

How Elements Above 100 Get Named

Decoding the IUPAC Systematic
Nomenclature for Superheavy Elements



The Problem: The Naming Wars



American Scientists Claim:
Discovered Element 104.

Rutherfordium

**IUPAC
Intervention**



Soviet Scientists Claim:
Discovered Element 104.

Kurchatovium



Superheavy elements ($Z > 100$) are highly unstable and produced only in minute quantities. Competing claims arise before discoveries can be officially proven. A neutral, temporary naming system was required.

The Decoder Key: Numerical Roots (0-9)



0

nil

n

1

un

u

2

bi

b

3

tri

t

4

quad

q

5

pent

p

6

hex

h

7

sept

s

8

oct

o

9

enn

e



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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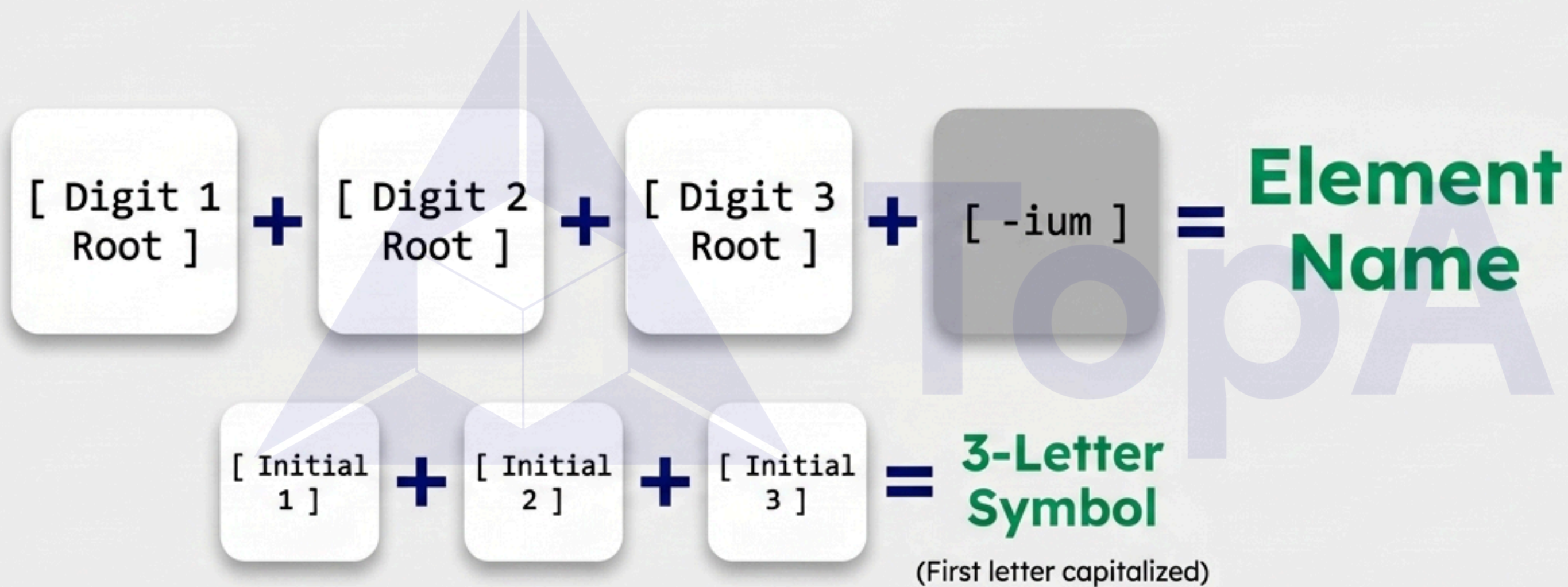
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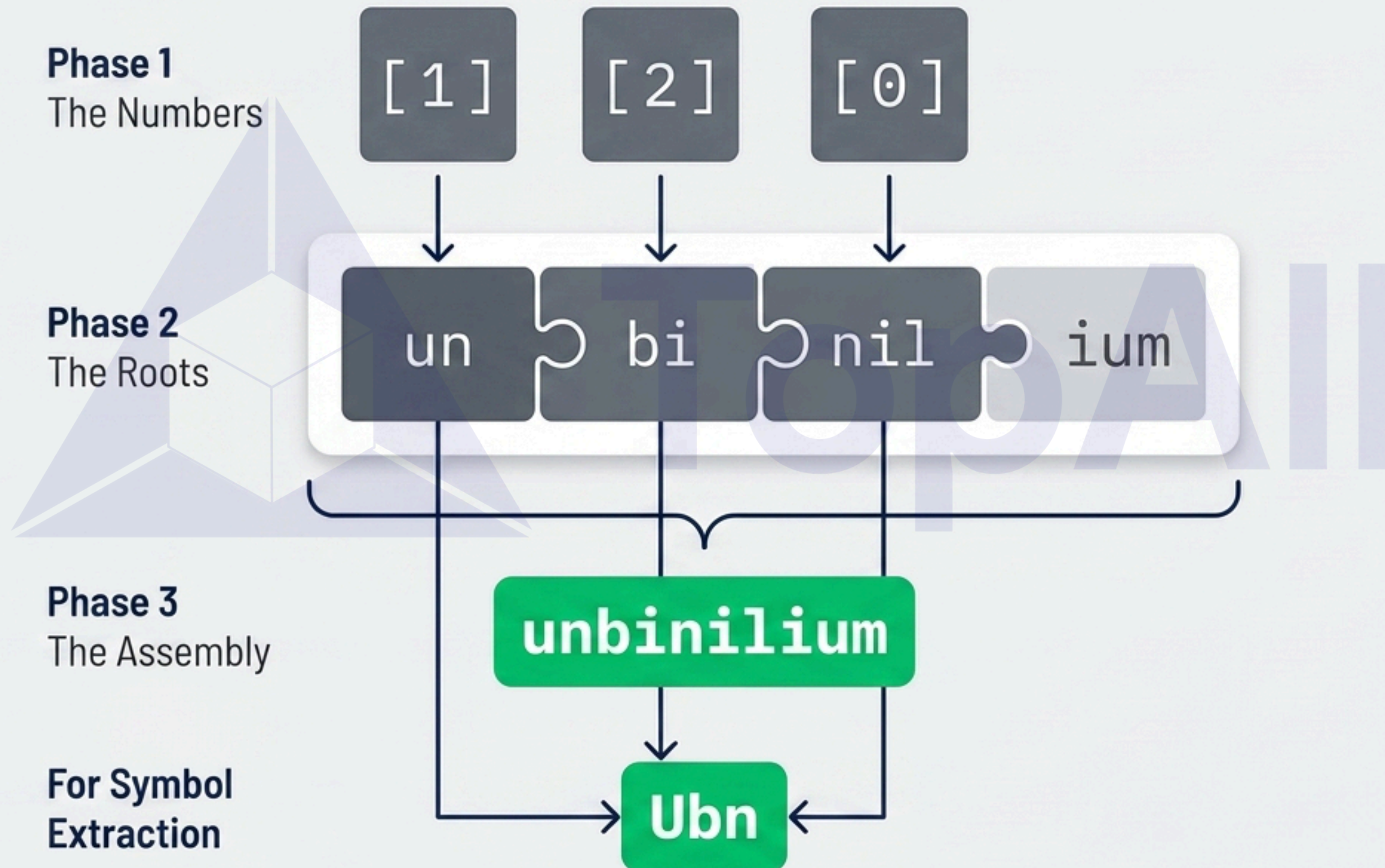


The Assembly Algorithm



Derive the systematic name directly from the atomic number by stringing the roots together in order, followed by the suffix 'ium'.

Live Execution: Decoding Atomic Number 120



From Algorithm to Tribute: The Permanent Name

Phase 1: Temporary

Algorithmic origin.
Neutral placeholder.
3-letter symbol.
(e.g., Unnilquadium, Unq)

Discovery Verified &
Ratified by IUPAC

Phase 2: Permanent

Scientific tribute
(scientist, country).
1 or 2-letter symbol.
(e.g., Rutherfordium, Rf)

Mini-Gallery

101

Unnilunium
(Unu)



Mendelevium
(Md)

106

Unnilhexium
(Unh)



Seaborgium
(Sg)

118

Ununoctium
(Uuo)



Oganesson
(Og)

Exam Shortcut: The IUPAC Code

1

Chop the Number:

Split the atomic number into its three individual digits.

2

Translate to Roots:

Use the 0-9 key (nil, un, bi, tri, etc.).

3

Cap it off:

Always add the suffix -ium.

4

Extract the Symbol:

Take the first letter of each root. Capitalize the first letter only.

Rapid Fire Test

Example 1: $Z=114 \longrightarrow \text{un} + \text{un} + \text{quad} + \text{ium} = \text{Ununquadium (Uuq)}$

Example 2: $Z=105 \longrightarrow \text{un} + \text{nil} + \text{pent} + \text{ium} = \text{Unnilpentium (Unp)}$



You've Learned the Theory.

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