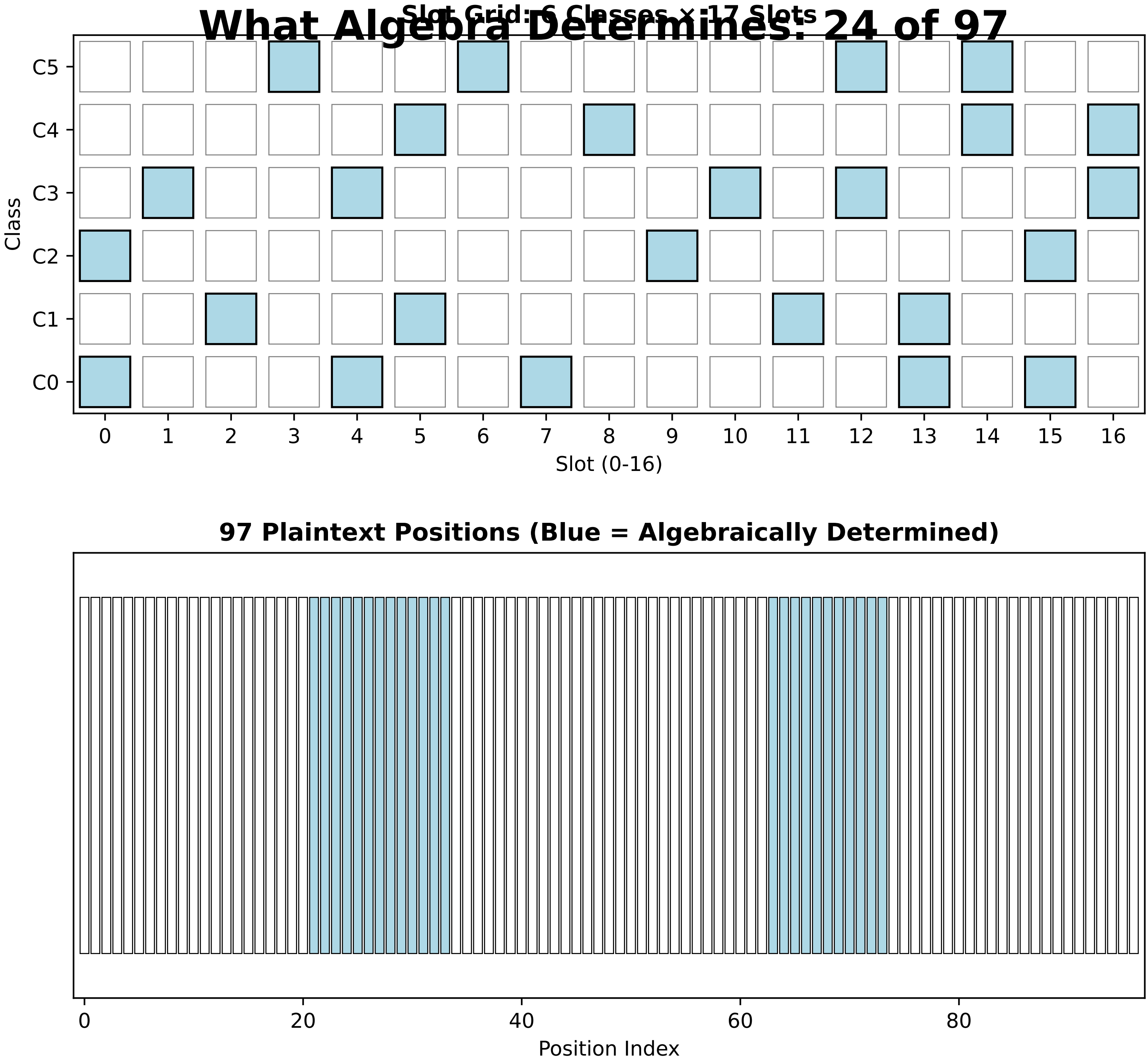


Key Insight: The co-prime property (L=17 with 97 positions) ensures:

- Each slot appears at most once per class
- 4 anchor cribs force 24 unique slots
- These 24 slots map to exactly 24 plaintext positions
- The remaining 73 positions remain algebraically undetermined

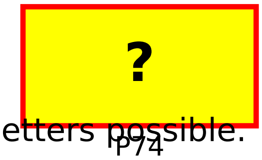
With only algebra and the 4 anchors, we can determine exactly 24 of 97 positions.
No additional positions can be derived without more information.

Structure Tests: Tail Region & Position 74

Test 1: Position 74 (After CLOCK)

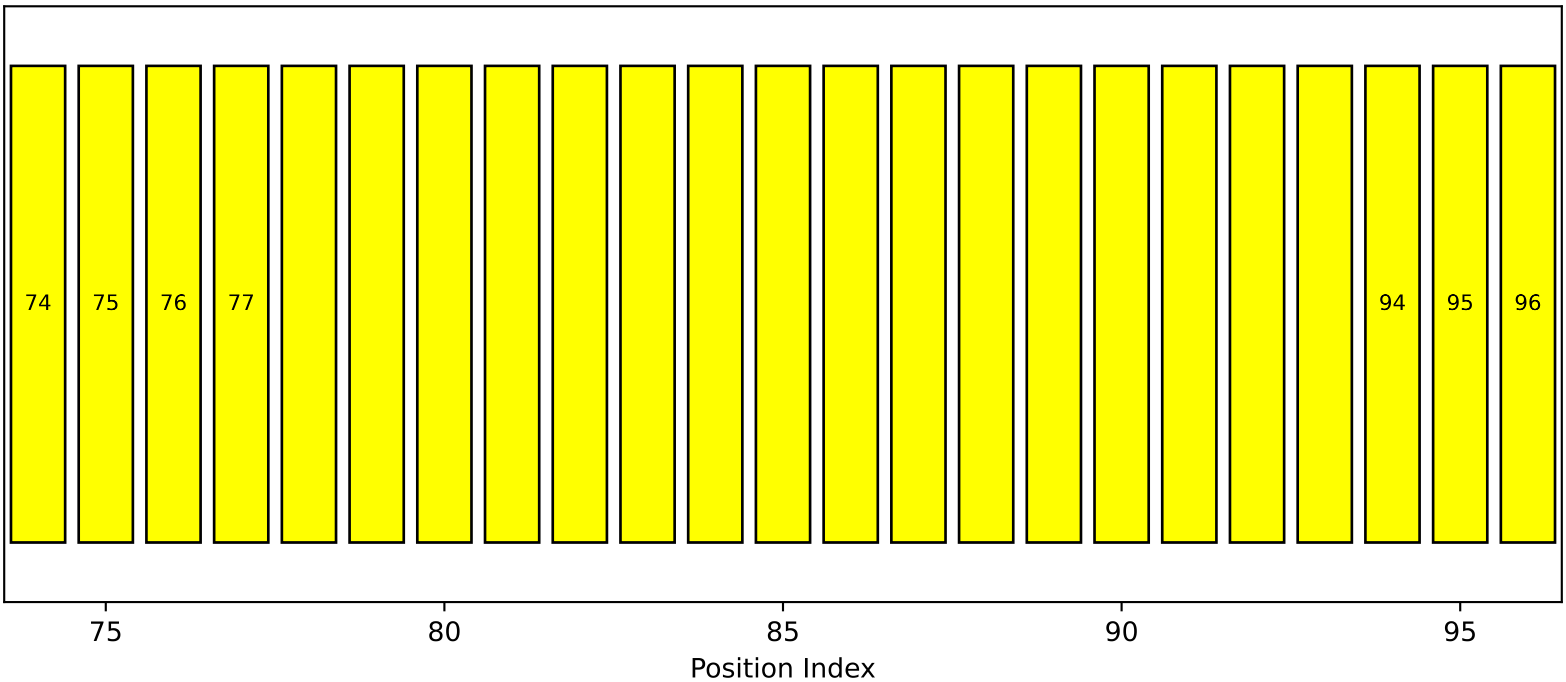
Position 74 Analysis:

- Index: 74
- Class: ((74%2)*3)+(74%3) = 2
- Slot: 74 % 17 = 6
- Status: NOT forced by any anchor



Result: P74 is algebraically UNCONSTRAINED. Any of 26 letters possible.

Test 2: Tail Region (Positions 74-96)



Tail Region (74-96) Analysis:

- 23 positions after last anchor (CLOCK ends at 73)
- ZERO tail positions constrained by anchors
- All 23 tail positions remain algebraically free

Falsifiable Claim: Without additional information beyond the 4 anchors,
the entire tail region (positions 74-96) has 26^23 possible configurations.

This demonstrates the limit of algebraic constraint propagation.

K1-K3 Mechanical Precedents

K1: Standard Vigenère (PALIMPSEST × 2)

- Key: PALIMPSEST PALIMPSEST
- Length: 10 characters repeated
- Method: C[i] = (P[i] + K[i mod 10]) mod 26
- Solved: 1999 (brute force search)

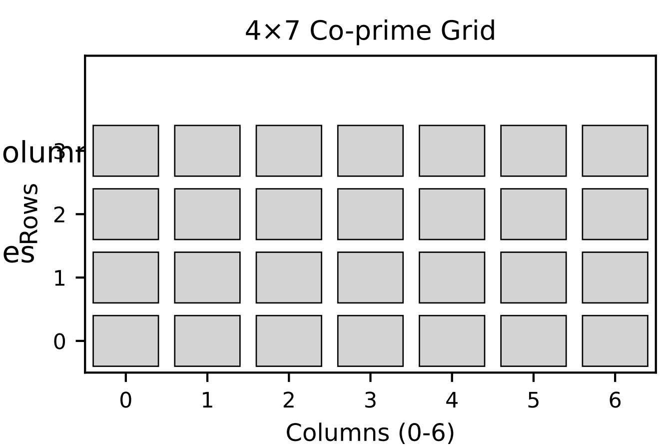
K2: Keyed Caesar (ABSCISSA)

- Key: ABSCISSA (single word)
- Alphabet: ABSCISSA + remaining letters
- Method: Monoalphabetic substitution with keyed alphabet
- Solved: 1999 (frequency analysis)

K3: Columnar Transposition + Vigenère

- Stage 1: Columnar transposition (4 rows × 7 colum
- Stage 2: Vigenère decryption
- Co-prime dimensions: gcd(4,7) = 1
- Key insight: Fixed pattern from typographic cues
- Solved: 2000 (pattern recognition)

The 4×7 grid ensures full coverage through co-prime property - precedent for K4's 97 positions with L=17.



Current Algebraic Constraints

What Forces Unique Solution?

With 4 Anchors Alone:

✓ 24 positions determined (indices where anchors appear)
✗ 73 positions undetermined
✗ 26^73 possible completions

The algebra cannot determine more without additional information.

Potential Additional Constraints

To achieve unique solution, need ONE of:

1. More anchor positions (cribs/known plaintext)
   - Each new anchor potentially determines its slot

2. Language constraints (if plaintext is English)
   - Dictionary words, bigram/trigram frequencies
   - Semantic coherence

3. Additional algebraic structure
   - Constraints on key material
   - Relationships between positions

4. The actual plaintext (ground truth)

Falsifiable Predictions

If this analysis is correct:

- Adding a 5th anchor at an unconstrained position would determine exactly 1 more position (25 total)

- The tail region (74-96) cannot be determined without information beyond the current 4 anchors

- Position 74 specifically must remain free under any algebraic analysis using only the 4 anchors

- No algebraic manipulation can extract more than 24 positions from these specific 4 anchors with L=17