```
# Problem 5.2
# Test 1

# Input
# S: array of symbols
# T: multiplication table
# t: target
# p: puzzle

S = 'abc'
T = ['bcc','acb','cba']
t = 'a'
p = 'abaca'

# Output: final X matrix and conclusion
# > X = [['a', [], [], [], []], [[], 'b', ['a'], ['b', 'c'], ['b', 'b', 'c',
# > Yes

#------------ Code in python ------------
m = len(p)
X = [[[] for x in range(m)] for x in range(m)]
for i in range(m):
    X[i][i] = p[i]
for d in range(m)[1:m]:
    for i in range(m-d):
        #X[i][i+d]=''
        for s in range(i+d)[i:(i+d)]:
            for xx in X[i][s]:
                for yy in X[s+1][i+d]:
                    sx = S.index(xx)
                    sy = S.index(yy)
                    # re-write S table
                    X[i][i+d].append(T[sx][sy])
print X
if t in X[1][m-1]:
    print 'Yes'
else:
    print 'No'
#------------ End of Code ------------

```