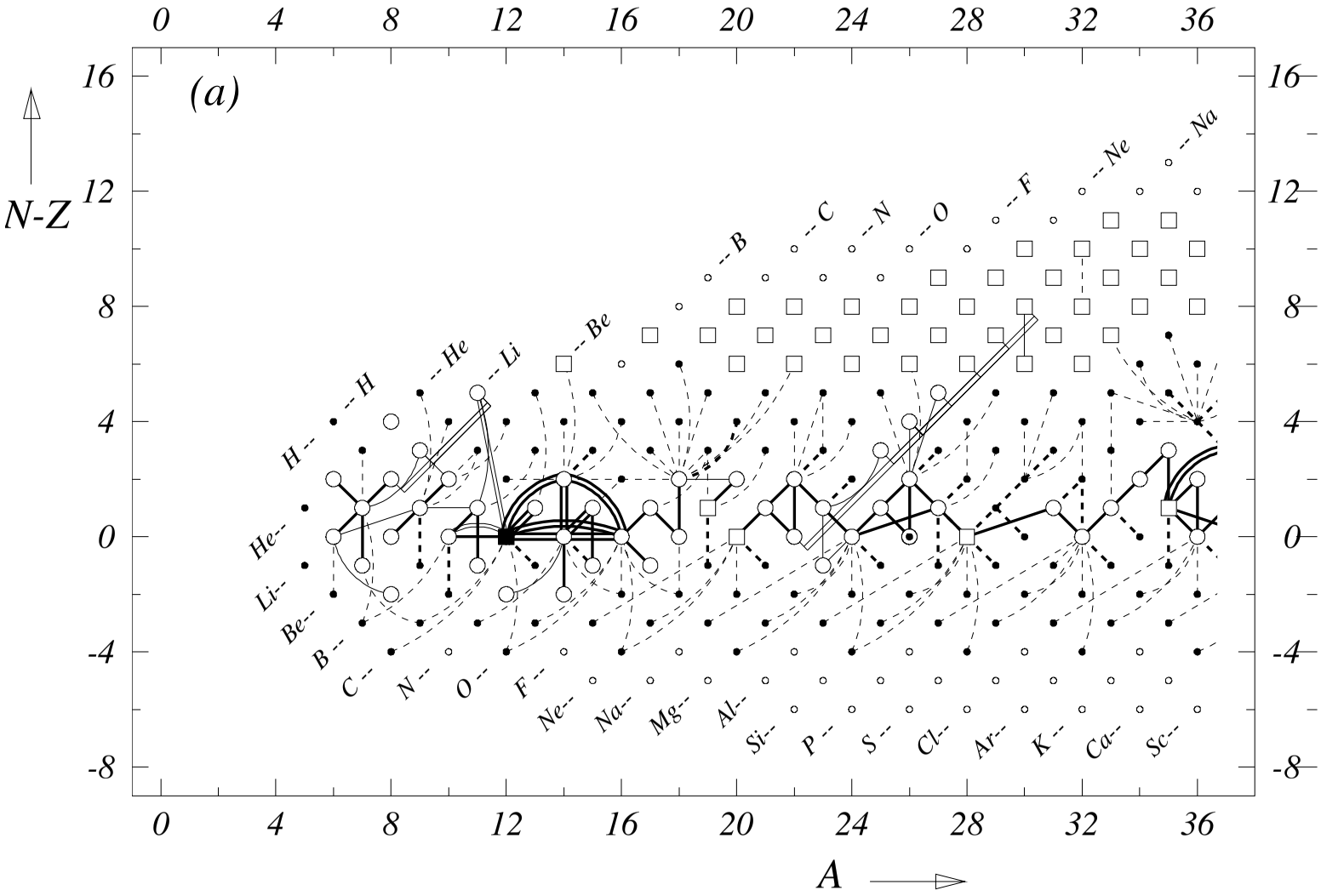
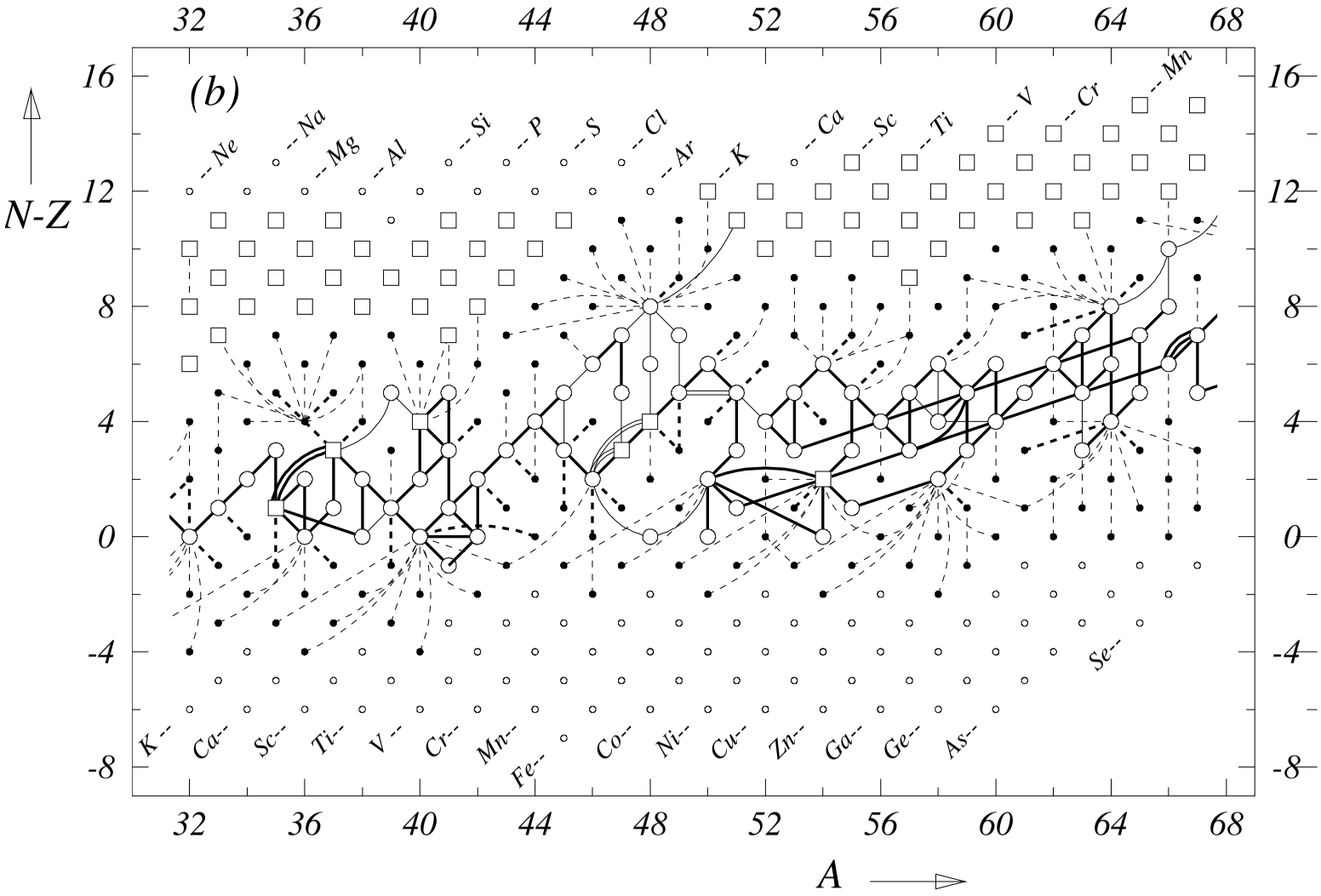

(a)
N-Z
A
0
4
8
12
16
20
24
28
32
36
-8
-4
0
4
8
12
16
H
He
Li
Be
B
C
N
O
F
Ne
Na
Mg
Al
Si
P
S
Cl
Ar
K
Ca
Sc


(b)
N-Z
A
32
36
40
44
48
52
56
60
64
68
16
12
8
4
0
-4
-8
Ne
Na
Mg
Al
Si
P
S
Cl
Ar
K
Ca
Sc
Ti
V
Cr
Mn
K--
Ca--
Sc--
Ti--
V--
Cr--
Mn--
Fe--
Co--
Ni--
Cu--
Zn--
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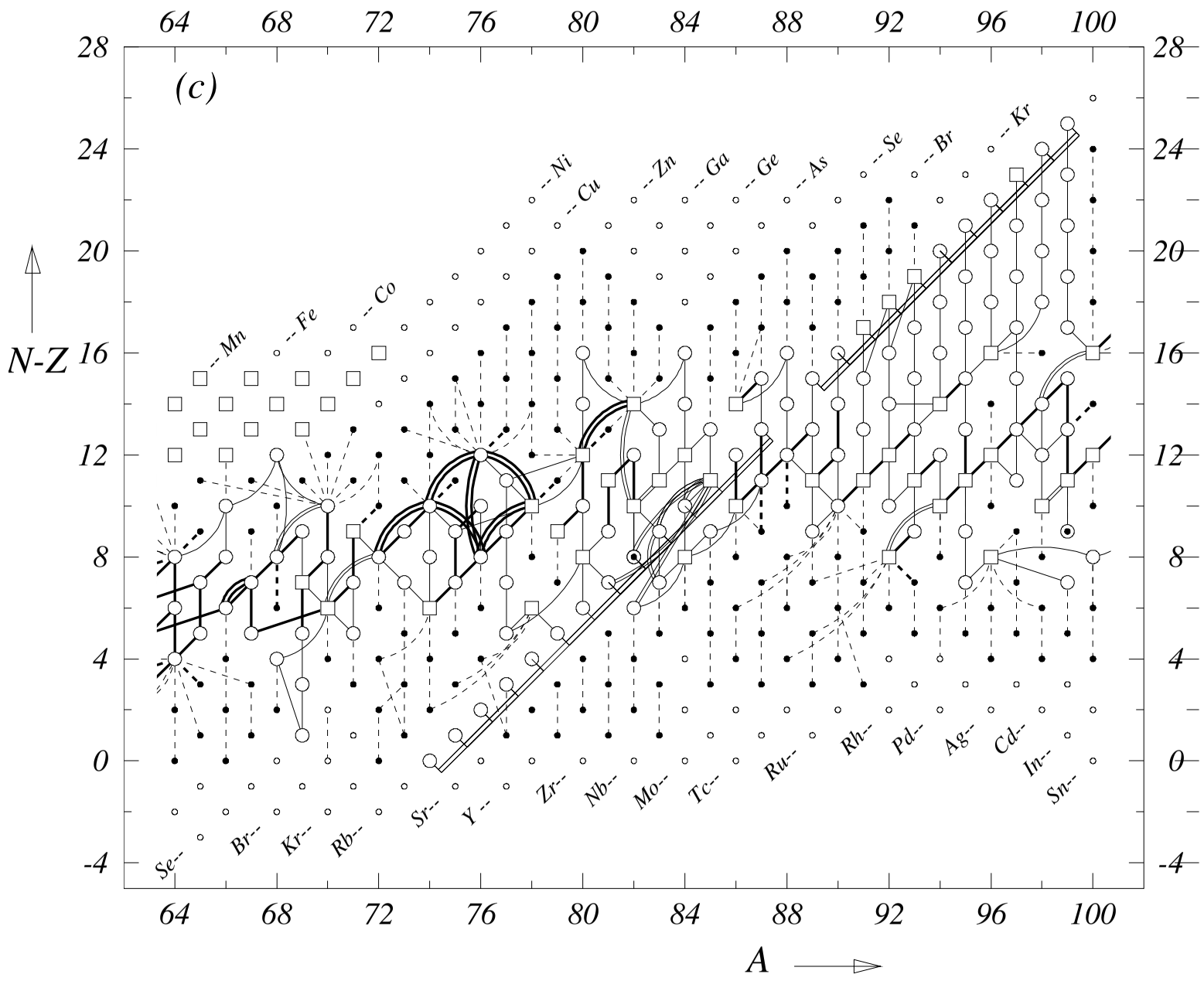
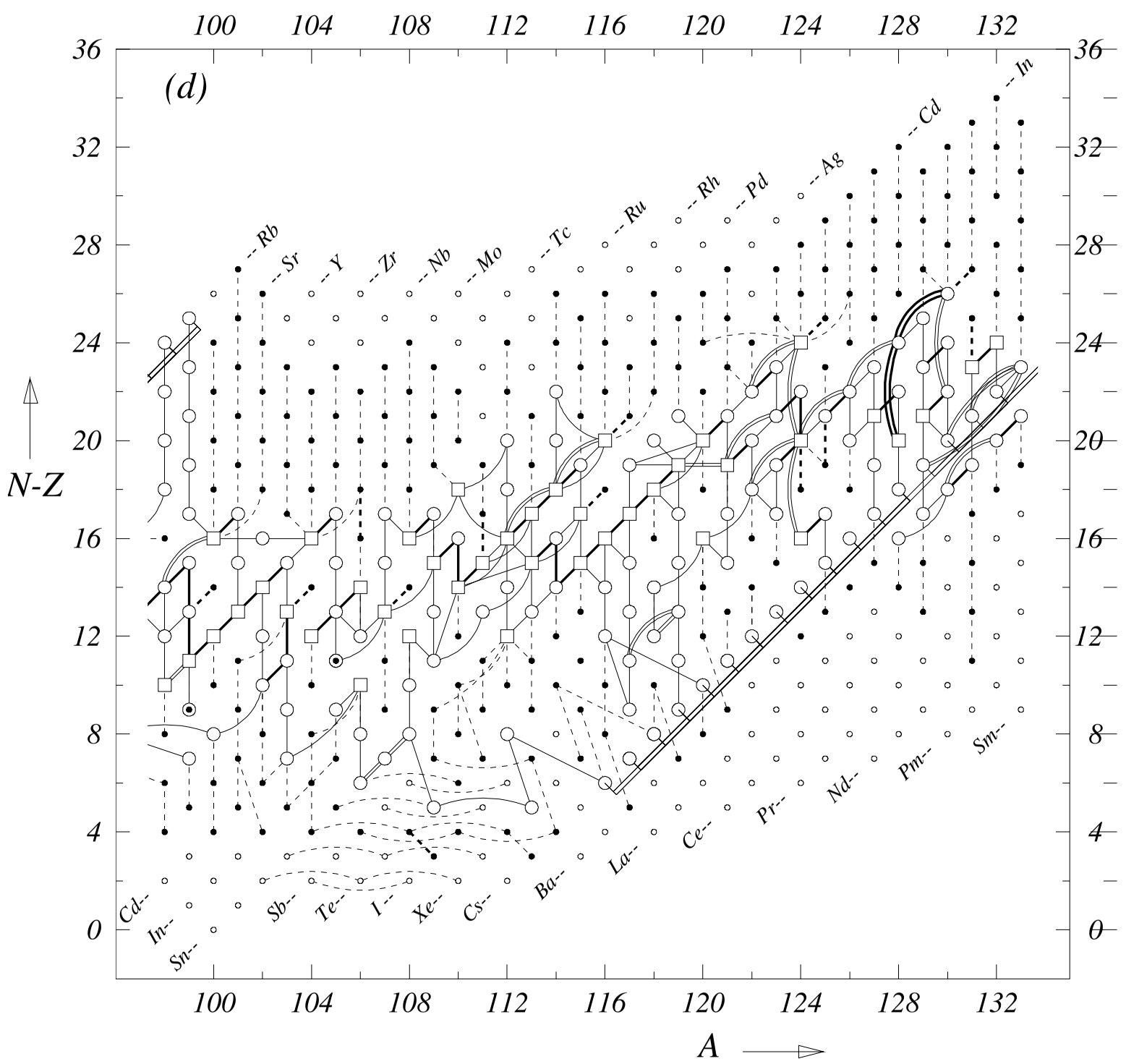
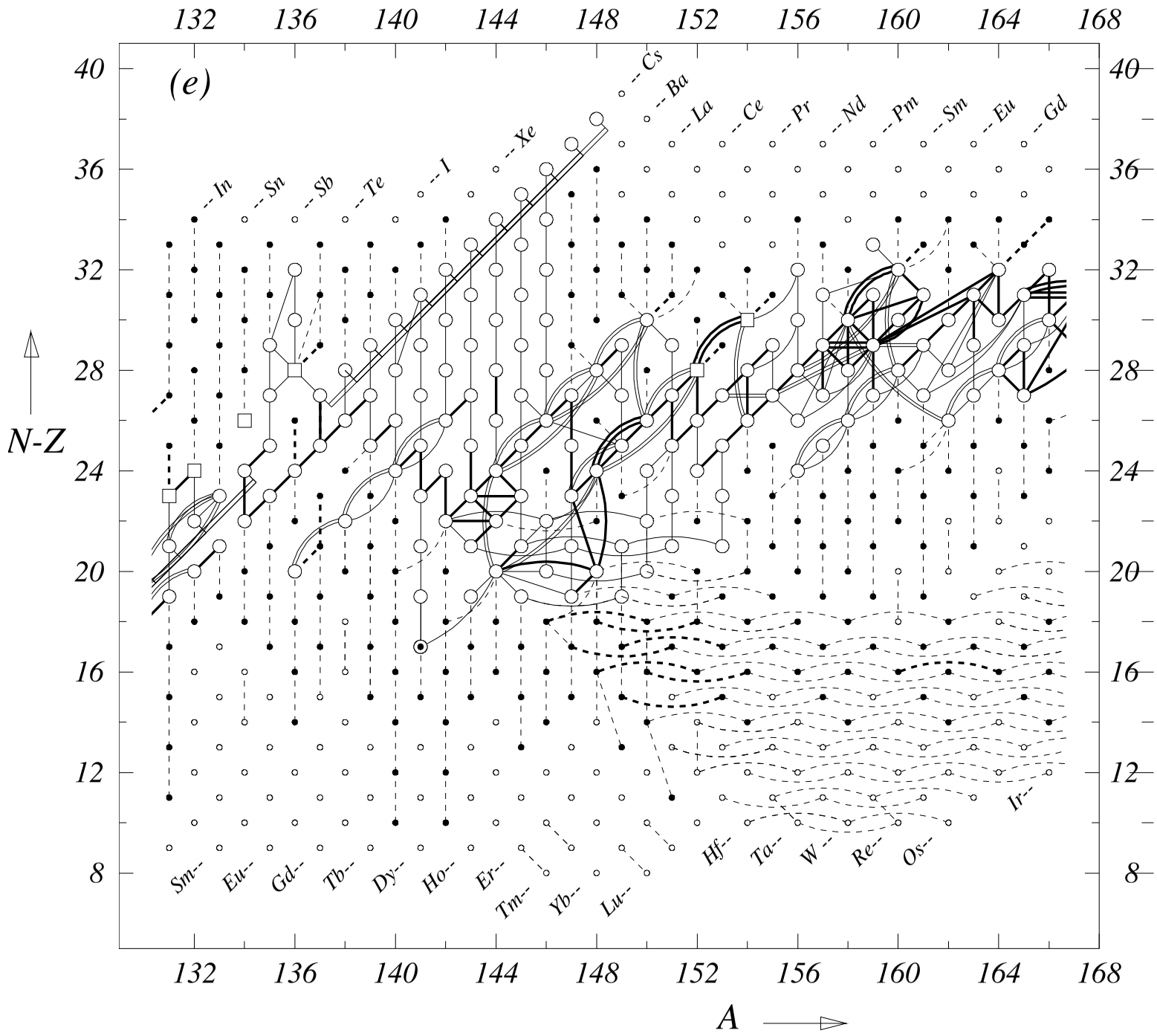
Ge--
As--
Se--


(c)
N-Z
A
64
68
72
76
80
84
88
92
96
100
28
24
20
16
12
8
4
0
-4
Mn
Fe
Co
Ni
Cu
Zn
Ga
Ge
As
Se
Br
Kr
Se--
Br--
Kr--
Rb--
Sr--
Y --
Zr--
Nb--
Mo--
Tc--
Ru--
Rh--
Pd--
Ag--
Cd--
In--
Sn--


(d)
100
104
108
112
116
120
124
128
132
36
32
28
24
20
16
12
8
4
0
N-Z
A
Rb
Sr
Y
Zr
Nb
Mo
Tc
Ru
Rh
Pd
Ag
Cd
In
Cd--
In--
Sn--
Sb--
Te--
I--
Xe--
Cs--
Ba--
La--
Ce--
Pr--
Nd--
Pm--
Sm--


(e)
132
136
140
144
148
152
156
160
164
168
40
36
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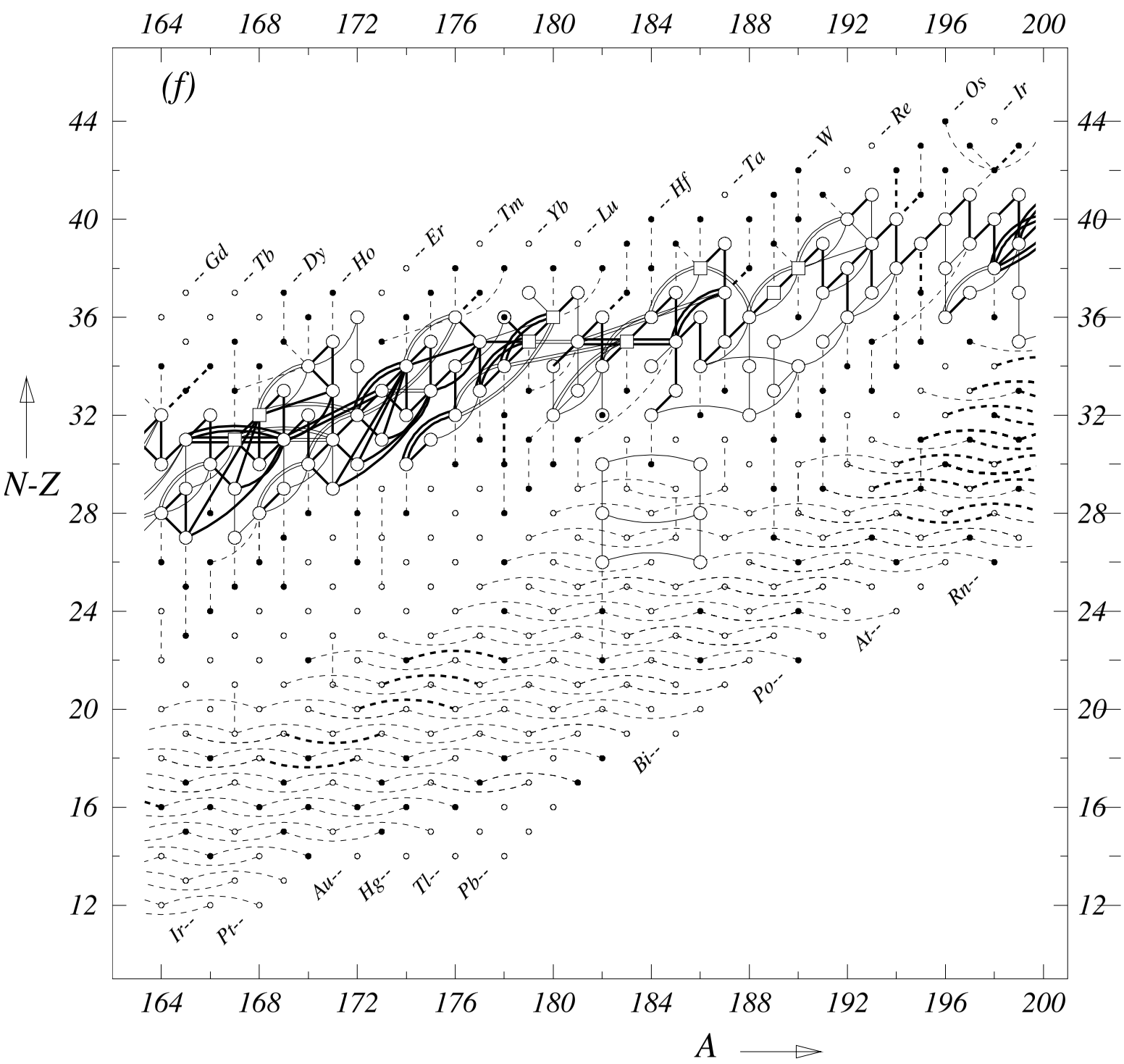
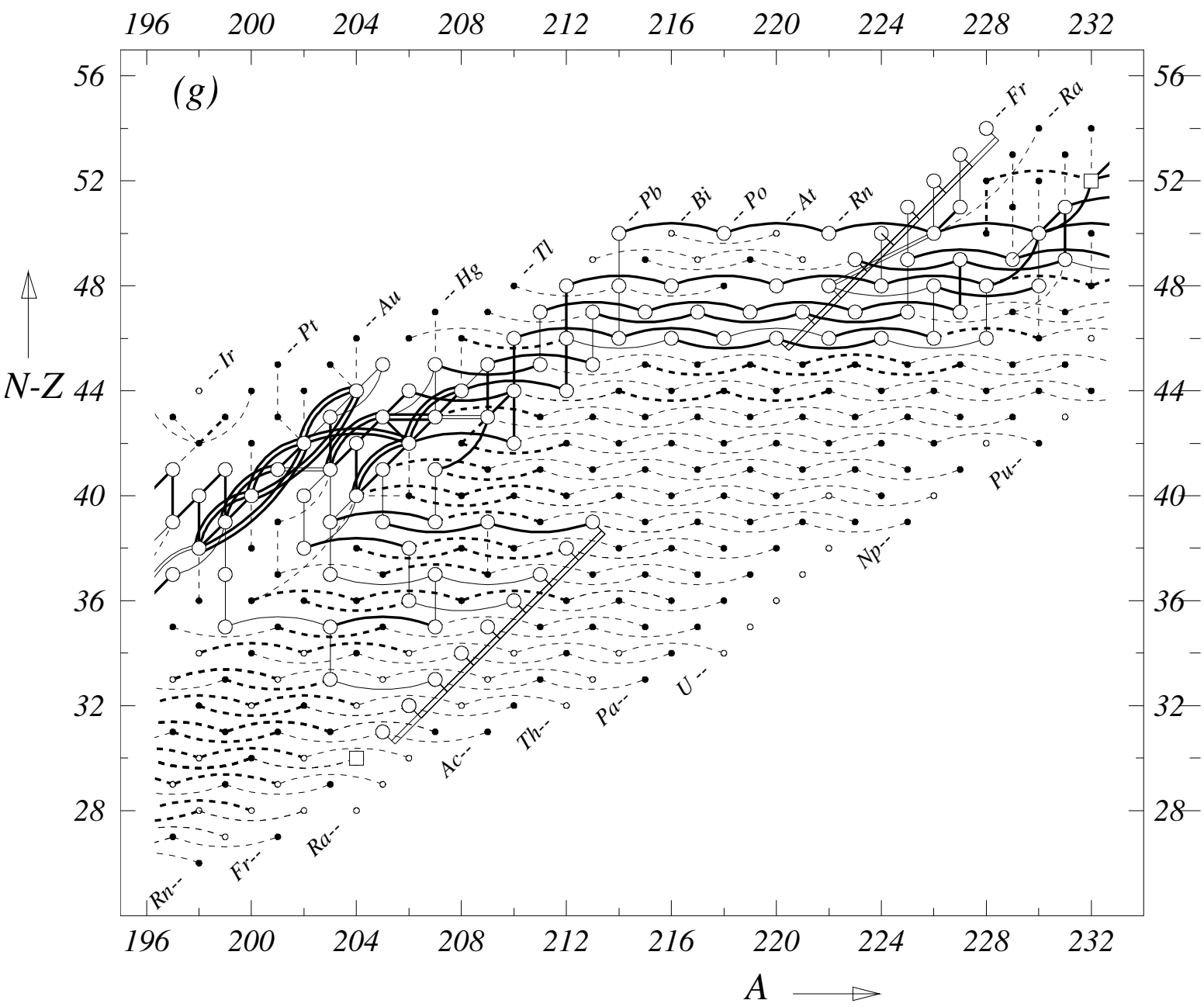
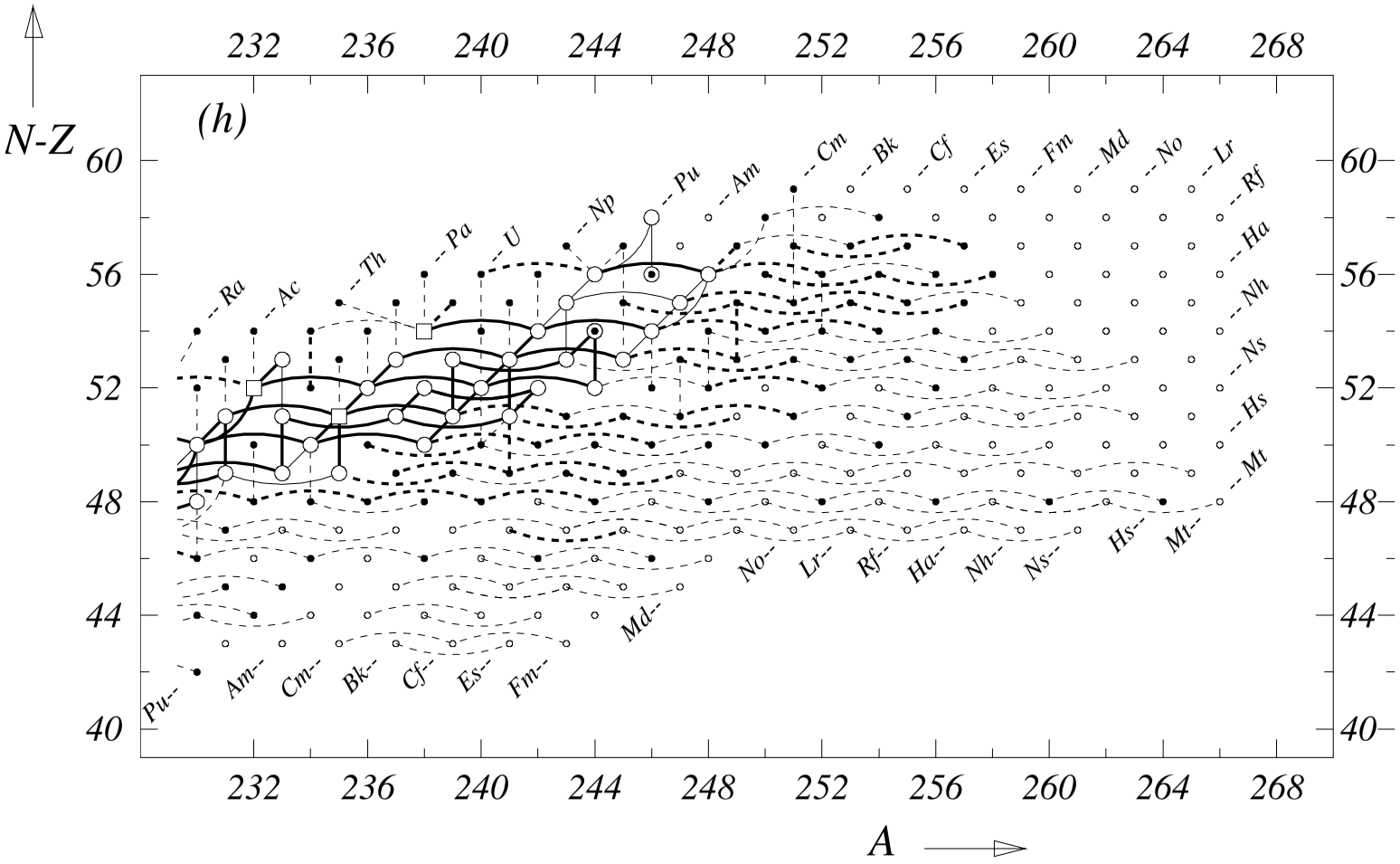
28
24
20
16
12
8
N-Z
A
In
Sn
Sb
Te
I
Xe
Cs
Ba
La
Ce
Pr
Nd
Pm
Sm
Eu
Gd
Sm--
Eu--
Gd--
Tb--
Dy--
Ho--
Er--
Tm--
Yb--
Lu--
Hf--
Ta--
W
Re--
Os--
Ir--


(f)
164
168
172
176
180
184
188
192
196
200
44
40
36
32
28
24
20
16
12
N-Z
A
Gd
Tb
Dy
Ho
Er
Tm
Yb
Lu
Hf
Ta
W
Re
Os
Ir
Pt--
Ir--
Au--
Hg--
Tl--
Pb--
Bi--
Po--
At--
Rn--


(g)
196
200
204
208
212
216
220
224
228
232
56
52
48
44
40
36
32
28
N-Z
A
Ir
Pt
Au
Hg
Tl
Pb
Bi
Po
At
Rn
Fr
Ra
Rn--
Fr--
Ra--
Ac--
Th--
Pa--
U--
Np--
Pu--


(h)
N-Z
A
232
236
240
244
248
252
256
260
264
268
40
44
48
52
56
60
Ra
Ac
Th
Pa
U
Np
Pu
Am
Cm
Bk
Cf
Es
Fm
Md
No
Lr
Rf
Ha
Nh
Ns
Hs
Mt
Pu--
Am--
Cm--
Bk--
Cf--
Es--
Fm--
Md--
No--
Lr--
Rf--
Ha--
Nh--
Ns--
Hs--
Mt--