Table 1 **Seven roles that user-established GENOPT variables play.** This list is included as part of the **equivellipse.DEF** file, in which "equivellipse" is the GENOPT user's **generic name** for the optimization case. The complete equivellipse.DEF file is listed in the appendix as Table a2. In the GENTEXT interactive session the GENOPT user must create names, one-line definitions, and "help" paragraphs for all Role 1 and Role 2 variables first, followed by the same for all Role 3 variables, followed by the same for all Role 4,5,6 "bundles", followed by the same for the Role 7 variable. See Tables 2 & 6.
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    A variable can have one of the following roles:

   1 = a possible decision variable for optimization,
        typically a dimension of a structure.
   2 = a constant parameter (cannot vary as design evolves),
        typically a control integer or material property,
        but not a load, allowable, or factor of safety,
        which are asked for later.
   3 = a parameter characterizing the environment, such
        as a load component or a temperature.
   4 = a quantity that describes the response of the
        structure, (e.g. stress, buckling load, frequency)
   5 = an allowable, such as maximum allowable stress,
        minimum allowable frequency, etc.
   6 = a factor of safety
   7 = the quantity that is to be minimized or maximized,
        called the "objective function" (e.g. weight).
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