

Helper Functions

```
1  # helper to update D, J using equations 48, 49 on page 10
2  def updateDJ(self, R):
3      # equation 48
4      self.D = np.dot(R, self.D)
5      for b in range(self.k):
6          for c in range(b):
7              self.D += self.J[b, c]*R[b]*R[:, c]
8      self.D = self.D % 8
9
10     # equation 49
11     self.J = np.dot(np.dot(R, self.J), R.T) % 8
```

```
1  # helper to update Q, D using equations 51, 52 on page 10
2  def updateQD(self, y):
3      # equation 51
4      self.Q += np.dot(self.D, y)
5      for a in range(self.k):
6          for b in range(a):
7              self.Q += self.J[a, b]*y[a]*y[b]
8      self.Q = self.Q % 8
9
10     # equation 52
11     self.D += np.dot(self.J, y)
12     self.D = self.D % 8
```
