## MSc thesis defense presentation

Χρ <b>Π</b> στος Ραντσο <b>Π</b> δης defends his	
MSc thesis	
Date:	Δευτ∎ρα, 09 Νο∎ 2015
■ρα:	13:00
Location:	<u>Εθνικ</u>
	Καποδιστριακ
	Πανεπιστμιο
	<u>Αθην</u> ν, Τμμμα
	Μαθηματικτν, room
Thesis title:	<u><u><u><u></u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u>
	Model-theoretic
	investigations on
	"overwhelming
	majority" default
	conditionals
Committee:	<ul> <li>Κωνσταντ νος</li> </ul>
	<u>Δημητρακ</u> πουλος
	• $\underline{K}\omega\nu\sigma\tau\alpha\nu\tau \nabla_{\Delta}$
	Κοπτρας
	<ul> <li><u>Παναγι</u>της</li> </ul>
	Ροντογιμννης
	<ul> <li>Ευστθιος Ζ χος</li> </ul>

## Thesis abstract

Defeasible conditionals of the form 'if A then normally B' are usually interpreted with the aid of a 'normality' ordering between possible states of affairs:  $A \Rightarrow B$  is true if it happens that in the most 'normal' (least exceptional) A-worlds, B is also true. Another plausible interpretation of 'normality' introduced in nonmonotonic reasoning dictates that  $A \Rightarrow B$  is true iff B is true in 'most' A-worlds. A formal account of 'most' in this majority-based approach to default reasoning has been given through the usage of weak filters and weak ultrafilters, capturing at least, a basic core of a size-oriented approach to defeasible reasoning. In this paper, we investigate defeasible conditionals constructed upon a notion of 'overwhelming majority', defined as 'truth in a cofinite subset of  $\omega$ ', the first infinite ordinal. One approach employs the modal logic of the frame ( $\omega$ ,<), used in the temporal logic of discrete linear time. We introduce and investigate conditionals, defined modally over  $(\omega, <)$ ; several modal definitions of the conditional connective are examined, with an emphasis on the nonmonotonic ones. An alternative interpretation of 'majority' as sets cofinal (in  $\omega$ ) rather than cofinite (subsets of  $\omega$ ) is examined. For all these modal approaches over  $(\omega, <)$ , a decision procedure readily emerges, as the modal logic KD4LZ of this frame is well-known and a translation of the conditional sentences can be mechanically checked for validity. A second approach employs the conditional version of Scott-Montague semantics, in the form of  $\omega$ -many possible worlds, endowed with neighborhoods populated by its cofinite subsets. Again, different conditionals are introduced and examined. Although it is difficult to obtain a completeness theorem (since it is not easy to capture 'cofiniteness-in- $\omega$ ' syntactically) this research reveals

the possible structure of 'overwhelming majority' conditionals, whose relative strength is compared to (the conditional logic 'equivalent' of) KLM logics and other conditional logics in the literature.

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