

Presentation Abstract

A Typed Process Calculus with Inter-channel Dependency

KOJI HATTORI^{1,a)} TAKASHI SAKURAGAWA^{1,b)}

Presented: June 7, 2018

This presentation presents a process calculus and its process-type system. In this kind of calculi, session types provide a way to specify protocols and statically verify communications in each session. There have been various studies on session types including their applications. Another style of type system uses process types. Unlike session types, they specify the behavior of a process over all channels and its inter-channel dependency. In addition to channel-wise compatibility, they can also check deadlock-freedom. Such expressive power is important in some applications such as resource management, user interface, and dataflow programming. Our approach is unique in that the calculus is equipped with process types, and simultaneously resembles a typical session calculus for ease of application. We show some of its properties including type safety and deadlock-freedom.

This is the abstract of an unrefereed presentation, and it should not preclude subsequent publication.

¹ Kyoto University, Kyoto 606-8501, Japan

^{a)} hattori@i.h.kyoto-u.ac.jp

^{b)} sakura@i.h.kyoto-u.ac.jp