

共同知識問題的分析 ——以脈絡中學習的方式來看*

An Analysis of the Problem of Common Knowledge : Based on the Process of Learning from Context

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摘 要

人工智慧學的主要目標之一是讓機器具有能力操作人類自然語言，而其所面臨的主要困難之一稱之為背景知識的問題，而在背景知識問題中其中一個部分稱之為共同知識的問題，企圖解決此一問題的一個主要方法是讓電腦程式具備有能在文章脈絡中主動學習新字詞的能力，若將類似的方法也能應用在日常生活的脈絡中，那麼，背景知識中的共同知識的問題將可能獲得很大的進展。本文依據 Rapaport 的 Cassie 程式與 Zernik 的 RINA 程式來討論，並且主張，共同知識問題的關鍵在於建立「使用者模型」(user model)，而脈絡中學習的能力對於建立此模型有很大的幫助，但仍舊還有未能達成的部份而無法完全解決共同知識問題。本文針對此方法能做到的部分與不能做到的部份做一分析。

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Abstract

One of the main goals of Artificial Intelligence is trying to make machine be able to use natural language properly. In doing this, the most difficult problem is called the problem of background knowledge, and one important type of background knowledge is common knowledge. When we try to let machine possess common knowledge, one of the main approaches is to write a computer program that can learn new vocabulary from contexts. Once machine can have this ability and apply it to our daily life, there will be a lot of progress in solving the problem of common knowledge. In this paper, I use Rapaport's program of Cassie and Zernik's program of RINA as examples for discussion. In addition, I will argue that the key of possessing common knowledge is to build a proper user model, and the ability of learning new words from context is very helpful for building user model. However, it is still not enough for solving the whole problem of common knowledge. I will also discuss what difficulties remain.

關鍵詞：背景知識、共同知識、人工智慧、自然語言處理、命題語意網路

Keywords: background knowledge, common knowledge, artificial intelligence, natural language processing, propositional semantic network