

## Psycho-Logic: The Blind and Context-Free Search for Noncontingent 'Truth'

*M.H. van IJendoorn*

Leiden University, Leiden, The Netherlands

Psycho-logic [Smedslund, 1988] represents an ambitious research program designed to examine the metatheoretical status of psychological hypotheses that are subjected to empirical tests. In several areas of psychological research such as social psychology [1994a] and now, in this journal [1994b], developmental psychology, Smedslund claims to have discovered empirical hypotheses that in fact cannot sensibly be tested empirically because they imply a priori true or false meanings. If correct, this criticism would indeed be devastating. It of course makes no sense to empirically test the hypothesis that a circle is round because the definition of the circle a priori implies roundness. Smedslund argues that many researchers commit exactly this type of error, which may be called a Type III error. Such researchers could spend a wasted lifetime of empirically 'proving' propositions similar to the proposition that circles are round.

Is Smedslund right? I argue here that he is, in fact, not always right, and I demonstrate that his approach may easily lead to incorrect conclusions – type IV errors – because it is based on several wrong assumptions. Smedslund tends to 'deconstruct' theoretical and empirical work of a researcher without taking into account the wider context of the research program in which single papers often are embedded and from which they derive their specific meaning. Furthermore, he tends to be blind to the content of the research that he tries to take apart. His 'logic' seems not to need substantive knowledge to be applied in the process of metatheoretical analysis, and in this respect it is just as content-free as real logic (i.e., formal logic) is. Any valuable metatheoretical contribution, however, is based on thorough knowledge of the content area involved. Lastly, Smedslund overemphasizes the need for formal definitions. It may sometimes be fruitful to stipulate the provisional meaning of a concept. But formal definitions should be the product of research on the monological network of the concept, rather than the starting point. Popper [1979] vehemently argued against an exclusive focus on definitions in science because of the unproductive essentialism that in the past has been the consequence of this emphasis.

Within the limited space available here, I restrict my analysis to one of the five case studies that Smedslund [1994b] examined. In an effort to eliminate bias in the selection of the studies for analysis, Smedslund 'blindly' chose the first five empirical studies in the latest issue of *Child Development* available in his university library, claiming no pre-

vious familiarity with their content. It should be clear that this method of selection does not guarantee sufficient knowledge of the topic to be able to 'read between the lines' and to make explicit the silent or background knowledge [Polanyi, 1973] that is presupposed in empirical papers of restricted length that are part of a larger research program.

The case study I consider here is of the article 'Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age' [Fonagy et al., 1991]. The article reports on a longitudinal study in which parents' attachment representations prior to their infants' birth were related to infants' attachment to the parents at 1 year after birth. Parental attachment representations were measured by a semi-standardized interview, the Adult Attachment Interview (AAI) [Main et al., 1985]; infants' attachments were observed in the well-known 'Strange Situation', a standardized laboratory procedure (SSP) [Ainsworth et al., 1978]. Both assessments have been proven to be psychometrically reliable and valid [Bakermans-Kranenburg and van IJzendoorn, 1993; Waters, 1978]. The authors found concordance of parental and infant attachment in 75% of their cases ( $n=96$ ). In fact, for the first time it was shown that parental attachment representations predict the nature of infants' attachments as assessed in the SSP more than 1 year later. The predictive power is significant but not perfect (25% of cases are exceptions). The design of the study ruled out the possibility of the infant's behavior influencing the parental attachment representations because the latter were assessed before the birth of the baby. A weakness of the design is the absence of a second assessment of parental attachment, at the time of the assessment of the infant's attachment. However, the AAI has been shown to be highly stable over time, and concurrent assessment would likely have increased the concordance between parental attachment representations and infant attachment [Benoit and Parker, in press].

It is difficult to see how the hypothesis of association between parental attachment representations and infants' attachments could be a priori true and the outcome of this important study tautological. First, the two concepts involve different levels of human functioning – cognitive representations versus behavioral patterns of attachment. Second, the two assessment measures are totally different: the AAI is an interview assessment whereas the SSP is an observational system. Furthermore, the measures have been applied more than 1 year apart, and correlated measurement errors seem unlikely. Third, mental representations must, of course, exert their influence on children's development through observable interactive behavior. The behavioral link between the two phenomena has been hypothesized to be parental 'sensitive responsiveness' [van IJzendoorn, in press]. Contrary to Smedslund's [1994b] claim, this proposition is not an assumption made by the authors of this study nor is it addressed empirically; rather it is presented as a plausible hypothesis to be tested in other studies. In fact, several researchers have accepted this challenge. In a meta-analytic review of 18 AAI studies, I was not only able to confirm the outcome of Fonagy et al.'s [1991] research, but also to show that part of the transmission of parental to infant attachment could be accounted for by sensitive responsiveness. Part of the transmission remains unexplained [the 'transmission gap'; van IJzendoorn, in press]. The meta-analysis includes a series of related studies which Smedslund does not cite and is apparently unaware of.

How does Smedslund [1994b] proceed to show the noncontingent nature of Fonagy et al.'s [1991] hypothesis? From the paragraph in which the authors undertake to interpret their findings ('we may understand the relation ...') [Fonagy et al., 1991, p. 892], Smedslund [1994b] derives the proposition that 'the mother-infant attachment pattern

will be secure to the extent that the mother has an autonomous representation of attachment' [p. 284]. This is of course not a plausible nor acceptable 'rephrasing' of the authors' discussion. They found that parental and infant attachment corresponded in 75% of the cases, and Smedslund incorrectly rephrases this outcome in an absolute way. Furthermore, in framing the *outcome* in this way, he does not convey the authors' *interpretation* of this finding. The authors propose that an autonomous parental attachment representation will more likely lead to responsive interactions with the infant than will an insecure one; in the latter case the parents' own past attachment experiences may be in the way of an open and undistorted communication with the infant about feelings of stress and anxiety. It is simply not true that this interpretation is equal to the proposition – cast in absolute terms – that mothers having autonomous attachment representations will be responsive to their children, as Smedslund contends, and that therefore these children necessarily will be securely attached. If mental representations showed a one-to-one correspondence to behaviors, and thus could be left out of a complete explanation of a psychological phenomenon, Smedslund's inference might be plausible. Such a behavioristic reductionism, however, is not part of attachment theory (or several other interesting theories, for that matter). It is Smedslund's lack of knowledge of attachment theory that misdirects his metatheoretical analyses.

Empirical hypotheses should be falsifiable [Popper, 1979]; that is, they should leave room for counterevidence. Is it possible to imagine autonomous parents having infants who are insecurely attached? The answer is affirmative. In our kibbutz studies we found that the insensitive context of the communal kibbutzim in which infants sleep in common rooms away from their parents hampers the transmission of parental attachment representations. In this social context parents showing autonomous representations often had infants showing insecure attachment patterns [Aviezer et al., 1994]. More generally, recall, the correspondence between parental and infant attachment is found only in 75% of the cases and because of the high reliability of the assessments involved, it is difficult to explain away the 25% of cases that are mismatches on the basis of measurement error. Is it possible, then, that an autonomous parent might not show responsive behavior toward the infant? If we look at the rather modest effect sizes for the association between parental attachment representations and parental responsiveness [van IJzenendoorn, in press], this possibility must of course exist. Parental attachment is not tautologically connected to parental responsiveness. Interactive behaviors such as emotional responsiveness are usually determined by multiple causes, mental representations being only one of them. If socioeconomic circumstances force a single mother with an autonomous attachment representation to work full-time out of the home under stressful conditions, she may be less responsive than she would be under other conditions. Her actual performance may be well below her potential level of competence. Whereas the mental representation of attachment may determine the highest possible level of competence, a parent's performance is of course influenced by multiple causes, including contextual factors, some of which extend beyond the parent-child relationship, such as quality of care outside the home. Attachment theory does not assume that the transmission of attachment from one generation to the next takes place in a social vacuum or that it is located in a 'monadic' dyad.

In reconstructing the content of a study, Smedslund [1994b] often has to infer 'plausible' [e.g., p. 282] definitions of concepts used in formulating research hypotheses. From a methodological viewpoint, it is important to know how the plausibility of these critical inferences is guaranteed. Metatheoretical studies are not exempt from the rule of pro-

ducing reliable and valid results. In the present case, plausibility remains closely tied to Smedslund's personal insights and opinions. Why did he not try to validate his 'plausible' reconstructions, for example, against a panel of experts to avoid misunderstandings, misinterpretations, or even unfair interpretations of others' research? Empirical researchers are not inclined to take metatheoretical reflections seriously if metatheorists themselves do not do so.

Finally, Smedslund's psycho-logic reflects obsessive concern with definitions. In his monograph on this approach, Smedslund [1988] tries to define 'basic' concepts such as awareness, activity, wants, beliefs, feelings, and actions. In fact, psycho-logic consists primarily of definitions of these basic concepts, along with the implications of these definitions for psychological theory. It is sometimes useful to stipulate the content of a concept, for the sake of a focused discussion. The question is, however, whether formal definitions of basic concepts lead to progress in science or to foreclosure of the discussion. Popper [1979] remained skeptical about the fruitfulness of definitions. In fact, his theory and history of science led him to the following recommendation:

One should never quarrel about words, and never get involved in questions of terminology. One should always keep away from discussing concepts. What we are really interested in, our real problems, are factual problems, or in other words, problems of theory and truth [p. 310]

## Acknowledgment

Support for writing this commentary came from a PIONEER award of the Netherlands Organization for Scientific Research (NWO)

## References

- Ainsworth MDS, Blehar MC, Waters E & Wall S (1978) *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale NJ: Erlbaum.
- Aviezer O, van IJzendoorn MH, Sagi A & Schuengel C (1994) 'Children of the Dream' revisited: 70 years of collective child-rearing in Israeli kibbutzim. *Psychological Bulletin*, 116, 99-116.
- Bakermans-Kranenburg MJ & van IJzendoorn MH (1993) A psychometric study of the Adult Attachment Interview: Reliability and discriminant validity. *Developmental Psychology*, 29, 870-880.
- Benoit D & Parker KCH (in press) Stability and transmission of attachment across three generations. *Child Development*.
- Fonagy P, Steele H & Steele M (1991) Maternal representation of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development*, 62, 891-905.
- Main M, Kaplan N & Cassidy J (1985) Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton, & E. Waters (Eds.), *Growing points of attachment theory and research: Monographs of the Society for Research in Child Development*, 50 (1-1, Serial No. 209), 66-106.
- Polanyi M (1973) *Personal knowledge: Towards a post-critical philosophy*. London: Routledge and Kegan Paul.
- Popper KR (1979) *Objective knowledge: An evolutionary approach* (revised ed.). Oxford: Clarendon.
- Smedslund J (1988) *Psycho-Logic*. Heidelberg: Springer.
- Smedslund J (1994a) Nonempirical and empirical components in the hypotheses of five social psychological experiments. *Scandinavian Journal of Psychology*, 35, 1-15.
- Smedslund J (1994b) What kind of propositions are set forth in developmental research? Five case studies. *Human Development*, 37, 280-292.
- van IJzendoorn MH (in press) Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*.
- Waters E (1978) The reliability and stability of individual differences in infant-mother attachment. *Child Development*, 39, 483-494.

Marinus H. van IJzendoorn, Center for Child and Family Studies, Leiden University, PO Box 9555, NL-2300-RB Leiden (The Netherlands)