The ordering of labels associated with inputs and with outputs

1 Order of input labels

1.1 If one or more of the symbols S01540 (12-09-47), S01498 (12-09-08B) and S01492 (12-09-02) are required at an input, they shall be shown, as needed, in that order (S01540 (12-09-47), S01498 (12-09-08B), S01492 (12-09-02)) reading from the input towards the interior of the element.
These symbols shall be drawn between the input line(s) and any input-qualifying symbol, for example, dependency notation.

For an illustration, see A00289_Illustration_a_EN.pdf below.

1.2 If an input exerting a single function is affected by other inputs, the qualifying symbol for that function shall be preceded by the identifying numbers of the affecting inputs. The left-to-right order of these identifying numbers shall be the order in which the effects or modifications must be applied. The affected input exerts no function if the logic state of any one of the affecting inputs or outputs, considered separately, would cause the affected input to have no effect, regardless of the logic states of other affecting inputs.

For an illustration, see A00289_Illustration_b_EN.pdf below.

1.3 If an input exerts more than one function or has more than one set of labels of affecting inputs, the indications of these functions or these sets may be shown on different input lines, which must be connected together outside the outline (see examples S01619 (12-33-07), 12-49-1 1, S01702 (S01702 (12-49-15))). However, there are cases in which this method of presentation is not advantageous. In those cases, the input may be shown once with the different sets of labels separated by solidi. No meaning is attached to the order of these sets of labels. If one of the functional effects of an input is that of an unlabelled input of the element, a solidus shall precede the first set of labels shown (see, for example, symbol S01700 (12-49-13)).

For illustrations, see A00289_Illustration_c.pdf below.

1.4 If all inputs of a combinative element are disabled (caused to have no effect on the function of the element), the internal logic states of the outputs of the element are not specified by the symbol.
If all inputs of a sequential element are disabled (caused to have no effect on the function of the element), the content of this element is not changed and the outputs remain at their existing internal logic states.

1.5 Labels may be factored using algebraic techniques.

For illustrations, see A00289_Illustration_d.pdf below.

1.6 In general, dependency notation shown at the inputs to the left of the bit-grouping symbol applies to the inputs of the coder, and dependency notation shown after the bit-grouping symbol applies to the inputs fed by the outputs of the coder. However, for inputs with inherent storage, see 1.7.

For illustrations, see A00289_Illustration_e.pdf below.

1.7 Any combinatorial logic element together with a storage register on all its inputs is functionally equivalent to that same element together with a storage register on its outputs.

For an illustration, see A00289_Illustration_f.pdf below.

Thus element A of the illustration is functionally equivalent to element B.

Because of this, inherent storage at an input may be indicated by placing the "mD", as defined in clause 3 of A00288, either between the bit-grouping symbol and the symbol denoting the function of the stored input, or directly at the inputs.

For an illustration, see A00289_Illustration_g.pdf below.

2 Order of output labels

2.1 If an output has a number of different labels, regardless of whether they are identifying numbers of affecting inputs or outputs or not, these labels shall be shown in the following order:

− if the postponed output symbol (S01491 (12-09-01)) has to be shown, this comes first, if necessary preceded by the indications of the inputs to which it must be applied;

− followed by the qualifying symbols determining or modifying the internal logic state of the output, such that the left-to-right order of these labels correspond to the order in which their effects must be applied. For application, see symbol S01702 (12-49-15);

− followed by the label indicating the effect of the output on inputs and other outputs of the element.

Symbols for open-circuit, passive-pull-down, passive-pull-up and 3-state outputs, and outputs with special amplification (drive capability) shall each be drawn adjacent to their output lines as described with these symbols (S01493 (12-09-03) ... S01499 (12-09-08A)).

If an output needs several different sets of labels which can be considered to stand in an internal OR relationship (for example, depending on the mode of action), these sets may be shown on different output lines which must be connected together outside the outline. However, there are cases in which this method of presentation is not advantageous. In those cases the output may be shown once with the different sets of labels separated by solidi.

Two adjacent identifying numbers of affecting inputs in a set of labels not already separated by a non-numeric character shall be separated by a comma (see A00276).

For illustrations, see A00289_Illustration_h.pdf below.

2.2 Labels may also be factored using algebraic techniques.

For illustrations, see A00289_Illustration_j.pdf below.

2.3 If the bit grouping symbol for outputs (symbol S01517 (12-09-25)) is used and the sets of labels of all outputs grouped together differ only in the indications of the weights, the sets of labels, including the symbols for open-circuit, passive-pull-down, passive-pull-up and 3-state outputs, and outputs with special amplification (drive capability) (symbols S01493 (12-09-03) ... S01499 (12-09-08A)) but excluding the indications of the weights, may be shown only once between the symbol replacing the asterisk and the grouping symbol, provided that, except for the grouping symbol and the weights, the proper order of the labels is maintained.

For an illustration, see A00289_Illustration_k_EN.pdf below.