Chapter II

Application of Text Mining Methodologies to Health Insurance Schedules

Ah Chung Tsoi, Monash University, Australia

Phuong Kim To, Tedis P/L, Australia

Markus Hagenbuchner, University of Wollongong, Australia

ABSTRACT

This chapter describes the application of a number of text mining techniques to discover patterns in the health insurance schedule with an aim to uncover any inconsistency or ambiguity in the schedule. In particular, we will apply first a simple “bag of words” technique to study the text data, and to evaluate the hypothesis: Is there any inconsistency in the text description of the medical procedures used? It is found that the hypothesis is not valid, and hence the investigation is continued on how best to cluster the text. This work would have significance to health insurers to assist them to differentiate descriptions of the medical procedures. Secondly, it would also assist the health insurer to describe medical procedures in an unambiguous manner.
AUSTRALIAN HEALTH INSURANCE SYSTEM

In Australia, there is a universal health insurance system for her citizens and permanent residents. This publicly-funded health insurance scheme is administered by a federal government department called the Health Insurance Commission (HIC). In addition, the Australian Department of Health and Ageing (DoHA), after consultation with the medical fraternity, publishes a manual called Medicare Benefit Schedule (MBS) in which it details each medical treatment procedure and its associated rebate to the medical service providers who provide such services. When a patient visits a medical service provider, the HIC will refund or pay the medical service provider at the rate published in the MBS\(^1\) (the MBS is publicly available online from http://www.health.gov.au/pubs/mbs/mbs/css/index.htm).

Therefore, the description of medical treatment procedures in the MBS should be clear and unambiguous to interpretation by a reasonable medical service provider as ambiguities would lead to the wrong medical treatment procedure being used to invoice the patient or the HIC. However, the MBS has developed over the years, and is derived through extensive consultations with medical service providers over a lengthy period. Consequently, there may exist inconsistencies or ambiguities within the schedule. In this chapter, we propose to use text mining methodologies to discover if there are any ambiguities in the MBS.

Figure 1. An overview of the MBS structure in the year of 1999

Copyright © 2006, Idea Group Inc. Copying or distributing in print or electronic forms without written permission of Idea Group Inc. is prohibited.
New Neural Buildings Stereo Matching Method Applied to Very High Resolution Ikonos Images
www.igi-global.com/chapter/new-neural-buildings-stereo-matching-method-applied-to-very-high-resolution-ikonos-images/123084?camid=4v1a

Using Fuzzy Goal Programming Technique to Solve Multiobjective Chance Constrained Programming Problems in a Fuzzy Environment
www.igi-global.com/article/using-fuzzy-goal-programming-technique/63356?camid=4v1a