Introduction to the Special Issue on Multisensory Processing

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The publication of this Special Issue on Multisensory Processing is largely the result of the 15th International Multisensory Research Forum (IMRF) that we were honored to host. From June 11 to 14, 2014, approximately 250 researchers from all over the world gathered at the Royal Tropical Institute in Amsterdam to discuss the latest developments in multisensory processing research. Both the meeting and the resulting special issue cover a wide range of topics involving multisensory processes, including—but not limited to—early visual processes, temporal processing, development and aging, movement and body ownership, and language and semantic congruence.

This wide range of topics shows how much the multisensory processing field has broadened its spectrum from predominantly single-cell animal research to a variety of human and non-human approaches. The collective research effort of this community has solidified the essence of multisensory processes in many areas of information processing and cognition. Given the drastic amount of progress that has been made in recent years, we can only speculate what developments the future will hold. One exciting new development focuses on the question how context and/or task requirements influence multisensory processes. The question to what degree learned associations and working memory representations

influence multisensory processing, and vice versa, touches on the currently rapidly expanding field of research investigating an elaborate network of cross-modal correspondences. Cross-modal correspondences describe the notion that specific sensory representations of inputs to one modality are associated with seemingly unrelated sensory representations in another sensory modality. All these research efforts in turn touch upon the bigger questions of how multisensory representations are formed in the brain and how these representations can be part of a generic cognitive architecture. Can multisensory integration, for example, be explained in terms of a predictive coding framework, or a more generic cognitive architecture such as ACT-R?

These questions make multisensory research as exciting as ever, and we believe that this special issue reflects a representative cross section of the literature that is pushing the current state-of-the-art forward. We wish to thank everybody who attended the meeting in Amsterdam to make it the exciting event that it turned out to be. Finally, we wish to thank the contributing authors to this special issue for their exciting contributions, as well as the many people who served as reviewers. Without your contributions and helpful comments, this special issue would not have been possible.

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