Report on "Rank two commutative semifields"

The thesis is a reworking of a previous version. I repeat the description of the thesis from my report on the previous version below.

The thesis is a study on rank two commutative semifields (RTCS), and also non-commutative ones (RTS), based on papers [Ganley, 1981], [Cohen and Ganley, 1982], using [Knuth, 1965] as a resource for background and [Ball and Lavrauw, 2002] and [Blokhuis, Lavrauw and Ball, 2003] as resources on further advances in the study of RTCSs.

The thesis description was:

- to provide the background rigorously from [K] to explain the setting of [G] and [CG] where polynomial representations for RTSs and RTCSs were described, and then
- to explain the results from these papers and give examples of such semifields, and finally
- to list the further results from [BL] and [BLB].

Assessment of the new version

The student has reworked the thesis according to the reports provided by the opponent and the supervisor. He addresses all of the issues carefully.

- One of the main issues in the previous version was the lack of organization and rigor of the proofs. The student gave correct proofs for all of the problematic instances and reorganized them satisfactorily.
- The logical ordering of the previous version was perplexed. The student corrects this issue in the current version.
- One of the aim of the thesis was to expand examples. The previous version lacked the details and mostly repeated the original papers. In the current version, all examples are expanded in a nice way.

There remains a few minor problems:

- p.17: β should be a non-square,
- p.18: the above examples (Cohen-Ganley does not require the condition that q_0 is large),
- p.20: equivalence (isotopy is better),
- Chapter 2: It is not good practice to start a section without an introductory paragraph to the chapter – actually the first sentence of Section 2.1 can be moved before Section 2.1.

I think the current version is suitable for recognition.