Tails and *contradictions right from the start*

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December 2019

Here we tackle the question *can we adopt a contradictions-right from the start methodology to deal with the 'problem of tails'*?

On the one hand, the 'problem of tails', first introduced by Albert and Loewer (1990), is one of the main challenges that the GRW dynamical-collapse theory faces. It consists on questioning the effectiveness of the GRW collapse mechanism to produce macroscopically definite states. The problem can be divided in two main varieties: the 'problem of bare tails' and the 'problem of structured tails'. For the former, a particle in a Gaussian state does not have a specific location regardless of the narrowness of the Gaussian; for the latter, whenever some particle which is part of a macroscopic object undergoes collapse, even if most of its amplitude goes into part of the superposition, because of entanglement, the complete state still remains in the superposition, and then that suggests we still have a measurement problem (cf. Wallace 2014). On the other hand, da Costa and de Ronde (2013) have argued in favor of developing an interpretation of superposition which, 'right from the start', takes contradictions to be a privileged element of the structured of Quantum Mechanics. According to them, a *contradictions right from the start* methodology can help physicists to take seriously the features which the theory seems to show, and with it, to explain out some of the alleged anomalies of the theory and its interpretations.

The combination of these facts leaves us with the impression that if da Costa and de Ronde are in the right, to adopt a *contradictions right from the start* methodology can help us to deal with the problem of tails. Hence the importance of addressing both issues together.

In order to do so, we proceed as follows: First we introduce the *contradictions right from the start* methodology. Later on, we present the problem of tails. Furthermore, we reconstruct in terms of contradictions both the problem of bare tails and the problem of structured tails. Then, we evaluate this methodology's usefulness for explanation in both cases and contend that while

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the approach promises to enhance our explanatory power it's not straightforward how it applies to these cases and whether it succeeds. Finally, we draw some final remarks.

References

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