`electrons` N

Defines the number of electrons in the system (integer, currently 1 to 12). Should be the first directive in the command file. The `electrons` directive initiates work on a completely new task, i.e. *SPINS* 'forgets' any information which may have been supplied beforehand.

`spin` S

Defines the required value of the total spin S. S should be compatible with N, i.e. $0 \leq S \leq N/2$, taking integer, or half-integer values when N is even, or odd, respectively. If the `spin` directive is omitted, the default values of S for N even or odd are 0 (singlet) and 0.5 (doublet). The `spin` directive, similarly to the `electrons` directive, instructs *SPINS* to start a new task. The only difference is that it does not cancel a previously defined permutation (see the `permutation` directive).

`input` *Rumer*|*Kotani*|*Serber*|*Rumer_VB* C_{S1} C_{S2} ... $C_{Sf_S^N}$

Defines an input vector of spin-coupling (C_{Sk}) coefficients from a spin function expanded in the *Rumer*, *Kotani* or *Serber* spin basis. *Rumer_VB* should be used in case the Rumer spin functions have the phases defined in Mario Raimondi's VB program. Should be followed by f_S^N numbers, forming the input vector of spin-coupling coefficients. The input vector is renormalized and printed out, together with the spin-function designations. If it follows the *Rumer_VB* conventions, the output vector is of the standard *Rumer* type (i.e. the signs of the spin-factors corresponding to the leading terms are positive in all spin functions). Then, if a permutation has already been defined (see the `permutation` directive), the input vector is transformed so as to correspond to the permuted spin basis.

`permutation` p_1 p_2 ... p_N

Defines the permutation

$$\begin{pmatrix} 1 & 2 & \dots & N \\ p_1 & p_2 & \dots & p_N \end{pmatrix}.$$

If an input vector has been defined, it is transformed to match an accordingly permuted spin basis. The permutation stays in effect till the next `electrons` or `permutation` directive, if any, i.e. each new input vector of spin-coupling coefficients will be transformed in a similar way. $p_1, p_2, \dots, p_N$ should be unique integers.

`transform` *Rumer*|*Kotani*|*Serber*

Transforms the vector of spin-coupling coefficients defined previously by an `input` directive to the spin basis specified. Note that if the initial vector was in the *Rumer* spin basis, then `transform` *Kotani*, followed by `transform` *Serber* leads to the same final vector as `transform` *Serber* only.

`representation` *Rumer*|*Kotani*|*Serber*

Calculates the dual representation matrix of the permutation defined previously by a `permutation` directive in the *Rumer*, *Kotani* or *Serber* spin basis.

`print` *Leading_Terms* | *Kotani_and_Serber_Paths* | *Rumer_Functions* | *Rumer_Overlaps* | *Transformations* | *Everything* | *All*

Modifies the detail of output. *Everything* and *All* are synonyms.

A line with a percentage sign (`%`) in the first position is considered as a comment line.

There are very few restrictions on the format of the command file. Keywords and numbers should be separated by any non-zero number of blanks. A blank is considered to be one of the characters space ( ), comma (`,`), semi-column (`;`), slash (`/`), as well as the end-of-line separator.