Chapter 16
Mining and Visualizing the Narration Tree of Hadiths (Prophetic Traditions)

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ABSTRACT

Hadiths are narrations originating from the words and deeds of Prophet Muhammad. Each hadith starts with a list of narrators involved in transmitting it. A hadith scholar judges a hadith based on the narration chain along with the individual narrators in the chain. In this chapter, the authors report on a method that automatically extracts the transmission chains from the hadith text and graphically display it. Computationally, this is a challenging problem. Foremost each hadith has its own peculiar way of listing narrators; and the text of hadith is in Arabic, a language rich in morphology. The proposed solution involves parsing and annotating the hadith text and recognizing the narrators’ names. The authors use shallow parsing along with a domain specific grammar to parse the hadith content. Experiments on sample hadiths show our approach to have a very good success rate.

INTRODUCTION

Hadiths are oral traditions relating to the words and deeds of Prophet Muhammad. The traditional Muslim schools of jurisprudence regard hadith as an important tool for understanding the Qur’an and in all matters relating to jurisprudence. The hadith consists of two parts: the actual text of the narrative, known as matn (المتن); and the chain of narrators through whom the narration has been transmitted, traditionally known as isnad (إسناد). The isnad consists of a chronological list of the narrators, each mentioning the one from whom
they heard the hadith all the way to the prime narrator of the matn followed by the matn itself. The isnad system began during the lifetime of the Prophet and was used by the companions in transmitting the hadith. The political upheaval around 655 CE/35 AH gave birth to the forgery of traditions in the political sphere, in order to credit or discredit certain parties. So, scholars became more cautious and began to scrutinize, criticize and search for the sources of information and that gave boost to the importance of isnad (Azami, 1978, pp. 246-7). And this gave birth to a new science, 'Ilm al-Jarh wa al-Ta’dil. In the minds of hadith scholars there are several factors that contribute to the overall grading of a hadith: the individual narrators involved, the transmission chain itself, and the supporting statement from all available evidence. Typically a hadith scholar will end up consulting many volumes on narrator’s biographic information for grading a single hadith. These books classify the narrators on their morality and their literary accuracy. Next, the chain of the transmission must not be broken, as a broken chain means a major defect in isnad. How does the hadith scholar decide this? By ensuring that there was an ample overlapping time between each pair of narrators in a chain to have met during their lifetime. Again this information is dug from narrator’s biography. For more detail on the subject the reader is referred to the work of Azami (1977). In this paper we report on a software tool that will automatically generate the transmission chains of a given hadith, graphically rendering its complete isnad tree. Such a tool is useful for the students of hadith to study how a certain hadith has been propagated, while a hadith scholar will find it valuable for his work on grading the hadith. We tested our system on many sample hadiths and the outputs were verified by hadith scholars. Overall a success rate of slightly over 85% was achieved.

**BACKGROUND**

We will start by looking at what a hadith is. In the subsequent discussion we will be quoting Arabic text. For convenience it will be followed by transliteration and English translation as well. There are several Arabic text transliteration schemes; we for one will be using the Buckwalter Arabic transliteration (“Arabic Transliteration,” 2002). Even though the Buckwalter transliteration is not intuitive and lacks readability, it has been used in many publications in natural language processing and in resources developed at the Linguistic Data Consortium (Habash, Soudi, & Buckwalter, 2007). The main advantages of the Buckwalter transliteration are that it is a strict one-to-one transliteration and that it is written in ASCII characters. The English translation will be based on (Al-Qushairy & Siddiqi, 1972). Before proceeding further, we feel it is necessary to write a few lines about Arabic for those who are not familiar with the language. The Arabic used in hadith is known as Classical Arabic, the Arabic of the Qur’an and early Islamic literature (7th – 9th century CE). However, this classical Arabic can be easily read and understood by anyone familiar with Modern Standard Arabic (“Modern Standard Arabic”, n.d.).

**In Depth Look at Hadith**

Hadiths range in size from a few lines to a few hundred lines with the majority being five to six lines long. As an example of a hadith is shown in Box 1 (the original Arabic followed by Buckwalter transliteration and English translation).

This is a hadith with a single chain of narrators, however, not all hadiths have such a simple chain as we will later see.

The hadith corpus is quite huge. Early on, hadith scholars compiled it into six major collections; the bracketed numbers following the name of the collection refer to the number of hadiths in
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