CSP has a highly distinctive theory based on behavioural models like $T$ and $N$. In the next five chapters we give an in-depth study of these models. We also present completely revised operational and denotational semantics for CSP, each of which is intimately connected with the hierarchy of behavioural models.

The first chapter is on operational semantics. We introduce a new style of presenting operational semantics that guarantees that all definitions make sense in CSP models. The middle three chapters are respectively an introduction to denotational semantics based on behavioural models, and detailed studies of the hierarchies of finite and infinite behaviour models. Finally, in Chap. 13, we show how to create an algebraic semantics based on transformation to normal form, and demonstrate that a small selection of optional laws such as $⟨\Box\text{idem}^*⟩ (P = P \Box P)$ tie in with the existence of a hierarchy of models.

In this part we restrict ourselves to the untimed interpretation of CSP that we saw in Part I. A little of the theory of Timed CSP can be found in Chaps. 14 and 15 in Part III.

Much of the material in Part II has appeared previously in TPC or in more recent academic papers. Therefore we are able to avoid giving some fine details and technical proofs, instead referring the reader elsewhere.

Throughout we look at the uses of the various models we discover, including the sorts of specifications they support.