Mirror planes and simple rotation axes lead to rarity of space groups for organic structures. Their inhibiting effect is mitigated by the simultaneous presence of glide planes or screw axes or both. Centred lattices tend to be less common than primitive; $\text{P}$ lattices are less common than $\text{R}$ in the trigonal system. The only substantial exceptions to these rules are in the cubic point groups, especially $\text{Oh}$. Sixteen space groups (late 1986 data) have no examples (99 100 103 149 152 153 154 155 156 157 158 159 160 161 162 163), and twenty have only one example (6 28 35 38 49 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226), and twenty have only one example (6 28 35 38 49 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226).

17.5.2 SPACE GROUPS USED FOR ORGANIC COMPOUNDS. By A.J. Wilson, Crystallographic Data Centre, University Chemical Laboratory, Lensfield Road, Cambridge CB2 1EW, England.

Cauchy distributions have been derived. Expressions for centric crystals have been derived, viz. for Gaussian bicentric

\[ N(Z) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} e^{-\frac{1}{2} z^2} \, dz \]

The $N(Z)$ curve follows the $\text{Cauchy}$ distribution, which is known to be the distribution for the Cauchy distribution. It is shown that for the Cauchy distribution the $N(Z)$ curve is closely matched by the $\text{Cauchy}$ distribution. In recent near-Gaussian treatments of the field of Intensity Statistics, the $\text{Cauchy}$ distribution has been compared with the theoretical expectations of

While much attention has been directed to the use of statistics to resolve centrosymmetric-noncentrosymmetric ambiguity (eg. Marsh, Acta Cryst. (1981) B37, 1985-1988) we are not aware of a detailed analysis applied to a large number of structures. We have been able to plot statistics for approximately 150 data sets collected under similar operating conditions. Values of $<E^2 - 1>$ were obtained utilizing the SHELX 76 system of programs using the whole data set including weak reflections. In those cases for which the space group is unambiguous the two populations of $<E^2 - 1>$ overlap; with non-centric values as high as 0.91 and centric values as low as 0.74 (compared with the theoretical expectations of 0.73 and 0.73 respectively). However, we note that the extremes are either disordered structures or have very weak intensity sets. For the ambiguous space groups no clear cut separation is evident until the thirty-six ambiguous space groups. We also confirm Marsh's result that weak reflections should not be rejected from the $<E^2 - 1>$ calculation, as this markedly increases the scatter and shifts the values to lower limits. Our analysis confirms the usefulness of $<E^2 - 1>$ statistics to assign non-triclinic, ambiguous space groups.

Acknowledgements. The Australian Research Grants Scheme is thanked for support.