Preface

Spoken Dialog Systems (SDS) became popular in the past years for telephone-based services such as database queries (e.g., bus information), banking, or troubleshooting (e.g., Internet equipment). Due to the recent improvements in automatic speech recognition and natural language understanding, these systems have reached a degree of complexity which makes their design a challenge for developers. Thus, it has become increasingly important to evaluate the systems to ensure that performance criteria are met and users are satisfied with the service. While methods exist to assess system quality with users, these are often used less than required, as they are demanding in terms of time, money, and expertise.

Automatic evaluation has been proposed as a way to reduce the costs of user testing. This book examines how such methods can be applied to SDSs, and how they can be integrated in a system design process. More specifically, the discussed methods are based on user models, meaning that the involved algorithms reflect certain aspects of the behavior expected from the prospective users of the system. On the one hand, a model of the users’ interaction behavior can be used to simulate dialogs with the system, and by this generate performance estimates and detect dialog design problems. On the other hand, a model of the users’ judgment behavior allows predicting user ratings about the perceived quality of the dialogs. Although both types of user models can hardly be defined completely, it is assumed that they can, nevertheless, be of value during system design. The aim of the book is, thus, to analyze the performance of these models with respect to different criteria which might be employed in this process.

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