TABLE A.1
Nomenclature Rules for Functional Groups

Functional group	Text section	Functional group	Text section
Acid anhydrides	16.1	Aromatic compounds	9.1
Acid halides	16.1	Carboxylic acids	15.1
Acyl phosphates	16.1	Cycloalkanes	4.1
Alcohols	13.1	Esters	16.1
Aldehydes	14.1	Ethers	13.8
Alkanes	3.4	Ketones	14.1
Alkenes	7.2	Nitriles	15.1
Alkyl halides	12.1	Phenols	13.1
Alkynes	7.2	Sulfides	13.8
Amides	16.1	Thiols	13.1
Amines	18.1	Thioesters	16.1

The name of a polyfunctional organic molecule has four parts—suffix, parent, prefixes, and locants—which must be identified and expressed in the proper order and format. Let's look at each of the four.

Name Part 1: The Suffix—Functional-Group Precedence

Although a polyfunctional organic molecule might contain several different functional groups, we must choose just one suffix for nomenclature purposes. It's not correct to use two suffixes. Thus, keto ester **1** must be named either as a ketone with an *-one* suffix or as an ester with an *-oate* suffix, but it can't be named as an *-onoate*. Similarly, amino alcohol **2** must be named either as an alcohol (*-ol*) or as an amine (*-amine*), but it can't be named as an *-olamine* or *-aminol*.

1. $CH_3CCH_2CH_2COCH_3$ (O, O)

2. $CH_3CHCH_2CH_2CH_2NH_2$ (OH)

The only exception to the rule requiring a single suffix is when naming compounds that have double or triple bonds. Thus, the unsaturated acid $H_2C{=}CHCH_2CO_2H$ is but-3-enoic acid, and the acetylenic alcohol $HC{\equiv}CCH_2CH_2CH_2OH$ is pent-5-yn-1-ol.

How do we choose which suffix to use? Functional groups are divided into two classes, **principal groups** and **subordinate groups**, as shown in Table A.2. Principal groups can be cited either as prefixes or as suffixes, while subordinate groups are cited only as prefixes. Within the principal groups, an order of priority has been established, with the proper suffix for a given compound determined by choosing the principal group of highest priority. For example, Table A.2 indicates that keto ester **1** should be named as an ester rather than as a ketone because an ester functional group is higher in priority than a ketone.