

## Ciphertext

HEERT IADWO ERIAA TNSSES RHELI PSZIT SVTAN OEHYQ

Do frequency analysis. It looks like a transposition cipher.

There are 40 letters; the possible rectangular arrays are  $1 \times 40$ ,  $40 \times 1$ ,  $2 \times 20$ ,  $20 \times 2$ ,  $4 \times 10$ ,  $10 \times 4$ ,  $5 \times 8$ ,  $8 \times 5$ .

The first four are not likely. Consider the second four.

$10 \times 4$  would have a 4-letter keyword. We would expect 1.6 vowels per row.

HERS	.6
ERHV	.6
EIET	1.4
RALA	.4
TAIN	.4
ITPO	.4
ANSE	.4
DSZH	1.6
WETY	.6
OSTQ	.6
	<hr/>
	7.0

$8 \times 5$  would have a 5-letter keyword. We would expect 2 vowels per row.

HWNIT	1
EOSPA	1
EEESN	1
RRSZO	1
TIRIE	1
IAHTH	0
AAESY	1
DTLVQ	2
	<hr/>
	8

$5 \times 8$  would have an 8-letter keyword. We would expect 3.2 vowels per row.

HIETRPSO	.2
EARNHSVE	.2
EDISEZTH	.2
RWAELIAY	.8
TOASITNQ	<u>.2</u>
	1.6

$4 \times 10$  would have an 10-letter keyword. We would expect 4 vowels per row.

HTWINRIITE	1
EIOASHPTAH	1
EAEAEESSNY	2
RDRTSLZVOQ	<u>1</u>
	5

$5 \times 8$  looks to be most likely.

HIETRPSO  
EARNHSVE  
EDISEZTH  
RWAELIAY  
TOASITNQ

Of the letters in the first row, T is the most likely initial letter. We will assume that

T  
N  
S  
E  
S

is the first column and try to determine the second column using digraph frequencies.

TH	2161
NE	549
SE	595
ER	1436
ST	<u>823</u>
	5564

TI	865
NA	249
SD	9
EW	153
SO	<u>234</u>
	1510

TE	872
NR	5
SI	390
EA	492
SA	<u>200</u>
	1659

TR	295
NH	6
SE	595
EL	340
SI	<u>390</u>
	1626

TP	2
NS	340
SZ	0
EI	118
ST	<u>823</u>
	1283

TS	256
NV	31
ST	823
EA	492
SN	<u>7</u>
	1609

TO	756
NE	549
SH	186
EY	90
SQ	<u>3</u>
	1584

TH  
NE  
SE  
ER  
ST

seems to be the most likely.

Try to extend this procedure to add more columns to the right.

Then cut out the columns and anagram.

HIETRPSO  
EARNHSVE  
EDISEZTH  
RWAELIAY  
TOASITNQ