Chess Num - PLOG 2020

FEUP-PLOG, Turma 3MIEIC03, Grupo 3

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Abstract. This paper is a brief analysis of our solution of the Chess-Num problem, developed in the context of the PLOG U.C. The solution is implemented using sicstus prolog and its clpfd constraints library. TODO copiar conclusao para aqui

1 Template

1.1 A Subsection Sample

Please note that the first paragraph of a section or subsection is not indented. The first paragraph that follows a table, figure, equation etc. does not need an indent, either.

Subsequent paragraphs, however, are indented.

Sample Heading (Third Level) Only two levels of headings should be numbered. Lower level headings remain unnumbered; they are formatted as run-in headings.

Sample Heading (Fourth Level) The contribution should contain no more than four levels of headings. Table **??** gives a summary of all heading levels.

Table 1. Table captions should be placed above the tables.

Heading level	Example	Font size and style
Title (centered)	**Lecture Notes**	14 point, bold
1st-level heading	**1 Introduction**	12 point, bold
2nd-level heading	**2.1 Printing Area**	10 point, bold
3rd-level heading	**Run-in Heading in Bold.** Text follows	10 point, bold
4th-level heading	*Lowest Level Heading.* Text follows	10 point, italic

Displayed equations are centered and set on a separate line.

$$x + y = z \tag{1}$$

Please try to avoid rasterized images for line-art diagrams and schemas. Whenever possible, use vector graphics instead (see Fig. **??**).

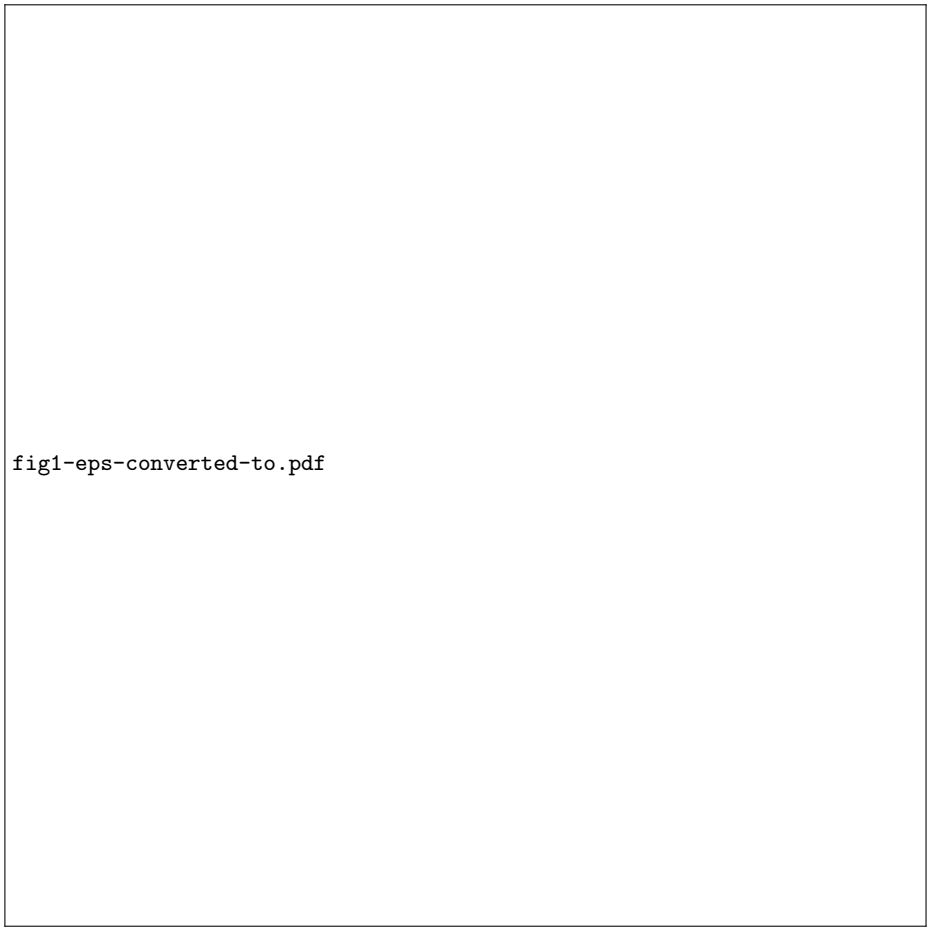

Fig. 1. A figure caption is always placed below the illustration. Please note that short captions are centered, while long ones are justified by the macro package automatically.

Theorem 1. *This is a sample theorem. The run-in heading is set in bold, while the following text appears in italics. Definitions, lemmas, propositions, and corollaries are styled the same way.*

Proof. Proofs, examples, and remarks have the initial word in italics, while the following text appears in normal font.

For citations of references, we prefer the use of square brackets and consecutive numbers. Citations using labels or the author/year convention are also acceptable. The following bibliography provides a sample reference list with entries for journal articles [**?**], an LNCS chapter [**?**], a book [**?**], proceedings without editors [**?**], and a homepage [**?**]. Multiple citations are grouped [**?**,**?**,**?**], [**?**,**?**,**?**,**?**].

2 Introduction

In this paper we describe our solution to the Chess-Num problem, which can solve any instance of the puzzle, generate a random solution, while presenting the result in a human readable way. We first begin by describing the problem, afterwards we explain our prolog approach, then we analyse the solution's complexity.

Even tough we tried to find other approaches/references to the problem, we couldn't find any.

3 Problem Description

The Chess-Num problem is a chess puzzle in which, given a set of numbered cells in the chess board, one tries to place six chess pieces (rook, queen, king, bishop, knight pawn) in a way that the number of each given cell corresponds to the number of attacking pieces of that cell. See this link for further description and examples.

4 Approach

4.1 Decision Variables

4.2 Constraints

5 Solution Presentation

6 Experiments and Results

7 Conclusions and Future Work

8 References

9 Annex