

Lithium ground state

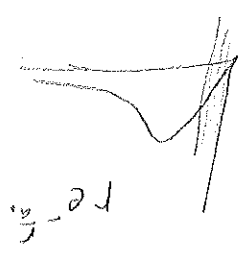
$$\Rightarrow E_n = -\frac{1}{2} m c^2 \alpha^2 \frac{Z^2}{n^2}$$



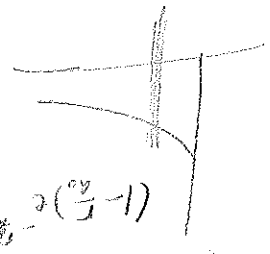
% interaction, b.c. should be the same

How acc't for interaction?

The inner shell electrons tend to reduce the effective Z from 3 to 1 (shielding)
 + ∴ reducing the binding (φ for energy)



where 2p



But as

for the 1s state the b.c. 2

In general, higher l ⇒ further away ⇒ shielded ⇒ φ larger
 ∴ Δφ ⇒ Eφ

∴ (21) is lower energy

1s

2s

2p

3s

3p

4s

3d

4p

5s

4d

5p

6s

4f

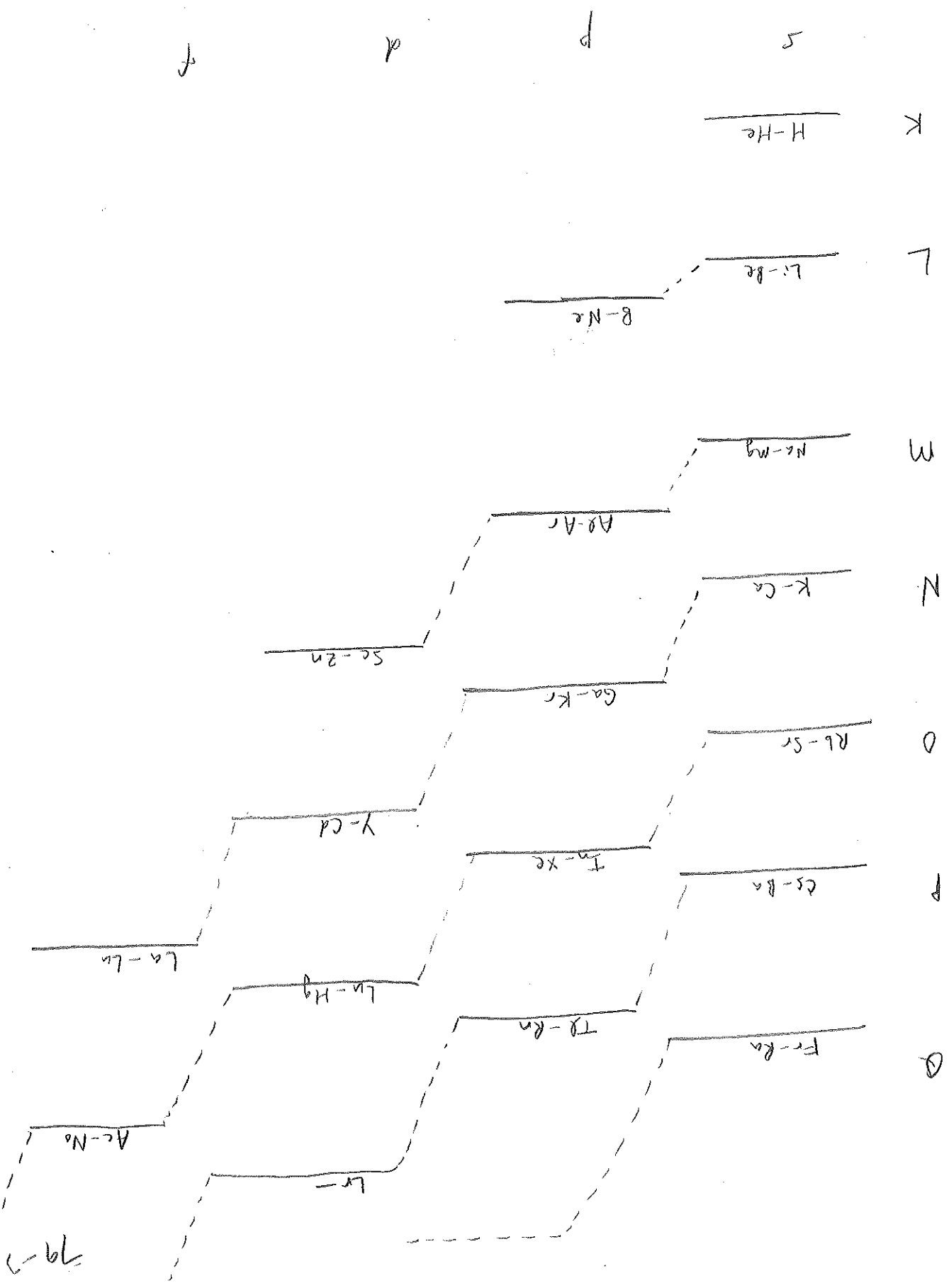
5d

6p

7s

5f

6d



f

d

p

s

N