

Reply to comments by George and Prigogine on the paper 'On the validity of the Brussels formalism in statistical mechanics'

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COMMENT

Reply to comments by George and Prigogine on the paper 'On the validity of the Brussels formalism in statistical mechanics'

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We are unhappy that George and Prigogine [1] interpret our paper [2] as destructive criticism of the Brussels formalism. On the contrary, our aim was to discover conditions under which this interesting method might be supported by rigorous analysis. Our results give a set of sufficient conditions, admittedly quite restrictive, for the validity of a part of the formalism.

So far as we are aware, the Brussels school has never promulgated any agreed choice for the function space in which the formalism's operators are to act. In our work we chose a Hilbert space. This structure sufficed for the theorems we could prove, which concern only the P subspace. We agree that additional structure, such as that of a rigged Hilbert space, may be necessary to give effect to the Brussels formalism outside the P subspace, but since this additional structure would not have affected our results we do not see that its omission was a misrepresentation.

In many applications of the Brussels formalism that have been made so far the dimensionality of the P subspace is indeed infinite. However, since the formalism itself makes no explicit mention of this dimensionality, one can reasonably investigate it by considering cases where the dimensionality is finite. Misrepresentation on this score would arise only if there were an invalid transfer of results between the finite and infinite dimensional cases.

The following printing errors in our paper should be noted:

p 4956, line 31: for ' $\psi(t)$ ' read ' $\psi(z)$ '

p 4962, line 17: after 'indeed' insert 'true'

p 4962, line 18: for 'to to' read 'to'

p 4963, line 3: for 'is is infinite' read 'it is finite'

References

- [1] George C D and Prigogine I 1993 *J. Phys. A: Math. Gen.* **26** see this issue
- [2] Coveney P V and Penrose O 1992 *J. Phys. A: Math. Gen.* **25** 4947-66