Dear Professor Nagano,

Thank you for yours of January 17th.

You are quite right: the diagram you mention contains a mistake—or a misprint, I don’t recall which.

I have now modified that diagram as shown in the enclosed pages of Vol. 6 of my Treatise on Basic Philosophy: Epistemology and Methodology II (Dordrecht and Boston: Reidel, 1983). I hope this change meets with your approval.

By a 'partial map' or a 'partial function' one understands a function that maps a subset \( A' \) of the domain \( A \) of a function \( f: A \rightarrow B \). For example, the truth valuation function should be regarded as partial, because not all propositions have a (known) truth value.

As for your criticism of my statement that income is an indicator of economic status, I am not sure you are right. Status, whether economic, social, or political, is an unobservable. Income is not. Of course the director of the board of a company who the highest paid in the firm, may not actually wield any economic power: he may be just a figure-head. But this, and exceptions like it, only shows that indicators are ambiguous.

I agree that technological level is only one factor contributing to the GNP. There are others, such as size of the labor force and investment. But we were talking about indicators, and it seems to me that GNP is an (ambiguous) indicator of technological level. Likewise body temperature is not the sole unambiguous indicator of the state of health of a person, but it is one of them.

Finally, as for the Dow-Jones index, it is generally recognized that it is not a reliable indicator of the state of the economy, and this because its value is influenced by expectations and other subjective phenomena. Thus I believe that the present high level of the Dow-Jones is largely artificial, for it does not reflect the actual unemployment rate, the low level of investment in civil industries, etc.

In any case, as you seem to recognize yourself, the very notion of a social or economic indicator is still quite hazy. Much more methodological work should be done on the concept.

Sincerely,

Mario Bunge

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