Draft date: 23 November 2004

The definition of the TDIMn keyword in section 8.3.2 of the FITS Standard shall be replaced with the following text taken mainly from appendix B.2.

B.2 ``Multidimensional Array'' Convention

~~It is anticipated that binary tables will need to contain data structures more complex that those describable by the basic notation. Examples of these are multidimensional arrays and nonrectangular data structures. Suitable conventions may be defined to pass these structures using some combination of keyword/value pairs and table entries to pass the parameters of these structures.~~

~~One case, multidimensional arrays, is so common that it is prudent to describe a simple convention. The ``Multidimensional array'' convention consists of the following: any column with a dimensionality of 2 or larger will have an associated character keyword TDIMn~~

TDIMn Keywords The value field of this indexed keyword shall contain a character string describing how to interpret the contents of field n as a multidimensional array with a format of $'(l,m,n...)'$ where l, m, n,...are the dimensions of the array. The data are ordered such that the array index of the first dimension given (l) is the most rapidly varying and that of the last dimension given is the least rapidly varying. The total number of elements in the array equals the product of the dimensions specified in the TDIMn keyword. This size must be less than or equal to the repeat count on the TFORMn keyword, or, in the case of columns that have a "P" TFORMn datatype, less than or equal to the array length specified in the variable length array descriptor (see Section 8.3.5). In the special case where the variable length array descriptor has a size of zero, then the TDIMn keyword is not applicable. If the number of elements in the array implied by the TDIMn keyword is less than the allocated size of the array in the FITS file then the unused trailing elements should be interpreted as containing undefined fill values.

~~The size implied by the TDIMn keyword will equal the element count specified in the TFORMn keyword. The adherence to this convention will be indicated by the presence of a TDIMn keyword in the form described above.~~

A character string is represented in a binary table by a one-dimensional character array, as described under ``Character'' in the list of datatypes in §8.3.3.1 (``Main Data Table ''). For example, a Fortran 77 CHARACTER*20 variable could be represented in a binary table as a character array declared as TFORMn = '20A␣␣␣␣␣'. Arrays of character strings, i.e., multidimensional character arrays, may be represented using the TDIMn notation. For example, if TFORMn = '60A␣␣␣␣␣' and TDIMn = '(5,4,3)', then the entry consists of a 4 × 3 array of strings of 5 characters each. (~~Variable length character strings are allowed by the convention described in Appendix B.3. One dimensional arrays of strings should use the convention in Appendix B.3 rather than the ``Multidimensional Array'' convention.)~~

~~This convention is optional and will not preclude other conventions. This convention is not part of the binary table definition.~~