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TOPIC Consequences of SCS Memo 5-28-82 Khh and Mwm

REFERENCES SCS 5-28-82

- Reh₁ The CL-compactification
- Reh₂ Projective sober spaces
- c Reh₃ Continuous posets: *Prime spectra of Completely Distributive Complete Lattices*
Injective hull and MacNeille completion and Hausdorff
- Reh_{3a} " " *Injective hull and MacNeille completion compactification*
- Reh_{3b} " " *Injective hull and MacNeille completion compactification*
- Reh₄ The Fell compactification revisited
- Bb Essential extensions

Let us consider a sober space X and its essential hull $e: X \rightarrow \lambda X$. Here are some statements: (The order is the specialisation order.)

- (1) λX is injective (i.e. X has an injective hull).
- (2) Every x in X is the sup of elements $y \in X$ which are Scott-below x .
- (3) Every x in X is the limit of elements $y \in X$ which are Scott-below x .
- (4) X is a continuous poset.

Then we have the following conclusions:

$$(3) \Leftrightarrow (4) \Rightarrow (1) \Rightarrow (2) \text{ but } (1) \not\Rightarrow (4).$$

The example which illustrates (1) $\not\Rightarrow$ (4) is in SCS 5-28-82. One implication in Banaschewski's Corollary 2 [Bb] p.240 is false.

This affects at the very least the following results

- In Reh₂: 3.4 ; 3.5 ; 3.6; 3.8; proof of 3.10; top three lines of p.153; 3.14
- In Reh_{3a}: Introduction, 2.2; 2.4; 2.6; 2.7; 3.2; 3.4; introductory paragraph of §4; 4.1; 4.4; 4.6; 4.8.
- In Reh₁: 2.4, lines 3 and 4 of p.22; 4.6; 4.7; 4.8; 6.1.
- In Reh_{3b}: Introduction; 0.11; 11.13 from below ff. on p.10; 1.4; 11.5,6 on p.14; 1.5
- In Reh₄: p.5 indented paragraph; p.68, 11.12 ff. (The effects appear to be minimal in this paper.)
- In Bb : Corollaries 3 and 4 are unproved although they may remain correct. The results of Chapter 4, which are superseded anyhow by Compendium II-4, remain correct if for "spaces with an injective hull" one reads "continuous posets w.r.t. the specialisation order".

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