

Thinking in the small: What Reasoning is required for Mobile Computing

Invited Talk

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Mobile computing presents a huge new opportunity and huge challenges for the Semantic Web and logic reasoning in general. Mobile phones contain many different types of information that are very important for our life, from addresses and telephone numbers, to calendars. In some cases, our mobiles contain parking, train and bus tickets, they notify us when it is time to go to take plane or of a change in the plane schedule, and they work as payment devices. Indeed, although these applications sound “avant-gard”, they are already deployed on the market.

But while applications for mobile phones are growing they are usually very hardcoded and information does not flow from application to application. Paradoxically, a navigation system on the phone will not interact with the address list, so it is impossible to ask for the way to “my friend’s house” and a ticket delivered to the phone will be stored in some inbox cue rather than in the agenda. The semantic web and logic reasoning have the tools to address these problems, because they provide the flexibility to lower the interoperability barriers and support information flow between applications at degrees not seen so far. Furthermore, inferences based on context to figure out what services to offer, or privacy policies are coming in greater need. Indeed, there is a real customer demand for this type of applications: whereas users tolerate to cut and paste information on the desktop computer (acting therefore as interoperability agents), or performing a Google search, the same applications on a mobile phone are more cumbersome and users are unlikely to perform them while running after a bus.

In the talk I will highlight a vision for mobile computing that is coming in the near future, and I will highlight some opportunities for applications that are based on automatic reasoning.