

生命
五大

碳

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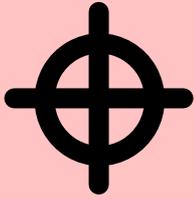
B

Si

Se

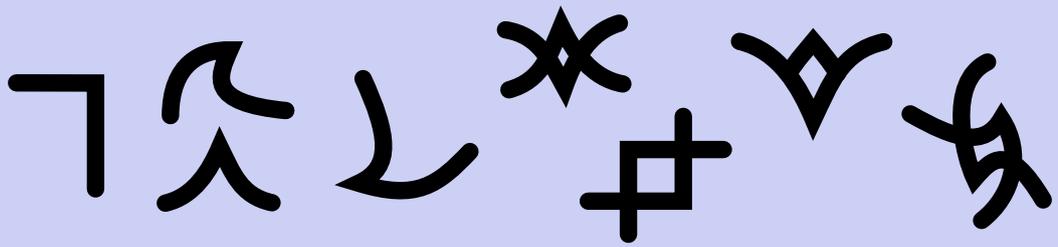
As

Ge



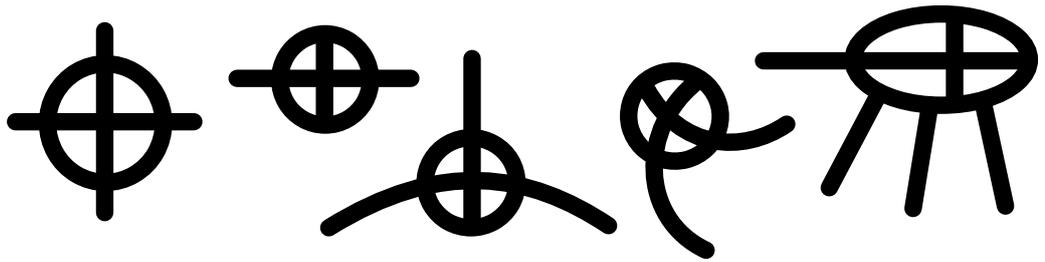
硼

B



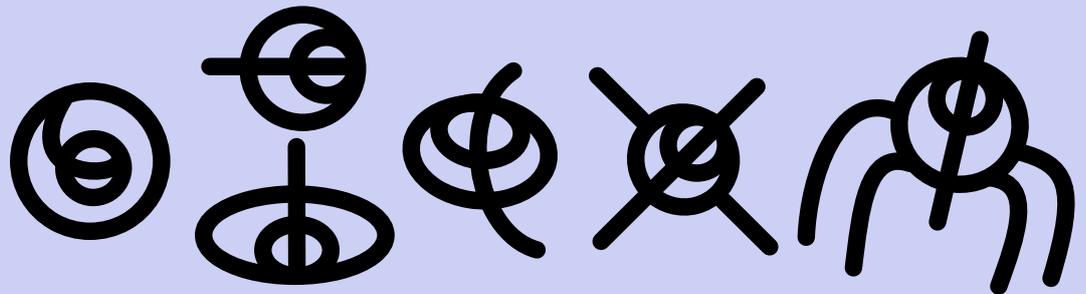
硅

Si



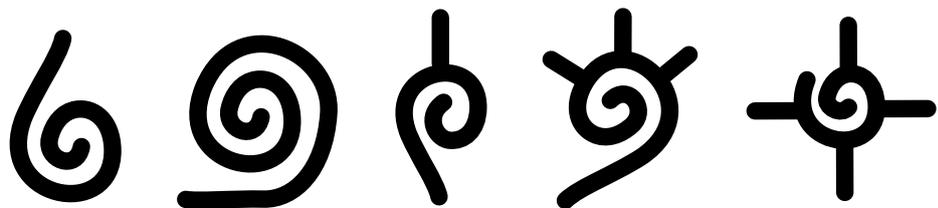
硒

Se



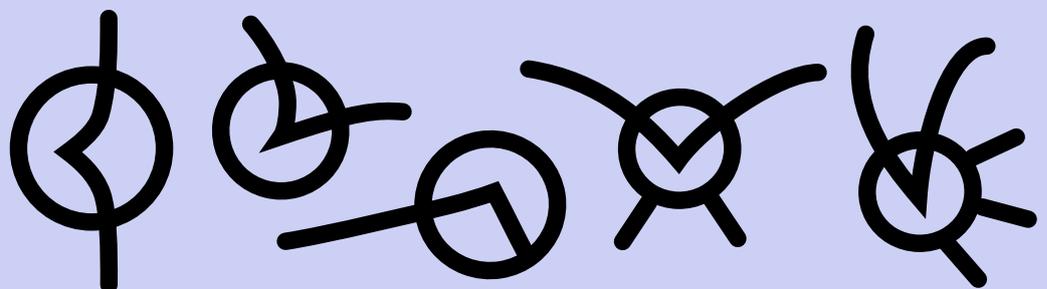
锗

Ge



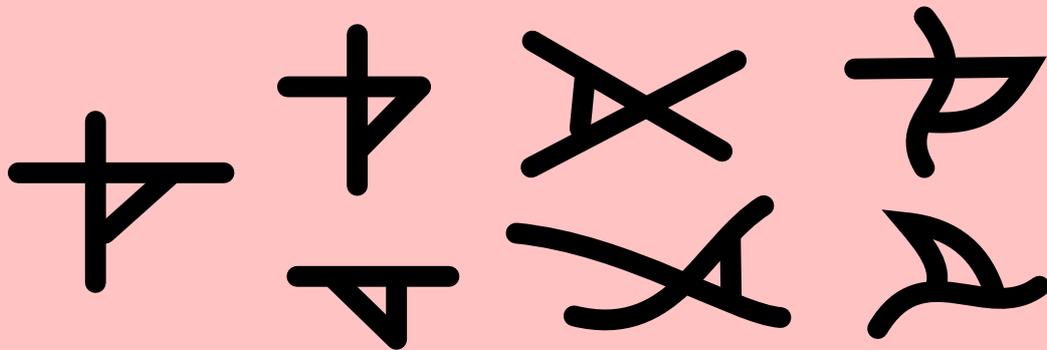
砷

As



磷

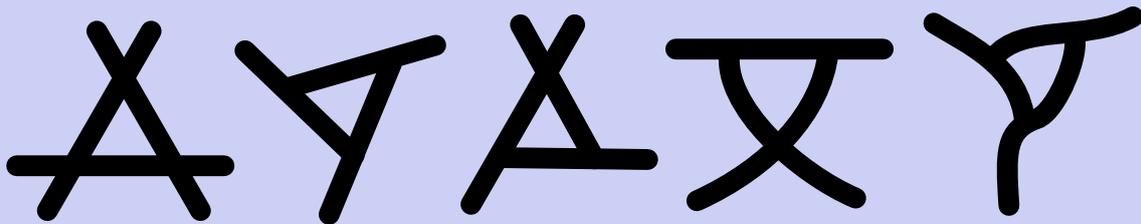
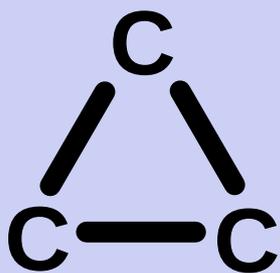
P



方式1: 交叉内角里加三角

方式2: 三角有至少一角不出线

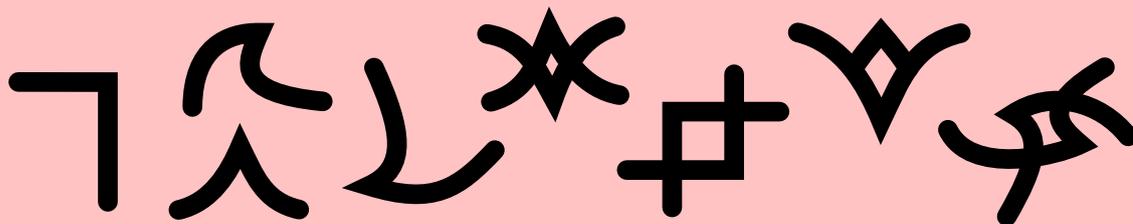
环丙烷



三角个角出线, 不是交叉内角里

硼

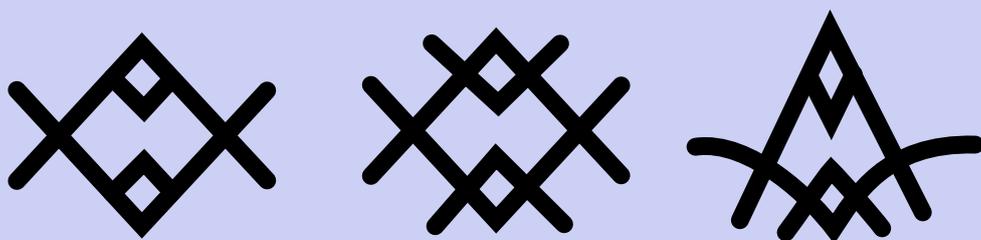
B



折角, 或两个重叠折角。。。没有冲突, 看下面

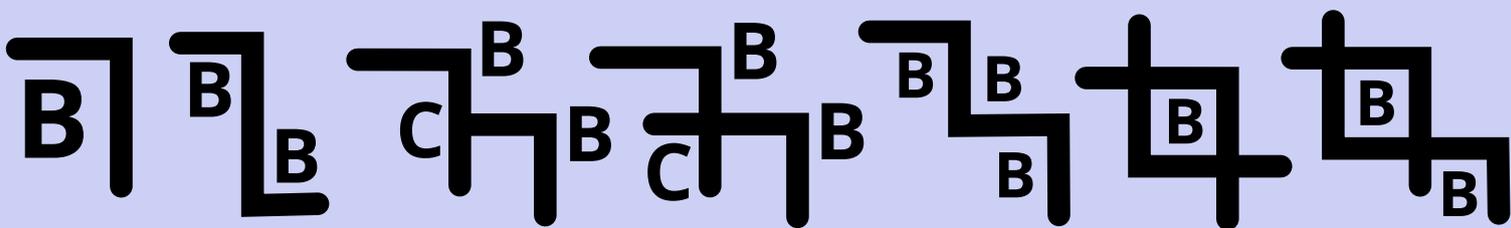
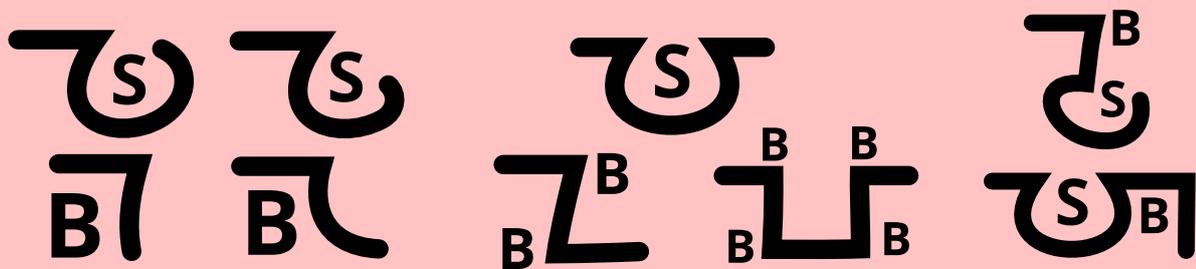


超级少见

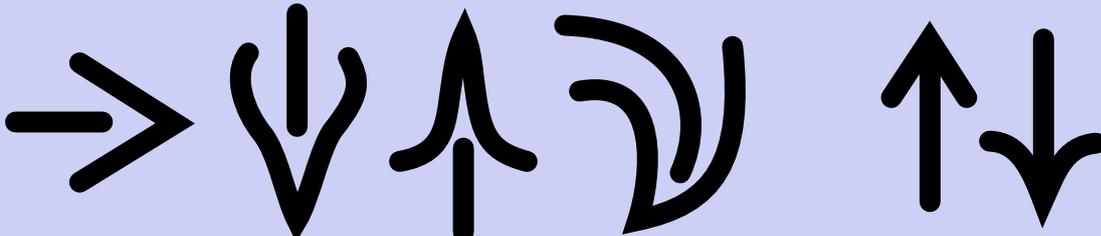


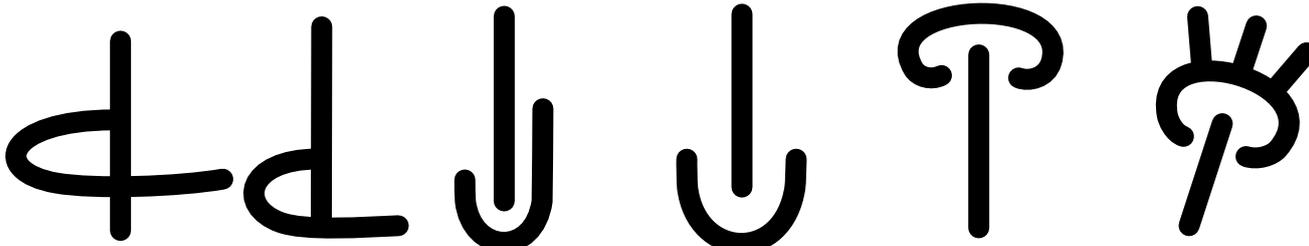
硼 硫

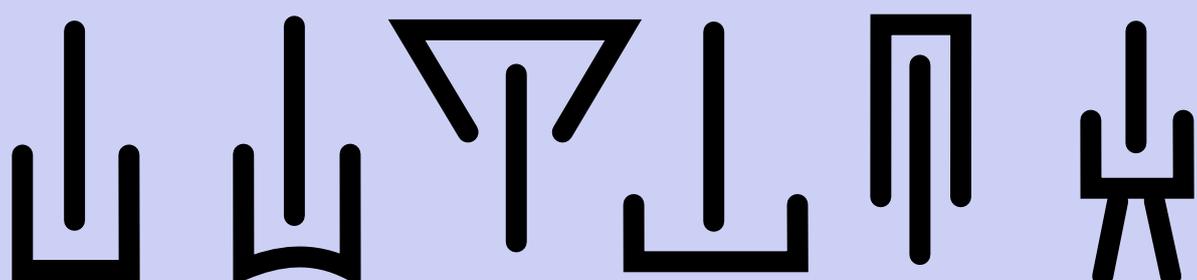
B S

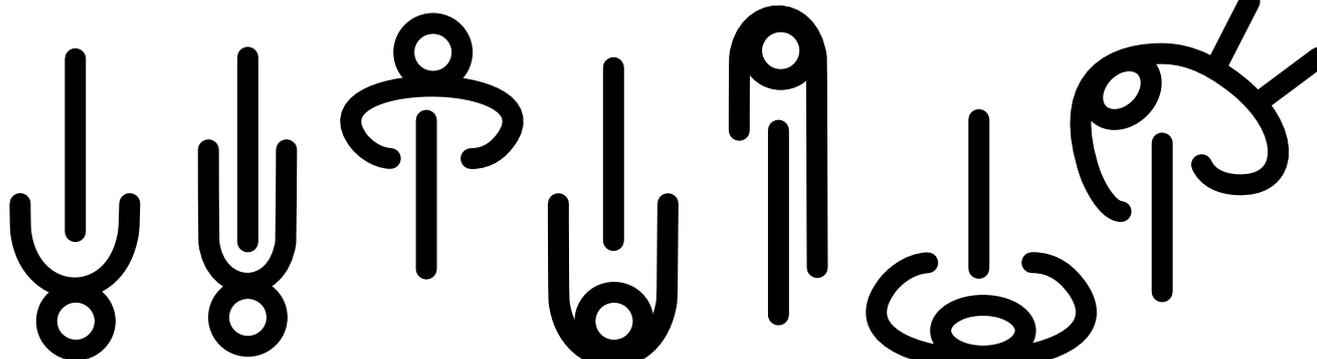


	氟	氯	溴	碘
卤素	F	Cl	Br	I
	→	→	→	→

氟
 F → 
 这样容易误解为碳
 小心利用

氯
 Cl 

溴
 Br 

碘
 I 

都一般为终端，能多个连接，但较少见
 (除了氟，氟只能一个)

金属

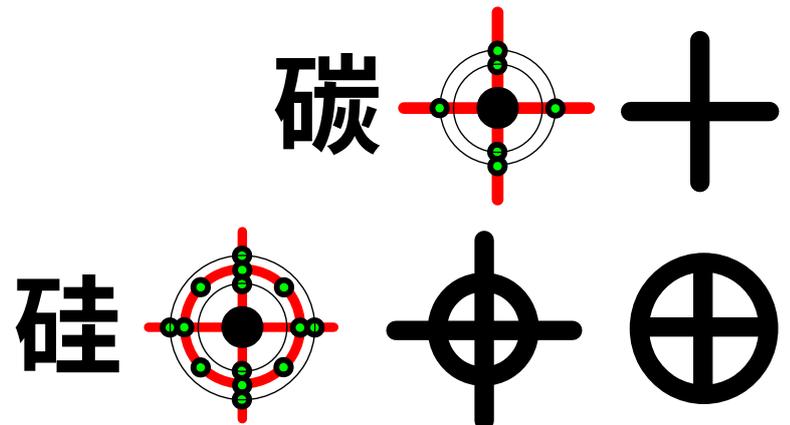
铝	锌	锡	铅	镓	铟	铋
Al	Zn	Sn	Pb	Ga	In	Bi

s区 元素	锂	钠	钾	镁	钙
	Li	Na	K	Mg	Ca

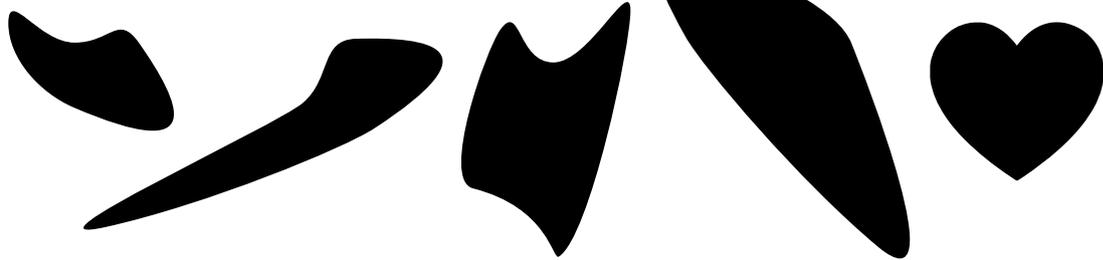
氧开头组/团

-O-Et	-O≡C	Formyl -O=C	-O-Me	peroxide -OOH
OH	H ₂ O	H ₃ O	OO	R-O-O-R

锂是最轻小的碱金属，
移除电子易成 **Li+** 离子，
高能量密度理想材料。

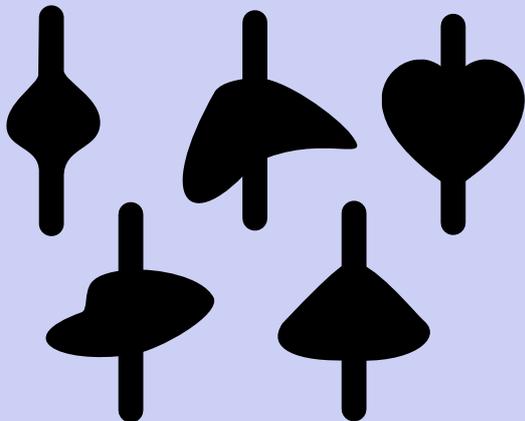


氢
H



双键

X



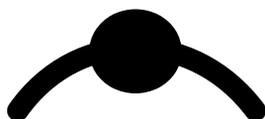
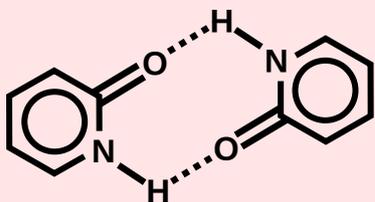
三键

X

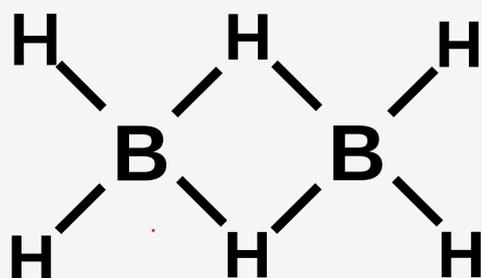
X



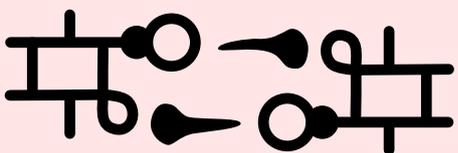
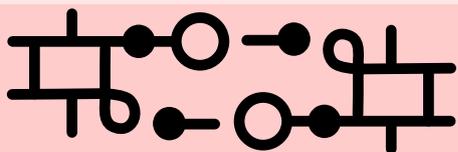
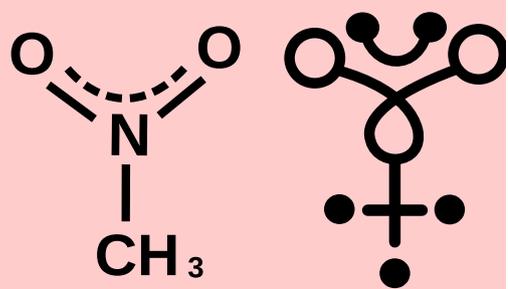
2-Pyridone dimer
2-吡啶酮二聚体



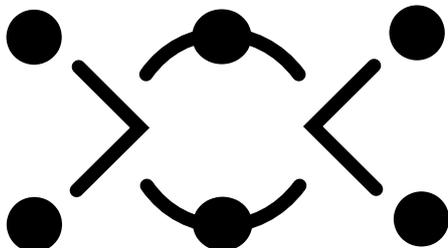
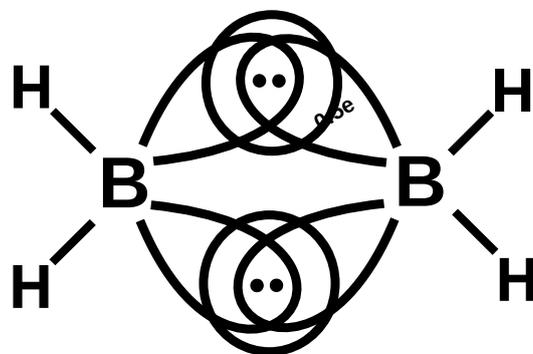
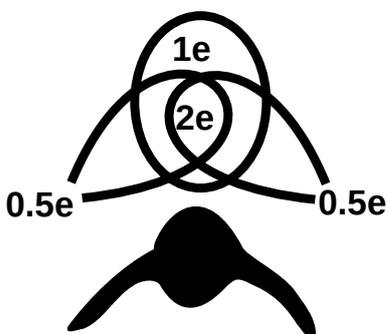
Borane (BH₃)₂
硼烷



硝基甲烷
Nitromethane



三中心两电子建



三中心四电子建
比如

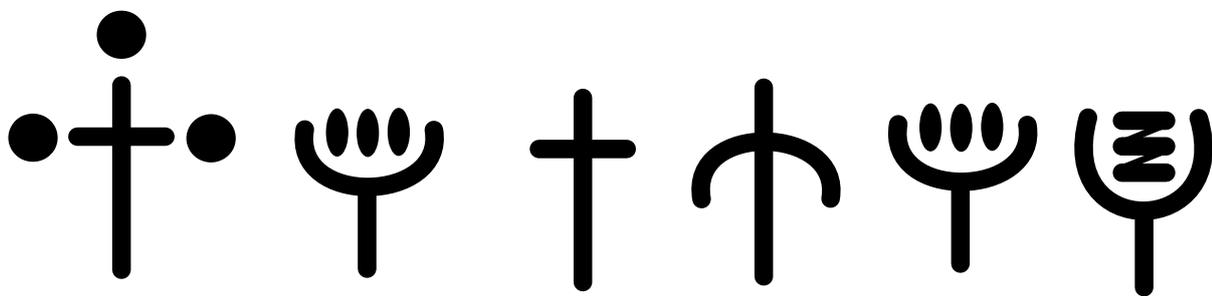
O-N-O O-S-O

O-C-O O-P-O

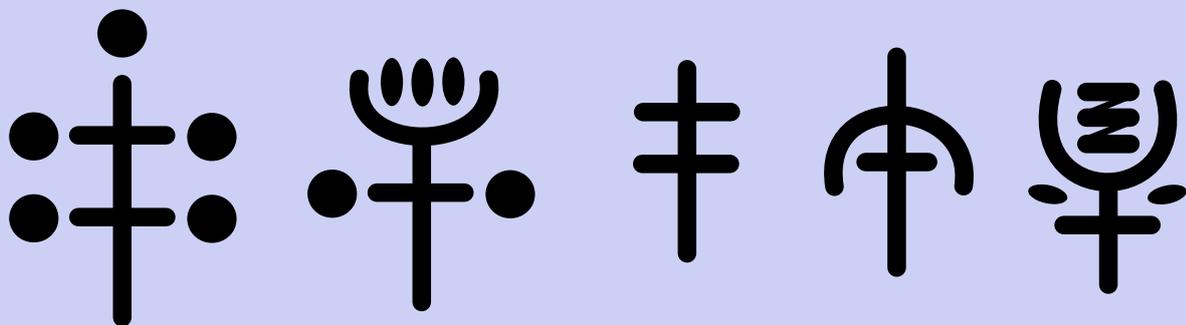


电子云密度集中在
两个氧上下
小部分在氮上下

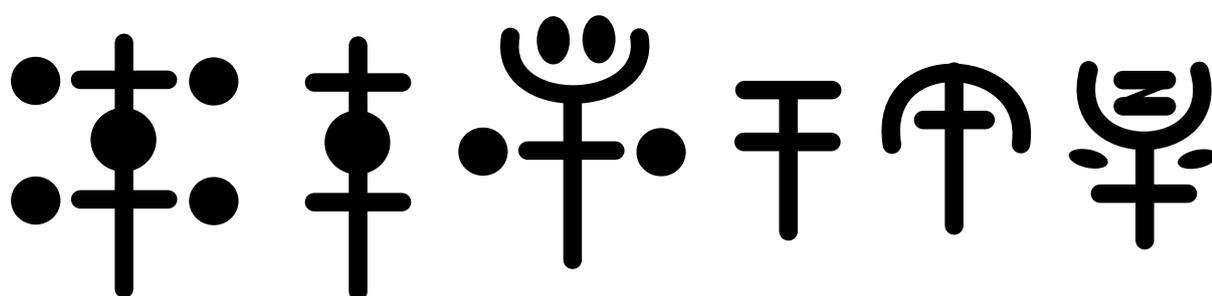
Me
甲基
Methyl
-CH₃



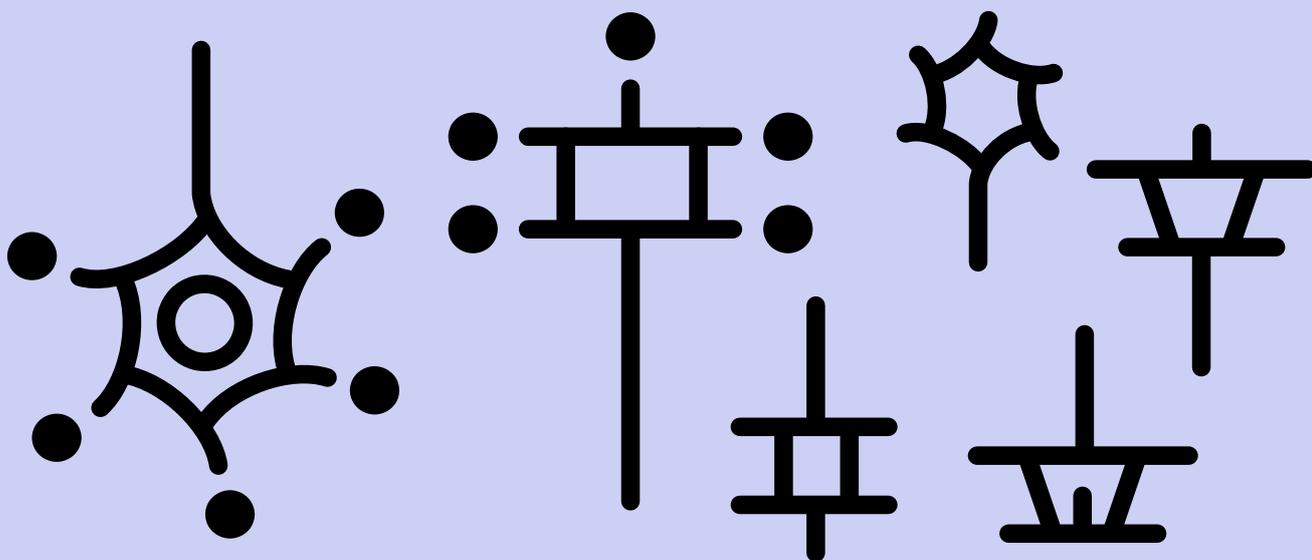
Et
乙基
Ethyl
-CH₂CH₃



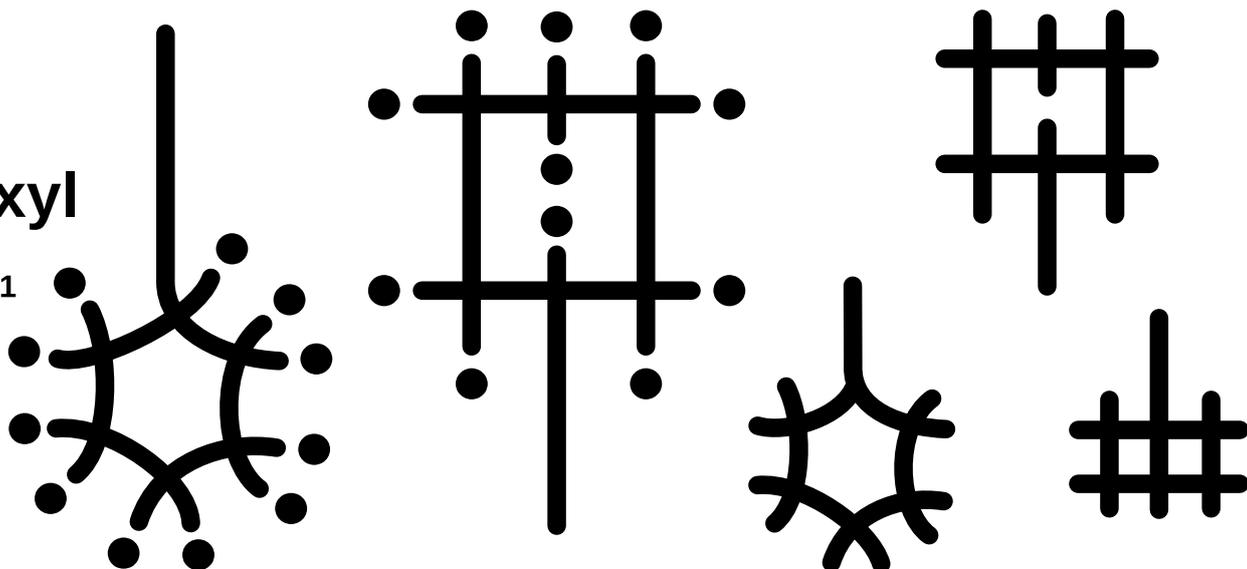
Vin
乙烯基
Vinyl
-CH=CH₂

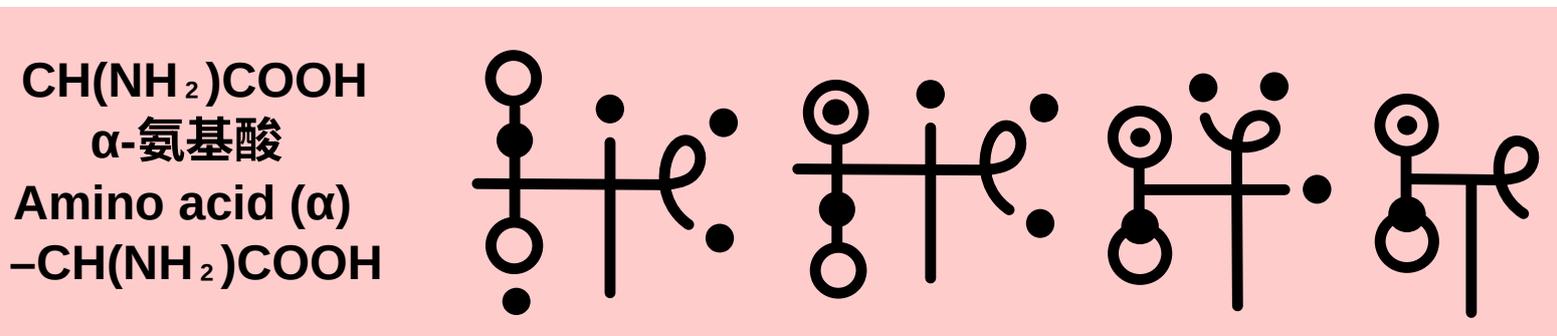
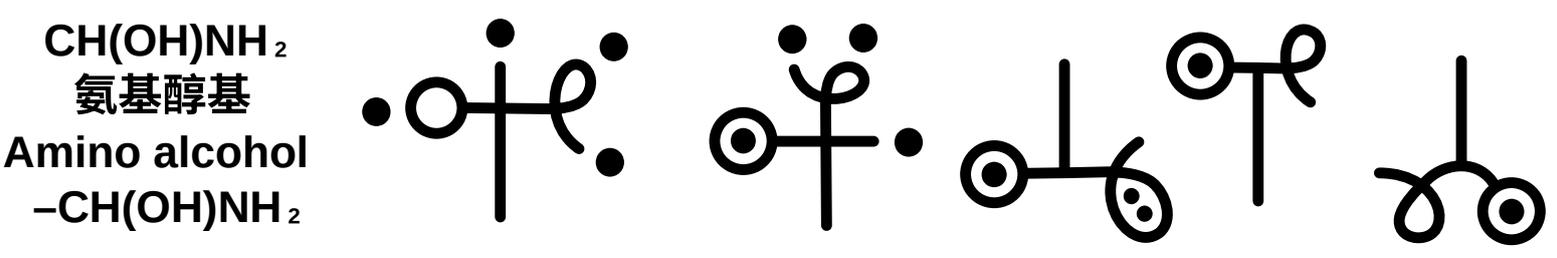
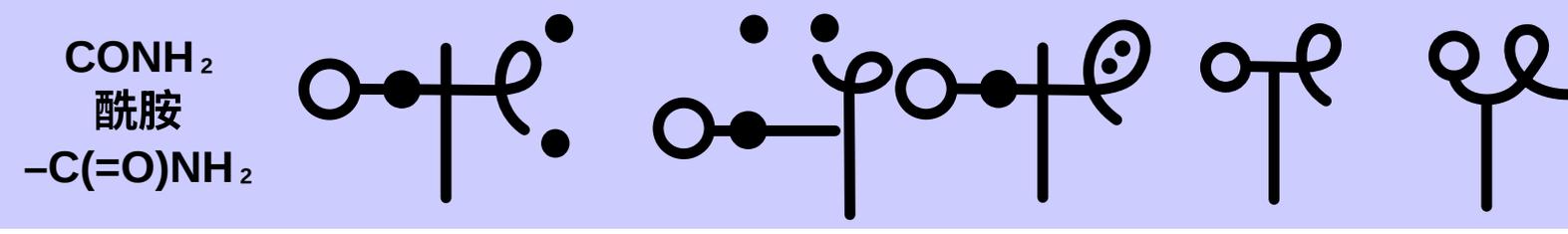
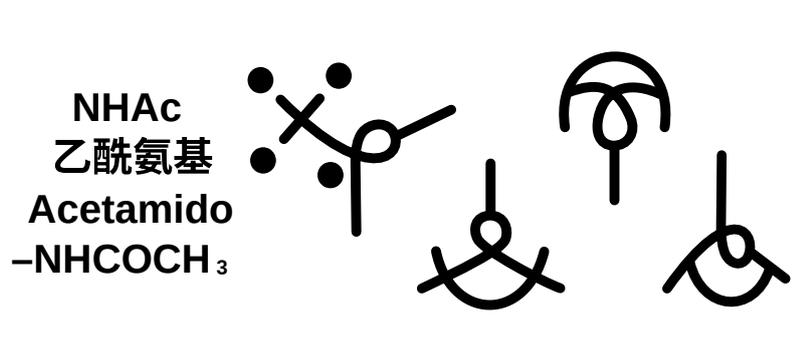
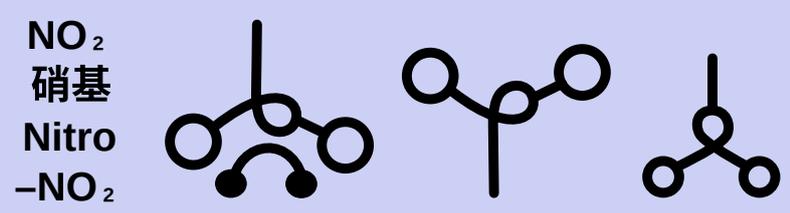
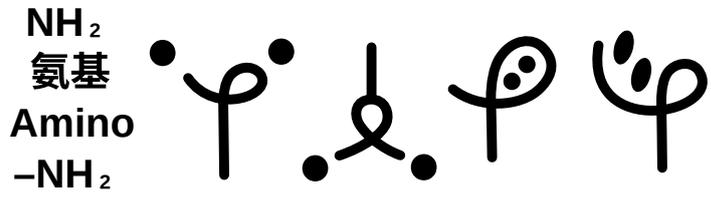


Ph
苯基
Phenyl
-C₆H₅

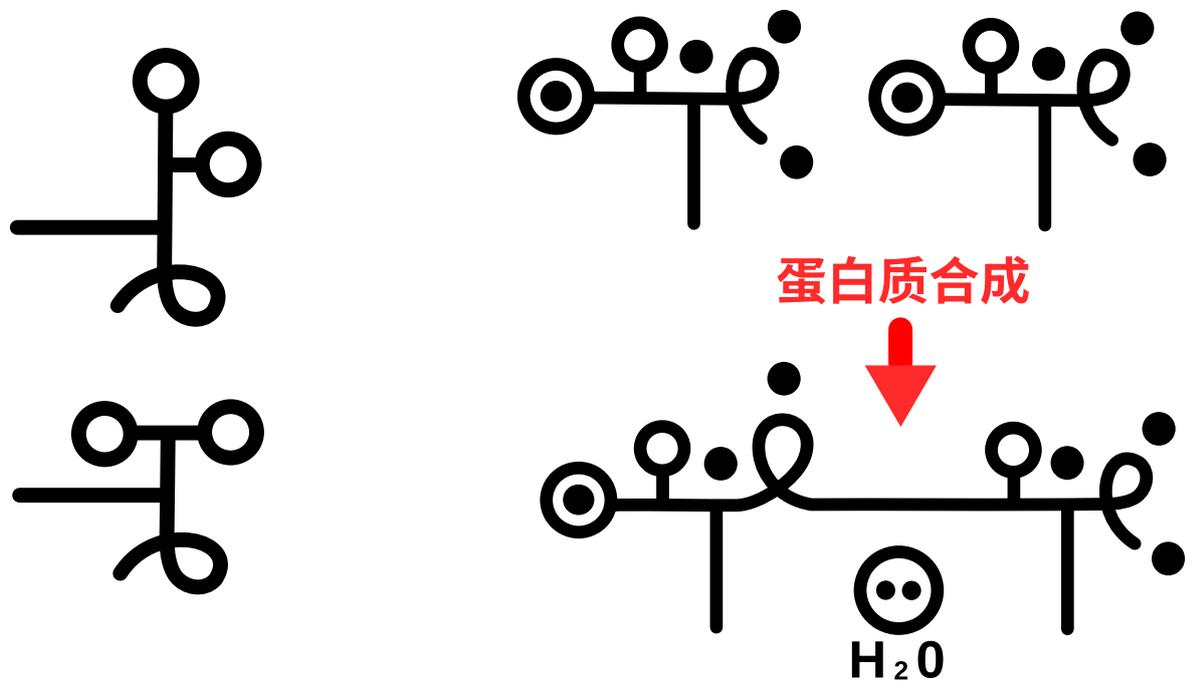


C₆H₁₁
环己基
Cyclohexyl
-C₆H₁₁

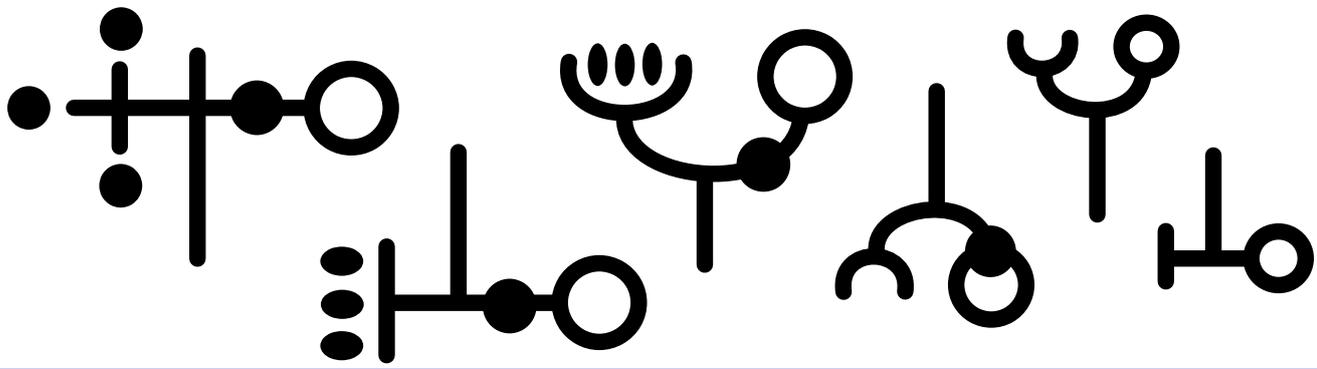




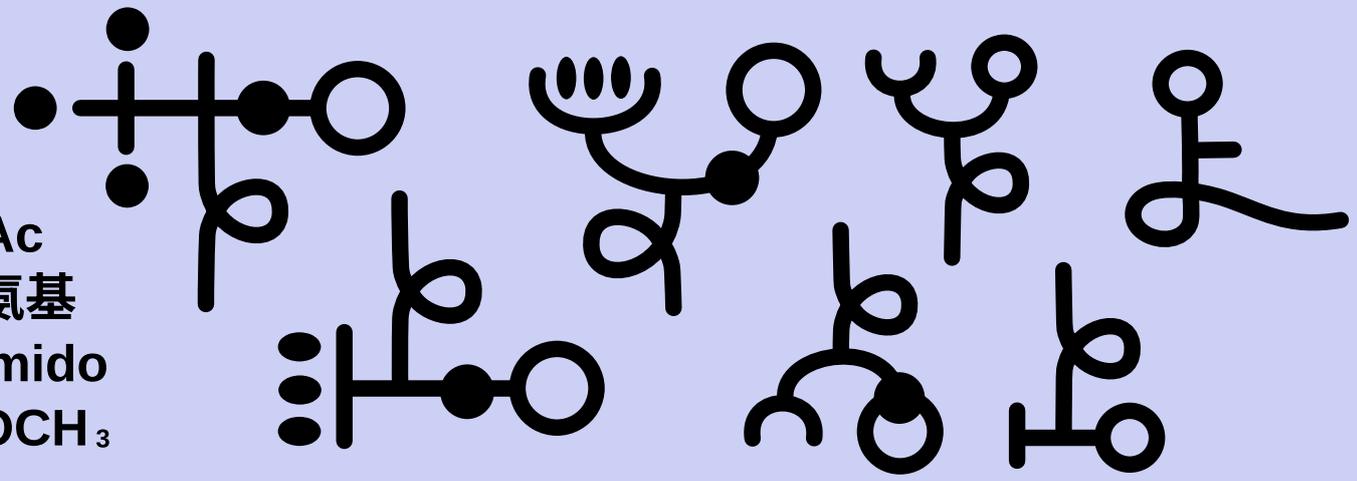
氨基酸
简体画



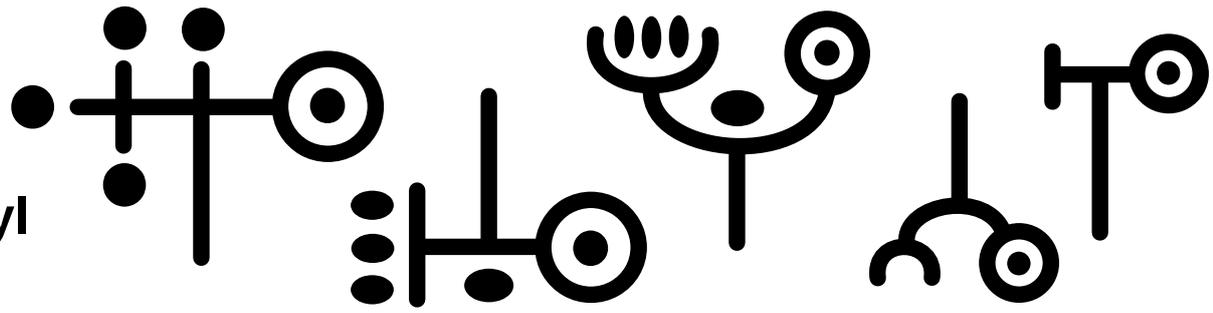
Ac
乙酰基
Acetyl
-COCH₃



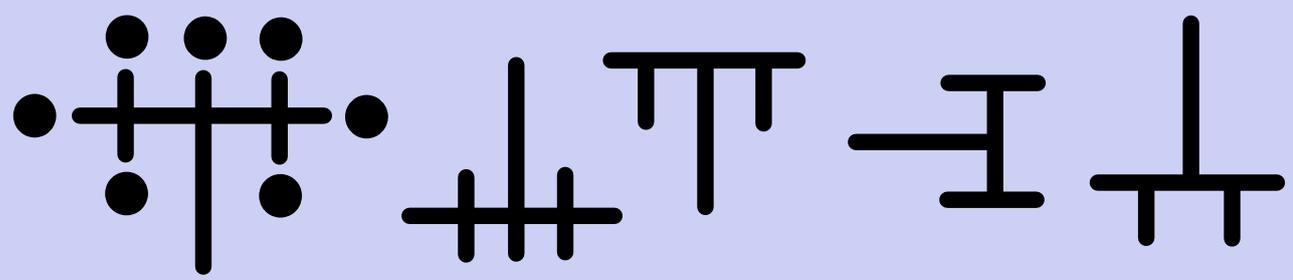
NHAc
乙酰氨基
Acetamido
-NHCOCH₃



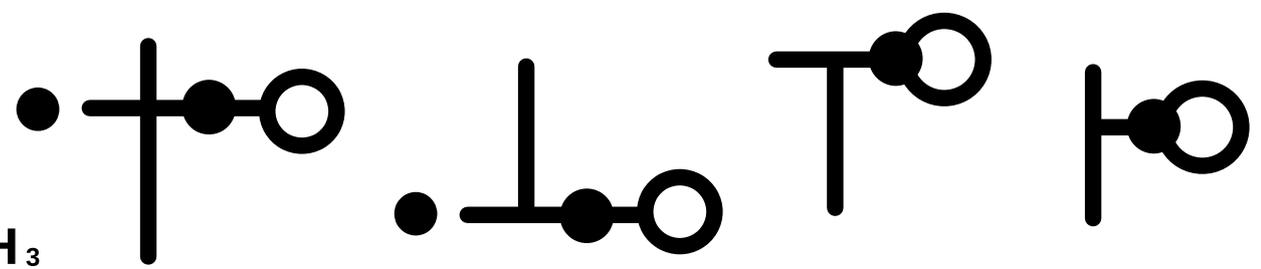
1-HE
1-羟乙基
1-Hydroxyethyl
-CH(OH)CH₃



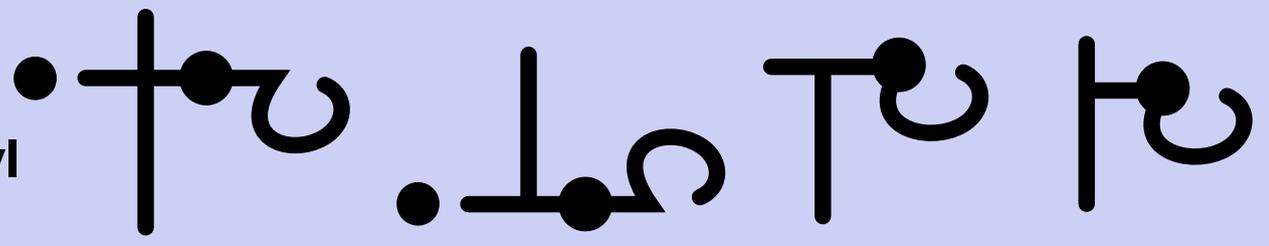
iPr
异丙基
Isopropyl
-CH(CH₃)₂



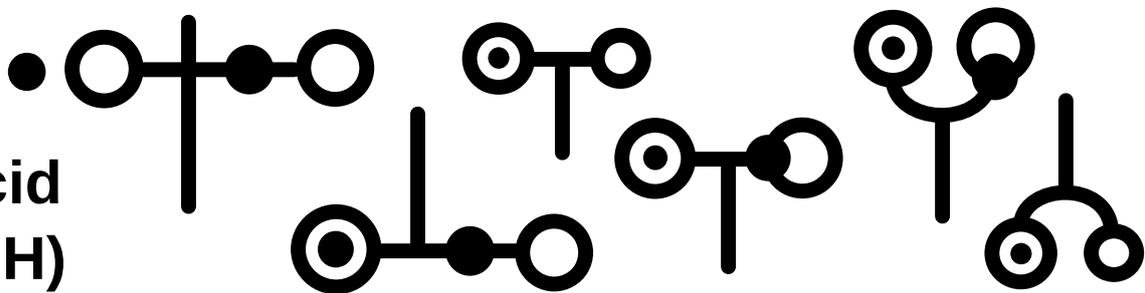
CO₂Et
乙酯基
Ethyl ester
-COOCH₂CH₃



CH=S
硫醛基
Thioformyl
-CH=S



COOH
羧基



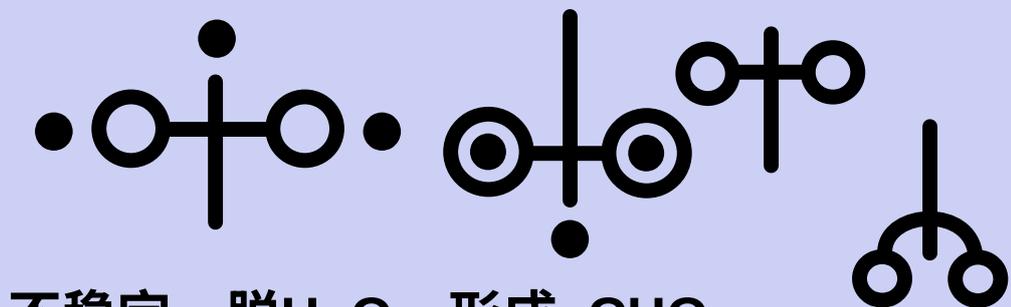
Carboxylic acid
-COOH (-CO₂H)

CH(OH)₂

二羟甲基 (甲二醇)

Geminal diol

-CH(OH)₂



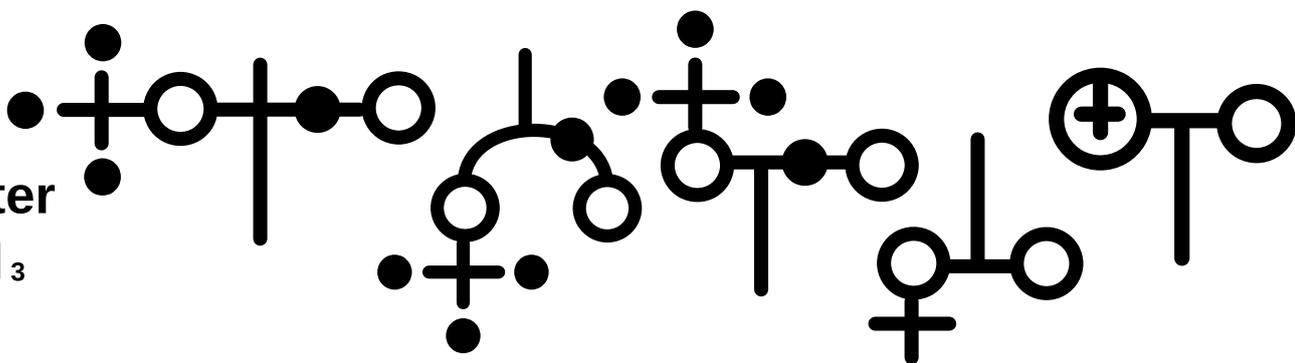
不稳定, 脱H₂O, 形成-CHO

CO₂Me

甲酯基

Methyl ester

-COOCH₃

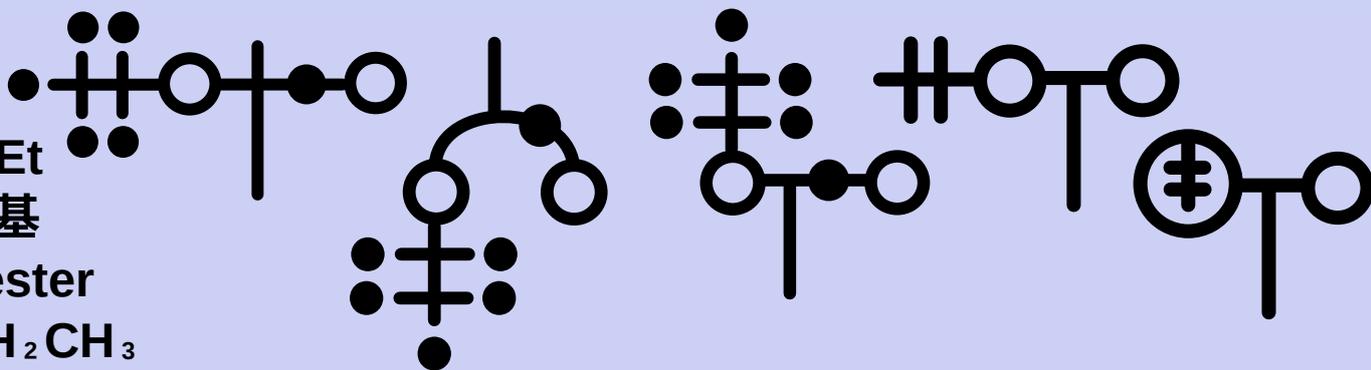


CO₂Et

乙酯基

Ethyl ester

-COOCH₂CH₃

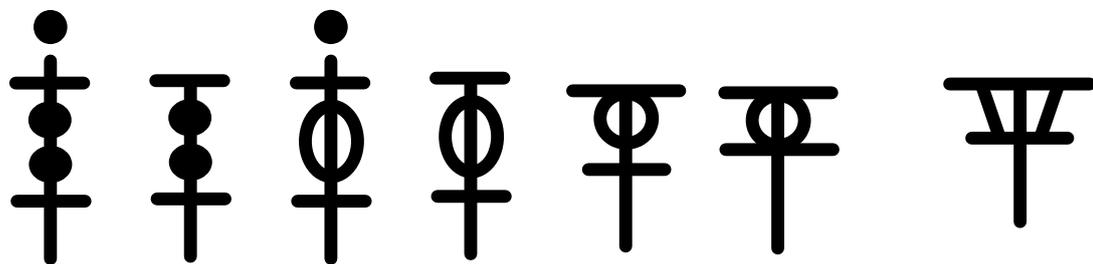


Ethynyl

乙炔基

Ethynyl

-C≡CH

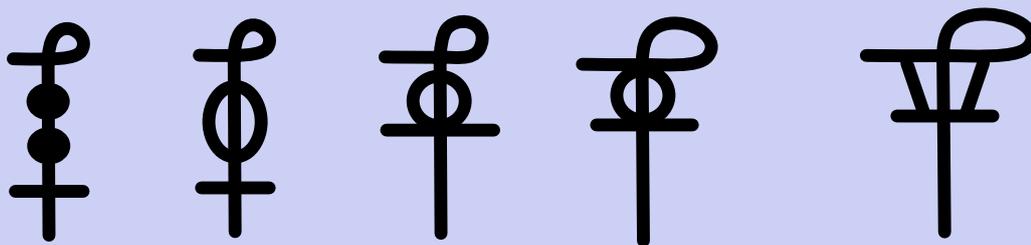


CN

腈基

Nitrile

-C≡N

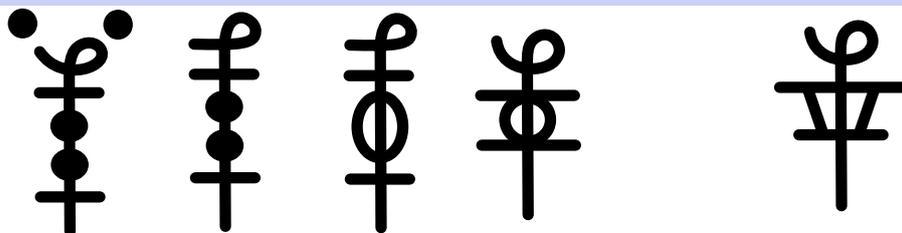


Aminoalkyne

氨基炔基

Aminoalkyne

-C≡C-CH₂-NH₂



这是一份预览初稿。

目标是添加元素和基团的简写。

每个基团还有很多写法

我只快速探索出一些我觉得比较好看好记的

在路上，没有带书法工具。

回家到上海就会开始制作书法视频。

路上时间长，很想念家，尤其是书房哈哈。

**如果你发现任何错误，或者有什么建议，
请告诉我。**

This is a first draft preview.

The goal is more elements and shortcuts for groups.

I'm on the road so I don't have my calligraphy stuff

When I get home to Shanghai, I'll start work on videos

I miss my calligraphy room back home in Shanghai.

If you find any errors, typos, or have suggestions,
please let me know.

如果不清楚这是啥东西

看看我小红书

最上面有这个简介视频

www.dscript.org



丁字书

Xiaohongshu ID:42291924825

PDF: www.dscript.org/chem3a.pdf