

# MysteryTwister C3

THE CRYPTO CHALLENGE CONTEST

## POLYHOMOPHONIC SUBSTITUTION – PART 1

Author: madness

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# Introduction

This part of the challenge series is a warm-up with homophonic substitution. In a homophonic substitution cipher one plaintext symbol can be replaced by several ciphertext symbols. The key is a mapping from the set of plaintext symbols to the set of ciphertext symbols, in which each ciphertext symbol can only represent one plaintext symbol, but each plaintext symbol can be mapped to more than one ciphertext symbol. For example, if the plaintext uses the letters a, b, c, and the ciphertext uses the letters T, U, V, W, X, Y, Z, then one possible mapping is

$$a \rightarrow T \text{ or } X \quad b \rightarrow U \text{ or } V \quad c \rightarrow W \text{ or } Y$$

With this key, the plaintext “cab” could be encrypted to “WXU” or “YXZ”, etc.

## Challenge (1/2)

In the following ciphertext, two ciphertext symbols represent one plaintext letter. The key is a randomly generated 1-to-2 mapping from the 26 letters A...Z to the 52 letters A...Za...z. For each character in the plaintext, the choice of ciphertext symbol from the set of (two) homophones is random. The plaintext is in English.

Decrypt it. The answer to the challenge is the answer to the question at the end of the plaintext. Please enter your answer as one word in all capital letters, with no punctuation.

## Challenge (2/2)

IzOjOENKIzoZGhl fETfkIrpokIzrpcQoAOjrPWXP0ackRXAOjNowr  
RIDWl fKppfOFbcaOGNocNQZGrbalzhcpcckzoGoEILEDJcbNpKPpDh  
acNKmLOKjrPaeojomJKRonUhkZvopzEPtOAoPvZjOeEiKjjoKbaEb  
owmJETrUDopfojoEkKbXpFOGIzoZGhsfcRzNprpoNpfrppfcNfKkK  
DGOKnWzrmmoPoakGrRoZQfWmojcbIoDJctobpLKPaevoPNEXPrDeo  
cPtNZbT0excDppzoCNODuONKgEgKPIcTNFm0GRZCLFp0jRKJDonao  
OLIfXxtzpIXRKJTxDKIoXbToKbnQXjKDDpzorPk1OGIZIz0xDpcvr  
poBFokIcXPXQDcQoIzOFPEAoGkoKPaOAOGWpFEptQXGN0A0PrPnKf  
KJQvcDJEXPWOrGknoOLIfXxgzpTZvLxp0nrPaTKDRFJKponrbcnbp  
zoobnrbbZxbRonIzoKbklojKPakXrPXIfoG0uoPecgg0GTXCLxp0j  
zKaIzeOUFEJIpZSEPaXxplfKppzoKRIFrJMxoNIcXblKNlzKpckkc  
wpEvokkOAOb