This is the kind of thing to calculate :

$$W(i,j,l) = X(i) + \sum_{j,k}^{j,k \in R} Y(i,j)Z(k,l)\delta_{jk}$$

The $W(i,j,l)$ takes three integers, i, j, l, as inputs, and returns a number, e.g.,

$$W(1,2,3) = 7$$

It is a better to think of, $W(i,j,l)$, as a function, not an array. It is to described by an instance of the term class, which contains this function.

R $R = \{0,1\}$

$$\sum_{j,k}^{j,k \in R} Y(i,j)Z(k,l) =$$

$$Y(i,0)Z(0,l) + Y(i,0)Z(1,l) + Y(i,1)Z(0,l) + Y(i,1)Z(1,l)$$

The δij controls the indices

$$\delta_{ij} = \begin{cases} 1 & \text{if} \quad i == j \\ 0 & \text{otherwise} \end{cases}$$

$$W(i,j,l) = X(i) + \sum_{j,k}^{j,k \in R} Y(i,j)Z(k,l)\delta_{jk}$$

The $\sum$ sums over all indices, j, k, in the range R. E.g., if $R = \{0,1\}$

$$\sum_{j,k}^{j,k \in R} Y(i,j)Z(k,l)\delta_{jk} =$$

$$Y(i,0)Z(0,l)\delta_{00} + Y(i,0)Z(1,l)\delta_{01} + Y(i,1)Z(0,l)\delta_{10} + Y(i,1)Z(1,l)\delta_{11}$$

The δ_{jk} constrains the indices according to

$$\delta_{jk} = \begin{cases} 1 & \text{if} \quad j == k \\ 0 & \text{otherwise} \end{cases}$$

So

$$\sum_{j,k}^{j,k \in R} Y(i,j)Z(k,l)\delta_{jk} =$$

$$Y(i,0)Z(0,l) + Y(i,1)Z(1,l)$$

Range

Indice Summation

$$\underbrace{W(i,j,l)}_{\text{Term}} = \underbrace{X(i)}_{\text{Term}} + \underbrace{\sum_{j}^{j\in R} Y(i,j)Z(k,l)\delta_{jk}}_{\text{Term}}$$

Range

Indice Summation

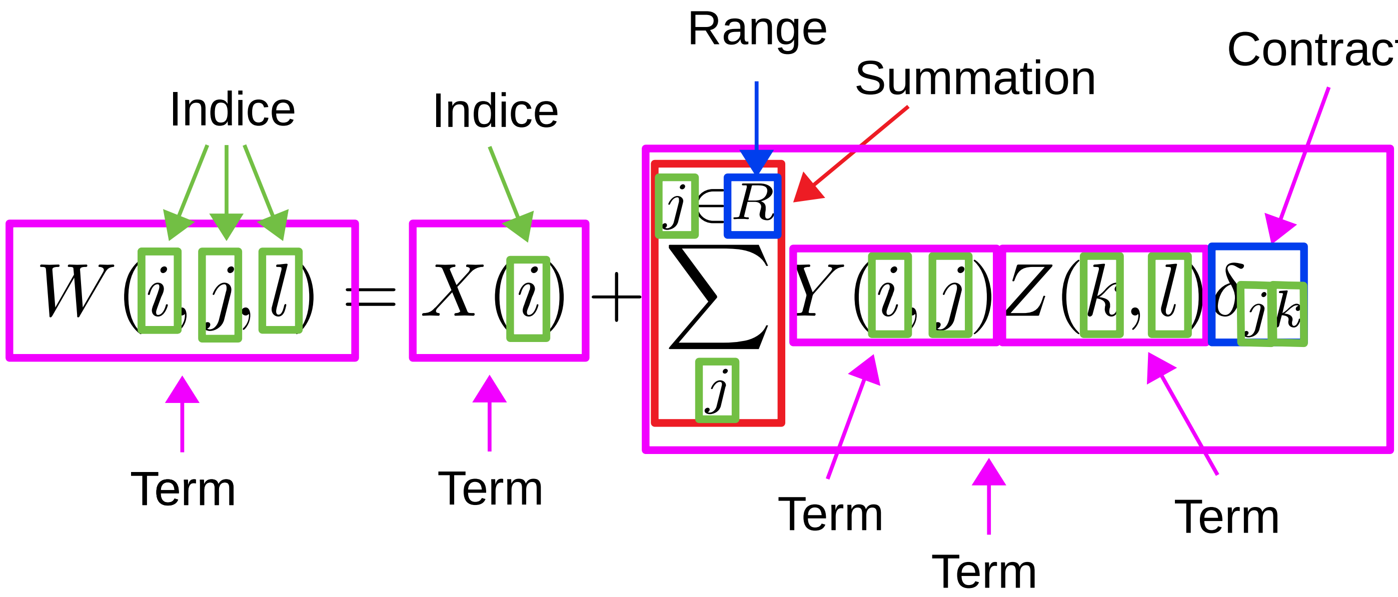
$$\underbrace{\boxed{W(\boxed{i},\boxed{j},\boxed{l})}}_{\text{Term}} = \underbrace{X(i)}_{\text{Term}} + \underbrace{\sum_{j}^{j\in R} Y(i,j)Z(k,l)\delta_{jk}}_{\text{Term}}$$

Summation

$$Q(j) = U(j) + \underbrace{\sum_{m,n}^{m,n\in R^m} \sum_{i,k}^{i,j\in R^i} V(m,n)W(i,j,k)}_{\text{Term}}$$

$$\underbrace{W(\overbrace{i,j,l}^{\text{Indice}})}_{\text{Term}} = \underbrace{X(\overbrace{i}^{\text{Indice}})}_{\text{Term}} + \underbrace{\overbrace{\sum_{j}^{j\in \overbrace{R}^{\text{Range}}}}^{\text{Summation}} \underbrace{Y(i,j)}_{\text{Term}}\,\underbrace{Z(k,l)}_{\text{Term}}\,\overbrace{\delta_{jk}}^{\text{Contraction}}}_{\text{Term}}$$

$$Q(j) = U(j) + \underbrace{\overbrace{\sum_{m,n}^{m,n\in R^m}\;\sum_{i,k}^{i,j\in R^i}}^{\text{Summation}} V(m,n)W(i,j,k)}_{\text{Term}}$$



Summation

$$Q(j) = U(j) + \sum_{m,n}^{m,n\in R^m} \; \sum_{i,k}^{i,j\in R^i} V(m,n)W(i,j,k)$$

Term