WHEN LOGIC LAYS DOWN THE LAW

Bjørn Jespersen
Universiteit Utrecht

Ana de Almeida Borges
University of Barcelona
ana.agvb@gmail.com

Jorge del Castillo Tierz
University of Barcelona

Juan José Conejero Rodríguez
University of Barcelona
juan.conejero@ub.edu

Eric Sancho Adamson
University of Barcelona
e.sancho@ub.edu

Aleix Solé Sánchez
University of Barcelona
aleix.sole@ub.edu

Nika Pona
University of Barcelona

Joost J. Joosten
University of Barcelona
jjoosten@ub.edu

Keywords

Legal text, tachograph, time interval, formal ontology, reasoning.

SUMMARY

We analyse so-called computable laws, i.e., laws that can been forced by automatic procedures. These laws should be logically perfect and unambiguous, but sometimes they are not.

We…

- …use a regulation on road transport to illustrate this issue, and show what some fragments of this regulation would look like if rewritten in the image of logic,
- …propose desiderata to be fulfilled by computable laws,
- …provide a critical platform from which to assess existing laws and a guideline for composing future ones.

METHOD

A logical approach will make it possible to check the meta-theoretical properties of the text, such as consistency, completeness, and feasibility (i.e., solvability and checkability with the use of a reasonable amount of computational resources like time and memory). Such meta-theoretical properties are required of a logically tractable legal text. These propoerties are expressed in a list of *desiderata*, below.

DESIDERATA

- *unambiguous prose*
- *clearly circumscribed formal ontology*
- *decidability*
- *feasibility*
- *consistency*
- *satisfiability*

EXCERPT

Let us consider a limiting case implied by the following clauses of §8 of the Regulation.

§8.1. A driver shall take daily and weekly rest periods.

§8.9. A weekly rest period that falls in two weeks may be counted in either week, but not in both.

A first step is to understand the terms involved inasmuch as they have been established earlier in the text:

§4(h) 'regular weekly rest period' means any period of rest of at least 45 hours.

§4(i) 'a week' means the period of time between 00.00 on a Monday and 24.00 on the following Sunday.

Now, let us consider the situation depicted in Figure 1   Each segment denotes a week, with time flowing from left to right. Furthermore, each serpentine line denotes time spent in a weekly rest period.
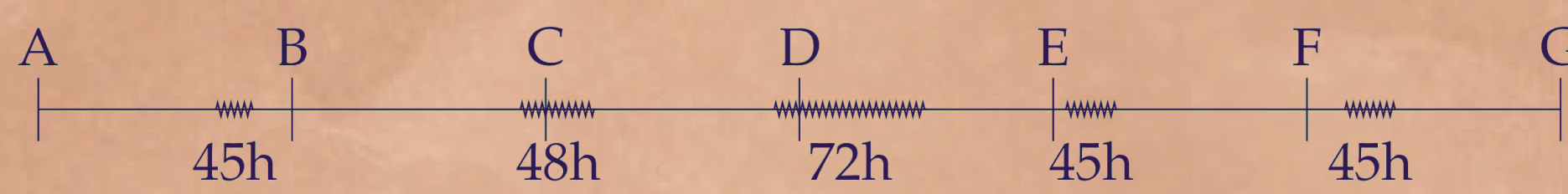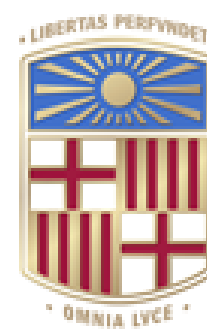

Figure 1: Six consecutive *weeks* and five weekly rest periods (serpentine lines) taken by a hypothetical driver.

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