effect on B:

$$A(\hat{\mathbf{a}}, \lambda)$$
$$B(\hat{\mathbf{b}}, \lambda) \tag{3}$$

With these *local* forms, it is *not* possible to find functions A and B and a probability distribution ρ which give the correlation (1). This is the theorem. The proof will not be repeated here.

Lochak illustrates the way in which the output of a single instrument A depends on its setting $\hat{\mathbf{a}}$, as allowed for in (3), in the hidden parameter theory of de Broglie. I think this is very instructive. But more instructive for the present purpose is the case of *two* instruments and *two* particles. *Then one finds that in de Broglie's theory the dependence is not of the local form (3) but of the nonlocal form (2).* I have made this point on several occasions, in two of the three papers referred to by Lochak and elsewhere[7]. It may be that Lochak has in mind some other extension of de Broglie's theory, to the more-than-one-particle system, than the straightforward generalization from 3 to $3N$ dimensions that I considered. But if his extension is local it will not agree with quantum mechanics, and if it agrees with quantum mechanics it will not be local. This is what the theorem says.

The objection of de la Peña, Cetto, and Brody is based on a misinterpretation of the demonstration of the theorem. In the course of it reference is made to

$$A(\hat{\mathbf{a}}', \lambda) \quad , \quad B(\hat{\mathbf{b}}', \lambda)$$

as well as

$$A(\hat{\mathbf{a}}, \lambda) \quad , \quad B(\hat{\mathbf{b}}, \lambda)$$

These authors say 'Clearly, since A, A', B, B' are all evaluated for the same λ, they must refer to four measurements carried out on the same electron–positron pair. We can suppose, for instance, that A' is obtained after A, and B' after B'. But by no means. We are not at all concerned with sequences of measurements on a given particle, or of pairs of measurements on a given pair of particles. We are concerned with experiments in which for each pair the 'spin' of each particle is measured once only. The quantities

$$A(\hat{\mathbf{a}}', \lambda) \quad , \quad B(\hat{\mathbf{b}}', \lambda)$$

are just the same functions

$$A(\hat{\mathbf{a}}, \lambda) \quad , \quad B(\hat{\mathbf{b}}, \lambda)$$