

Examples of Solving *Cm* Cons*



Solving E-2..6 from Sample *Cm*
Null Ciphers

* “*Cm* Cons” means “cipher constructions in *The Cryptogram*” -- the bi-monthly publication for members of the American Cryptogram Association (ACA) -- www.cryptogram.org

Examples of Solving

This series shows specific examples of solving ACA ciphers. It tries to give successive hints of what to look at, then follows through by using each hint, building to the solution.

Try to solve the cipher on your own, using as many hints as you need, or just read along.

Please report errors or send suggestions to nudge@cryptogram.org

Solving a Null

Solving a Null cipher is a bit different than other ciphers. The path towards a solution is more subjective. It's not ruled by logic. Imagination is required, and good luck is an asset.

References

- The ACA and You, Ch. 4, How to Solve a Problem in *The Cryptogram*.

What is a Null Cipher?

- Null cipher is a concealment cipher. (ACA guideline: maximum of 25 plaintext letters.)
- The plaintext letters reside inside otherwise innocuous text, governed by some rule.
- Plaintext might be concealed as the first letter of each word. Or the second letter. Or the last letter. Or first, last, first, last.

Other Null Cipher Schemes

- First letter after first vowel in each word.
- First letter after first letter occurring in title.

Here is a simple example.

CT: THE GREAT OLD PUMPERS.

Pt: HELP (middle letter of each word)

Now let's try E-2 from Sample *Cm*.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

What does the first line tell us?

Cipher ID: E-2.

Type: Null cipher.

Title: Self-reliance.

Crib: his. (word appears in the plaintext)

Created by ACA member BOATTAIL

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

There are 13 words of ciphertext. It could be a short message,
or there may be more than one plaintext letter per word.

Where can we find the letters of the crib word? HIS

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

There are 13 words of ciphertext. It could be a short message, or there may be more than one plaintext letter per word.

Where can we find the letters of the crib word? HIS
There is only one H, in SCHOOL. It must be part of the crib.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

There are 13 words of ciphertext. It could be a short message, or there may be more than one plaintext letter per word.

Where can we find the letters of the crib word? HIS

There is only one H, in SCHOOL. It must be part of the crib.

The next word has both I and S, whereas the word after that has neither.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H, skip 3, then I, skip 1, then S.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H, skip 3, then I, skip 1, then S.
Sliding this pattern left and right doesn't seem to repeat well.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H, skip 3, then I, skip 7, then S.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H, skip 3, then I, skip 7, then S.
Sliding this pattern left and right doesn't seem to repeat well.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H is letter 3, I is letter 1, S is letter 3.

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H is letter 3, I is letter 1, S is letter 3.

First & third letters of each word? No word is shorter than 3!

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

We think HIS is concealed within "SCHOOL INSTRUCTS".
Try guessing a pattern. The crib may only partially show it.

Let's try: H is letter 3, I is letter 1, S is letter 3.

First & third letters of each word? No word is shorter than 3!

First four CT words give: EV ER YM AN

Solving E-2 from Sample Cm

E-2. Null. Self-reliance (his) BOATTAIL
ELVES EARN YAMS. AGNOSTIC PRAGMATIST DIDN'T LIE. SCHOOL
INSTRUCTS "ONWARD!" NECESSARY ANNOTATION OVERLOOKED.

First & third letters of each word looks good.

Record the solution so you could later submit it for credit.

E-2 every man paddles his own canoe

Solving E-2 from Sample *Cm*

Solving a Null cipher requires imagination and patience. A lot of trial & error work.

It also helps to review how Nulls have been constructed in the past.

Let's try E-3 to see another Null.

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

What does the first line tell us?

Cipher ID: E-3.

Type: Null cipher.

Untitled.

No crib, so the rule might be very simple.

Created by ACA member LIONEL for Sample *Cm*.

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

One simple approach to a Null is to align the words to see how various letters line up vertically.

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

Lined up on the right, try looking for vertical words:

```

                                     p a t i o
                                f u r n i t u r e
                                     m a y
                                     s t a i n
                                o r n a t e l y
s c u l p t u r e d
                                     t i l e d
                                     m a l l
```

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

Lined up on the left, try looking for vertical words:

p a t i o

f u r n i t u r e

m a y

s t a i n

o r n a t e l y

s c u l p t u r e d

t i l e d

m a l l

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

Lined up on the left, try looking for vertical words:

p a **T** i o

f u **R** n i t u r e

m a **Y**

s t **A** i n

o r **N** a t e l y

s c **U** l p t u r e d

t i **L** e d

m a **L** l

Solving E-3 from Sample Cm

E-3. Null.

LIONEL

Patio furniture may stain ornately sculptured tiled mall.

Letter 3 of each word works.

Record the solution so you could later submit it for credit.

E-3 try a null

Solving E-3 from Sample *Cm*

Aligning the ciphertext allowed us to easily see plaintext letters in one column. Sometimes they can be just that easy.

Let's try E-4 to see another Null.

Solving E-4 from Sample Cm

E-4. Null. LIONEL
Leave early route, hue truly entitles rd.

What does the first line tell us?

Cipher ID: E-4.

Type: Null cipher.

Untitled.

No crib. The rule might be simple.

Created by ACA member LIONEL for Sample *Cm*.

Solving E-4 from Sample Cm

E-4. Null. LIONEL
Leave early route, hue truly entitles rd.

Simply aligning the words doesn't show anything. Maybe it is aligned by characters and not by words. We can try every fifth letter, every fourth, etc.

Solving E-4 from Sample Cm

E-4. Null.

LIONEL

Leave early route, hue truly entitles rd.

l e a v e	l e a v
e a r l y	e e a r
r o u t e	l y r o
h u e t r	u t e h
u l y e n	u e t r
t i t l e	u l y e
s r d	n t i t
	l e s r
	d

None of these columns look good...

Solving E-4 from Sample Cm

E-4. Null.

LIONEL

Leave early route, hue truly entitles rd.

l e a	l e
v e e	a v
a r l	e e
y r o	a r
u t e	l y
h u e	r o
t r u	u t
l y e	e h
n t i	u e
t l e	t r

One column here looks good...

Solving E-4 from Sample Cm

E-4. Null.

LIONEL

Leave early route, hue truly entitles rd.

l e a	l E
v e e	a V
a r l	e E
y r o	a R
u t e	l Y
h u e	r O
t r u	u T
l y e	e H
n t i	u E
t l e	t R

One column here looks good...

Solving E-4 from Sample Cm

E-4. Null. LIONEL

Leave early route, hue truly entitles rd.

Look at every other letter, starting with second letter.

Record the solution so you could later submit it for credit.

E-4 every other letter

Solving E-4 from Sample *Cm*

Aligning the ciphertext without word divisions allowed us to easily see plaintext letters in one column.

Let's try E-5 to see another Null.

Solving E-5 from Sample Cm

E-5. Null. LIONEL

Feds see pirate bunch go blow safe via borings by deli
layout. FBI apprehends.

What does the first line tell us?

Cipher ID: E-5.

Type: Null cipher.

Untitled.

No crib. The rule might be simple.

Created by ACA member LIONEL for Sample *Cm*.

Solving E-5 from Sample Cm

E-5. Null. LIONEL

Feds see pirate bunch go blow safe via borings by deli
layout. FBI apprehends.

f e d s

s e e

p i r a t e

b u n c h

g o

b l o w

s a f e

v i a

b o r i n g s

b y

Try aligning on the left. Any interesting column?

Solving E-5 from Sample Cm

E-5. Null. LIONEL

Feds see pirate bunch go blow safe via borings by deli
layout. FBI apprehends.

Aligned on the right. Anything interesting?

```

                                     f e d s
                                     s e e
p i r a t e
  b u n c h
                                     g o
                                     b l o w
                                     s a f e
                                     v i a
b o r i n g s
                                     b y
```

Solving E-5 from Sample Cm

E-5. Null. LIONEL

Feds see pirate bunch go blow safe via borings by deli
layout. FBI apprehends.

Aligned on the right. Anything interesting?

Last letters?

```

                                     f e d s
                                     s e e
p i r a t e
  b u n c h
                                     g o
                                     b l o w
                                     s a f e
                                     v i a
b o r i n g s
                                     b y
```


Solving E-5 from Sample Cm

E-5. Null. LIONEL

Feds see pirate bunch go blow safe via borings by
deli layout. FBI apprehends.

Take the last letter of each word.

Record the solution so you could later submit it for credit.

E-5 see how easy it is

Solving E-5 from Sample Cm

In E-5, aligning the ends of the ciphertext words allowed us to spot that the last letter of each word contained the plaintext.

Solving a Null requires imagination and determination. Each one is a new challenge.

Let's try one more, E-6.

Solving E-5 from Sample Cm

In E-5, aligning the ends of the ciphertext words allowed us to spot that the last letter of each word contained the plaintext.

Solving a Null requires imagination and determination. Each one is a new challenge.

Let's try one more, E-6.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

What does the first line tell us?

Cipher ID: E-6.

Type: Null cipher.

Untitled.

No crib. The rule might be simple.

Created by ACA member LIONEL for Sample *Cm*.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

What does the first line tell us?

Cipher ID: E-6.

Type: Null cipher.

Untitled.

No crib. The rule might be simple. Or it could be tough.

Created by ACA member LIONEL for Sample *Cm*.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

There are 8 words of ciphertext, comprising 30 letters.

Probably more than one plaintext letter per word.

Every other letter would yield 15 letters... Test it?

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

There are 8 words of ciphertext, comprising 30 letters.

Probably more than one plaintext letter per word.

Every other letter would yield 15 letters... Test it?

AAETEDASEENTAPA? Or WRIIADILTAESPEL?

Neither look very good.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

But when trying those tests, the first three words really look like they want to be the word “WRITE”, if we could only find the rule.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

But when trying those tests, the first three words really look like they want to be the word “WRITE”, if we could only find the rule. “WR” are chars 2,4 but “TE” are chars 1,3. Doesn’t seem like a simple, fixed pattern.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

If we think this starts with “WRITE”, we could look at each of those characters to see what makes their locations special.

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

If we think this starts with “WRITE”, we could look at each of those characters to see what makes their locations special.

What do we find to the left of each suspected plaintext letter?

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

If we think this starts with “WRITE”, we could look at each of those characters to see what makes their locations special.

What do we find to the right of each suspected plaintext letter?

wA rE iT tI eA AETIA

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

If we think this starts with “WRITE”, we could look at each of those characters to see what makes their locations special.

What do we find to the right of each suspected plaintext letter?

wA rE iT tI eA AETIA

What do we find to the left of each suspected plaintext letter?

Aw Ar Ei Et Ie AAEEI

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

If we think this starts with “WRITE”, we could look at each of those characters to see what makes their locations special.

What do we find to the right of each suspected plaintext letter?

wA rE iT tI eA AETIA

What do we find to the left of each suspected plaintext letter?

Aw Ar Ei Et Ie AAEEI All vowels? Hmm...

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

What do we find to the left of each suspected plaintext letter?

Aw Ar Ei Et Ie AAEEI All vowels? Hmm...

Try looking at every letter that follows a vowel. What does that give?

Solving E-6 from Sample Cm

E-6. Null. LIONEL

Aware, I tie, add aisle. Tea nets appeal.

Rule: Take every letter that follows a vowel.

Record the solution so you could later submit it for credit.

E-6 write a distant pal

Solving E-6 from Sample Cm

In E-6, a lucky guess of a plaintext word led to experimenting with different rules to get the right word. This can also be the case when we are given a crib word.

Keep your mind flexible and nimble with nulls.

Good Solving!



Thank you. Try another.
Try the ACA!

The American Cryptogram Association (ACA) is a non-profit organization dedicated to promoting the hobby and art of cryptanalysis – learning to break ciphers. And we write ciphers, too. Our Sample Issue and all its solution tutorials are available on our website:

www.cryptogram.org/resource-area/sample-issue-cryptogram/