Derivation of Eq. (3.7.54) on page 213 is a bit tricky. Use the following definitions in Eq. (3.7.49) with the lower choice of sign:

$$j_1 = l$$
$$j_2 = \frac{1}{2}$$
$$j = l + \frac{1}{2}$$
$$m_2 = \frac{1}{2}$$
$$m_1 = n - \frac{1}{2}$$
$$m_1 + m_2 = n \equiv m - 1 \Rightarrow m = n + 1$$

Use only n rather than m in evaluation of Eq. (3.7.49). Using the condensed notation in which j_1 and j_2 are suppressed, that equation becomes:

$$\sqrt{(l + \frac{1}{2} + [n+1])(l + \frac{1}{2} - [n+1] + 1)}\langle n - \frac{1}{2}, \frac{1}{2}|l + \frac{1}{2}, n\rangle$$
$$= \sqrt{(l + n + \frac{1}{2})(l - [n - \frac{1}{2}])}\langle n + \frac{1}{2}, \frac{1}{2}|l + \frac{1}{2}, n + 1\rangle$$

Replacing n by m and combining some terms under the square root, we immediately get Eq. (3.7.54).

$$\sqrt{(l + \frac{1}{2} + m + 1)(l + \frac{1}{2} - m)}\langle m - \frac{1}{2}, \frac{1}{2}|l + \frac{1}{2}, m\rangle$$
$$= \sqrt{(l + m + \frac{1}{2})(l - m + \frac{1}{2}])}\langle m + \frac{1}{2}, \frac{1}{2}|l + \frac{1}{2}, m + 1\rangle$$

Also note that you can use Mathematica to compute Clebsch-Gordan coefficients. The notation is ClebschGordan[$\{j_1, m_1\}$, $\{j_2, m_2\}$, $\{j, m\}$]