ORIENTAL MANUSCRIPTS
AND NEW INFORMATION TECHNOLOGIES

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COMPUTER ANALYSIS OF THE LAWS OF HAMMURABI:
BASIC CONCEPTS*

Introduction

We indicate with the term “computer analysis” a fairly
specialized form of analysis based on formal logic and
modelling of the text under investigation [1]. The model
of the text is a formal description of its contents. It is con-
structed by a researcher or, in our case, a historian. The ob-
ject of modelling a selected body of texts on the basis of the
concepts they advance and their internal conceptual hierar-
chy is to establish a formal system of information about
a specific historical period or phenomenon. We are thus
able to use the computer to systematize and analyze what we
learn through our research. One of the most important results
of such analysis is a body of information that reflects this
knowledge and can subsequently be analyzed automatically
and used. One example of such use is searching and selec-
tion on the basis of a logical conclusion drawn from what we
know. In our case, the laws of Hammurabi and accompa-
nying documents have been chosen for analysis.

The Laws of Hammurabi (Code of Hammurabi) is the
accepted scholarly name for the most important and largest
legal text from ancient Mesopotamia. The text was drawn
up in Akkadian (now a dead language) in the eighteenth
century B.C. and later written in cuneiform on stone stelas
set up in Babylon and other important Mesopotamian cities.
The text of the Laws circulated until the very end of “cunei-
form” culture in the form of copies on clay tablets. The
only stone stela with the text of the Laws to have come
down to us was discovered by archaeologists at the begin-
ing of the twentieth century in South West Iran, home to
the ancient state of Elam. The Elamites brought it there as a
war trophy after one of their raids on Babylonia several centuries after the Laws were made public. The Elamites
carved off part of the text on the stela, most likely intend-
ing to carve in its place a triumphal inscription, but for
some reason did not complete their task. The resultant la-
cuna in the text has only been partially filled on the basis of
clay-tablet copies, as all copies are to some degree partial
or defective.

The first scholarly publications on the Laws of Ham-
murabi, translations into modern languages and more or
less extensive commentary appeared soon after the Laws
were discovered. New publications continue to appear as
new fragments of the text are discovered, our knowledge of
the Akkadian language improves, and progress is made in
the interpretation of the text. One should note that the first
publisher divided the text into three sections: Prologue,
Laws, and Epilogue. The Prologue and Epilogue contain
the religious basis for Hammurabi’s power, his rights and
obligations as lawgiver and keeper of Truth and Justice (the
two concepts were personified as deities), explain the rea-
son for promulgating the Laws and bestow blessings on fu-
ture rulers who will observe them and curses on those who
would break them. They are written in high style, intention-
ally archaic even for the time of their composition. They be-
long to the genre of prose literature. At the present stage of
our work, these two sections are not amenable to formal
analysis. But the text of the laws is written in dry, precise,
strictly formalized language; it forms a perfect subject for our
purposes, although some circumstances complicate our task.

The goal of the present work is to demonstrate with a
few examples certain basic principles of using formal
logic in text analysis, its possibilities and difficulties. Sub-
sequent instalments will examine the particular features of
the documents analysed, treat the basic elements and
characteristics of the formal language used to define textual
models, and provide examples of models.

We relied on the MAZE database administration sys-
Atem, which allows for the collection of texts, their formal
description, indexing, conceptual dictionaries, and a net-
work of associative links between texts to produce a hyper-
text and reveal the conceptual dimension of this hyper-
text [2]. The system allows for the entry and processing of
three types of information:

— texts and their formal description in textual form;

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