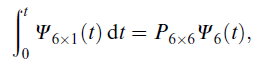
Regarding P\_matrix:

The matrix has to be obtained analytically. The reason is we have P-matrix as 6×6 matrix and the rest two as 6×1 matrices as follows:



It is impossible to calculate the p-matrix from this formula.

But, we can notice a few things here: (I am deriving the formula for P-matrix defined in page 497 below equation10 analytically)

1. Except for i0(t)( like 10(t),20(t) ), the rest of the functions are symmetric about x-axis making their integral 0 on the remaining part, effectively making those elements 0. This makes the elements of F-matrix and also shows the reason for zeros.
2. The L-matrix is same for different intervals as the wavelet just displaces away from Y-axis for increasing dilation parameter i.e. ‘n’. This means that we have same L and careful observation of the construction of P-matrix says that the P-matrix lies along the principal diagonal.
3. Now, the construction of L-matrix is a tough job. Even with these observations the L-matrix makes a huge problem. But it is by the construction of the wavelet that the integral is

* m = 1 : Dependent on the 1st and 2nd terms.
* m is odd( >1 ) : Depends on that term itself.
* m is even : Depends on previous term and next term.

These gave the definition of L in page 499.

1. Last, but not least, P-matrix is a skew-symmetric matrix.

I think because of these amazing and easy to code properties, it is easy to use Legendre wavelets for certain equations.