23^1$	0
			0	−1	−1	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXV. $N' = 6$ $N = 6$ Normal Parity

j'	j	J	M	Δ'	Σ
13/2	13/2	0	$2\cdot7$	0	0
			1	0	0
			0	0	0
			1	0	0
			-2^3	0	0
			2^3	0	0
			$-2^6/3^17^1$	0	0
			$2^4/3^27^1$	0	0
			$-2^6/3^25^17^111^1$	0	0
			$2^6/3^25^17^111^113^1$	0	0
13/2	13/2	2	$2\cdot7\cdot13$	0	0
			$2^3/13$	0	0
			0	0	0
			-1	0	0
			$2^15^1/7$	0	0
			$-2^35^1/3^27^1$	0	0
			$2^45^1/3^27^111^1$	0	0
			$-2^45^1/3^27^111^113^1$	0	0
			$2^5/3^25^17^111^113^1$	0	0
13/2	13/2	4	$2\cdot7\cdot11\cdot13\cdot17$	0	0
			$2^33^1/7^111^113^1$	0	0
			0	0	0
			1	0	0
			$-2^3/11$	0	0
			$2^33^1/11^113^1$	0	0
			$-2^3/3^15^111^113^1$	0	0
			$2^4/3^15^111^113^117^1$	0	0
13/2	13/2	6	$5\cdot7\cdot11\cdot17\cdot19$	0	0
			$2^65^1/3^27^111^113^1$	0	0
			0	0	0
			-1	0	0
			$2/5$	0	0
			$-2^3/5^117^1$	0	0
			$2^3/3^15^117^119^1$	0	0
13/2	13/2	8	$5\cdot7\cdot13\cdot19$	0	0
			$2^3/3^311^113^2$	0	0
			0	0	0
			1	0	0
			$-2^3/19$	0	0
			$2^3/3^17^119^1$	0	0
13/2	13/2	10	$2\cdot13\cdot17\cdot19\cdot23$	0	0
			$2^7/5^111^113^217^119^1$	0	0
			0	0	0
			-1	0	0
			$2/23$	0	0
13/2	13/2	12	$2\cdot7\cdot17\cdot19\cdot23$	0	0
			$2^7/3^25^17^113^117^119^123^1$	0	0
			0	0	0
			1	0	0

TABLES. Coefficients for Reduced Matrix Elements

See page 110 for Explanation of Tables

TABLE XXXVI. $N' = 6$ $N = 6$ Abnormal Parity

j'	j	J	Δ	Σ'	Σ''	Ω'
13/2	13/2	1	$5\cdot7\cdot13$	$5\cdot7\cdot13$	$2\cdot5\cdot7\cdot13$	0
			$2^1 3^1/13$	$2/13$	$1/13$	0
			-1	1	1	0
			2	$-2^2 3^1/5$	$-2^2 3^1/5$	0
			$-2^3/7$	$2^3 3^2/7$	$2^3 3^1/7$	0
			$2^4/3^2 7^1$	$-2^7/3^2 7^1$	$-2^5/3^2 7^1$	0
			$-2^4/3^2 7^1 11^1$	$2^4 5^1/3^1 7^1 11^1$	$2^4/3^1 7^1 11^1$	0
			$2^5/3^2 5^1 7^1 11^1 13^1$	$-2^7/5^1 7^1 11^1 13^1$	$-2^6/3^1 5^1 7^1 11^1 13^1$	0
			0	$2^6/3^2 5^2 11^1 13^1$	$2^6/3^2 5^2 7^1 11^1 13^1$	0
13/2	13/2	3	$2\cdot3\cdot5\cdot11\cdot13\cdot17$	$2\cdot3\cdot5\cdot11\cdot13\cdot17$	$2\cdot5\cdot11\cdot13\cdot17$	0
			$2^2/11^1 13^1$	$2^4/5^1 11^1 13^1$	$2^3 3^1/5^1 11^1 13^1$	0
			1	-1	-1	0
			$-2^3/3^2$	$5/3$	$2^1 5^1/3^2$	0
			$2^3/3^1 11^1$	$-2^4 5^1/3^2 11^1$	$-2^3 5^1/3^2 11^1$	0
			$-2^3/3^2 11^1 13^1$	$2^3 5^2/3^2 11^1 13^1$	$2^4 5^1/3^2 11^1 13^1$	0
			$2^4/3^2 5^1 11^1 13^1$	$-2^4/3^2 11^1 13^1$	$-2^4/3^2 11^1 13^1$	0
			0	$2^4 7^1/3^2 5^1 11^1 13^1 17^1$	$2^6/3^2 5^1 11^1 13^1 17^1$	0
13/2	13/2	5	$3\cdot5\cdot7\cdot13\cdot17\cdot19$	$3\cdot5\cdot7\cdot13\cdot17\cdot19$	$2\cdot7\cdot13\cdot17\cdot19$	0
			$2^3/3^2 7^1 11^1 13^1$	$2^4/3^1 7^1 11^1 13^1$	$2^3 5^1/3^1 7^1 11^1 13^1$	0
			-1	1	1	0
			$2^1 3^1/13$	$-2^2/3^1 13^1$	$-2^3/13$	0
			$-2^3/5^1 13^1$	$2^3/3^1 13^1$	$2^3/5^1 13^1$	0
			$2^3/3^1 5^1 13^1 17^1$	$-2^3/3^1 5^1 13^1 17^1$	$-2^3/3^1 5^1 13^1 17^1$	0
			0	$2^4 7^1/3^2 5^1 13^1 17^1 19^1$	$2^4/3^1 5^1 13^1 17^1 19^1$	0
13/2	13/2	7	$2\cdot11\cdot13\cdot17\cdot19$	$2\cdot11\cdot13\cdot17\cdot19$	$7\cdot11\cdot13\cdot17\cdot19$	0
			$2^4 5^1/3^1 11^2 13^2$	$2^7 5^1/3^2 11^2 13^2$	$2^6 5^1/3^2 11^2 13^2$	0
			1	-1	-1	0
			$-2^2/17$	$3^1 5^1/2^1 17^1$	$2^1 3^1/17$	0
			$2^2/17^1 19^1$	$-2^1 3^2/17^1 19^1$	$-2^2 3^1/17^1 19^1$	0
			0	$2/3^1 17^1 19^1$	$2^2/3^1 7^1 17^1 19^1$	0
13/2	13/2	9	$2\cdot5\cdot7\cdot13\cdot17\cdot23$	$2\cdot5\cdot7\cdot13\cdot17\cdot23$	$7\cdot13\cdot17\cdot23$	0
			$2^3/3^1 5^1 11^1 13^2 17^1$	$2^2/3^1 11^1 13^2 17^1$	$2^2/11^1 13^2 17^1$	0
			-1	1	1	0
			$2/3^1 7^1$	$-2^2/5^1 7^1$	$-2^2/3^1 7^1$	0
			0	$2^2/3^1 5^1 23^1$	$2^2/3^1 7^1 23^1$	0
13/2	13/2	11	$2\cdot3\cdot7\cdot11\cdot13\cdot17\cdot19$	$2\cdot3\cdot7\cdot11\cdot13\cdot17\cdot19$	$2\cdot7\cdot13\cdot17\cdot19$	0
			$2^6/3^2 7^1 11^1 13^2 17^1 19^1$	$2^3/3^1 7^1 11^1 13^2 17^1 19^1$	$2^7/3^1 7^1 13^2 17^1 19^1$	0
			1	-1	-1	0
			0	$7/3^1 5^2$	$2/5^2$	0
13/2	13/2	13	0	$13\cdot17\cdot19\cdot23$	$2\cdot7\cdot17\cdot19\cdot23$	0
			0	$2^6/3^2 5^2 13^1 17^1 19^1 23^1$	$2^7/3^2 5^2 7^1 17^1 19^1 23^1$	0
			0	1	1	0