

I/O Structures

Input/Output Structures are the means used in SSADM to form a detailed impression of the order in which the users expect to see the data that is needed to accomplish the action represented by a function. Each I/O Structure consists of a diagram and a description. The diagram uses a notation based on Jackson structures (at this point, the Jackson notation should be familiar to the readers of these notes from Chapter 2).

Each I/O Structure *diagram* shows sequence, selection and repetition. Every leaf (or element) of the structure is given a name and contains a marker showing whether the contents of that leaf are 'input' or 'output'. As with all Jackson-like structures, the diagram is read from left to right according to the sequence dictated by the top-most structure boxes. Figure 8.6 depicts the main notational conventions:

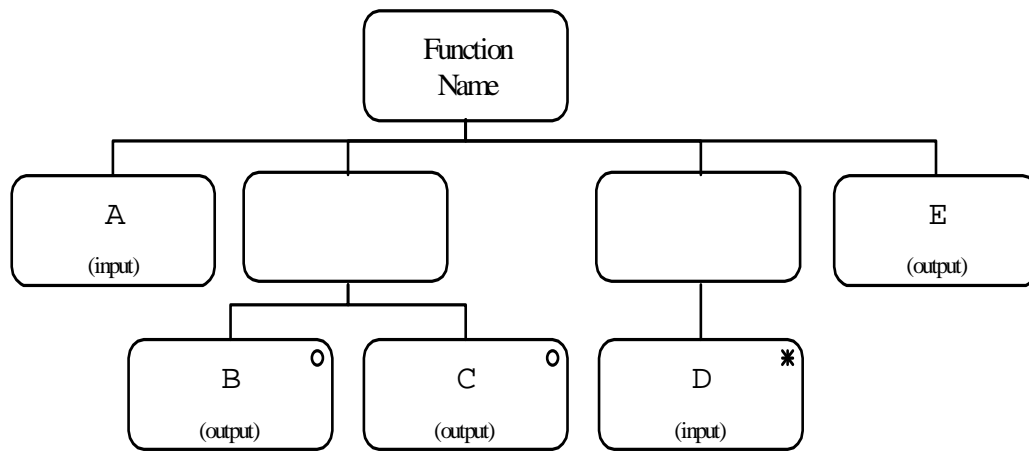


Figure 8.6 An I/O Structure diagram showing sequence, selection and repetition.

The content of each leaf is shown on the I/O Structure *description* that accompanies each diagram.

I/O Structure Description		
Function Name:		
I/O Structure Element	Data Item	Comments
A	item name : item name	possible comments
B	item name : item name	possible comments
C	item name : item name	possible comments
D	item name : item name	possible comments
E	item name : item name	possible comments

Figure 8.7 An I/O Structure description that shows the contents of the diagram in Figure 8.6.

A reading of Figure 8.6, in conjunction with the information in Figure 8.7, shows that the user who activates this function is expected to first input values for the data items shown next to 'A' in Figure 8.7. The system is then expected to respond by displaying values for **either** the data items contained in B or those contained in C (which one is not yet specified). When this is done, the user is expected to input values for the 'D' data items. This last group of input items is to be repeated until some, as yet unspecified, condition is met. When the input stops the system responds by displaying appropriate values for the 'E' data items.

I/O Structures work well in the case of off-line functions, where the interaction is inevitably minimal, and in the case of on-line functions where a decision has already been made and the system is used to simply record the consequences of that decision. When, on the other hand, the system is used to help choose what will be finally recorded, as in the case of setting up appointments or taking bookings where the system is expected to respond by suggesting available alternatives, the I/O Structure is at a disadvantage. It cannot represent well window-like environments which contain the pop-up menus that seem to be appropriate in such situations. For these interactively richer functions, two alternatives exist. The first is to extend the I/O Structure notation to accommodate this richness and the second is to use a notation specially designed to cater for window-like environments.

The latest version of SSADM, version 4.3, recommends that I/O Structures are used for all off-line functions, while more visually pleasant ways of expressing inputs and outputs, such as those recommended in the next sections, should be considered for on-line functions.

Each function is accompanied by at least one I/O Structure or equivalent. Rarely, when the function consists of an on-line part which then activates an off-line action, and the designers don't wish to differentiate the two as being separately defined functions, two appropriately annotated I/O Structures are shown for the same function.