Accepted Manuscript

Summarizing information by means of causal sentences through causal graphs

C. Puente, A. Sobrino, J.A. Olivas, E. Garrido

PII: S1570-8683(16)30075-1
DOI: http://dx.doi.org/10.1016/j.jal.2016.11.020
Reference: JAL 451

To appear in: *Journal of Applied Logic*

Please cite this article in press as: C. Puente et al., Summarizing information by means of causal sentences through causal graphs, *J. Appl. Log.* (2016), http://dx.doi.org/10.1016/j.jal.2016.11.020

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Summarizing information by means of causal sentences through causal graphs

C. Puente[1], A. Sobrino[2], J. A. Olivas[3], E. Garrido[4]
[1] Advanced Technical Faculty of Engineering ICAI
Pontifical Comillas University, Madrid, Spain
cristina.puente@comillas.edu
[2] Faculty of Philosophy. University of Santiago de Compostela, Spain
alejandro.sobrino@usc.es
[3] Information Technologies and Systems Dept
University of Castilla-La Mancha, Ciudad Real, Spain
joseangel.olivas@uclm.es
[4] University Autónoma of Madrid, Madrid, Spain
eduardo.garrido@uam.es

Abstract. The objective of this work is to propose a complete system able to extract causal sentences from a set of text documents, select the causal sentences contained, create a causal graph in base to a given concept using as source these causal sentences, and finally produce a text summary gathering all the information connected by means of this causal graph. This procedure has three main steps. The first one is focused in the extraction, filtering and selection of those causal sentences that could have relevant information for the system. The second one is focused on the composition of a suitable causal graph, removing redundant information and solving ambiguity problems. The third step is a procedure able to read the causal graph to compose a suitable answer to a proposed causal question by summarizing the information contained in it.

Keywords: Causal questions, Causality, Causal Sentences, Causal Representation, Causal summarization.

1 Introduction and justification

Providing causal contents is inner to scientific practice. Tracing causal knowledge is one of the most relevant jobs of the natural sciences, as Physics. Two of the most important empirical sciences tasks are explanation and prediction. Explanation involves a general statement, usually a physical law and a singular sentence, both configuring the *explanans*, base of the explanation process. Physical laws are paradigmatically causal statements. Thus, causality is largely involved in the explanation activity. Prediction demands anticipating the future. To predict the effect of changes, naturally or artificially implemented, is a desideratum of science. In this task, inductive or probabilistic logic plays a relevant role. Conditional probabilities and the Markov Principle permits to anticipate the behavior of a causal net performing interventions on it, analyzing the dependence or independence of the involved variables and performing a causal inference according to that [1].

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/5778207

Download Persian Version:

https://daneshyari.com/article/5778207

Daneshyari.com