

Alfredo Deaño and the non-accidental transition of thought

Maria G. Navarro¹

¹ Institut of Philosophy, Spanish National Research Council, Madrid, Spain

Email: maria.navarro@cchs.csic.es;

Abstract If the cultural variations concerning knowledge and research on ordinary reasoning are part of cultural history, what kind of historiographical method is needed in order to present the history of its evolution? This paper proposes to introduce the study of theories of reasoning into a historiographic perspective because we assume that the answer to the previous question does not only depend of internal controversies about how reasoning performance is explained by current theories of reasoning. Ordinary reasoning is a historical and cultural phenomenon but it is not clear what kind of historiographic perspective may be coherent (in relation with its research object) or even necessary (in relation with possible laws exhibit by this object of research). It may be possible to understand natural language as a kind of opportunity for calculus. This article argues that this was, at least, the point of view of Alfredo Deaño. We contend that for Deaño, this kind of optimism is not based on the application of classical logic, but on linguistics and on non-classical logics. To justify this, we put forward and describe some or the characteristic findings of Deaño's work relating to ordinary reasoning (e.g., the spontaneous use of reasoning, the political similies in the relationship between logic and philosophy).

1 Everyday human's reasoning as style of reasoning

While with the term 'reasoning' an intelligent sequential processing of transition in thought is defined [1], with the expression 'ordinary reasoning' two complex characteristics of everyday human reasoning are frequently alluded: (i) that people restructure and transform thoughts (and information), and (ii) that people make inferences through defeasible reasoning which is a type of non-demonstrative reasoning.

To carry out research on ordinary reasoning is extraordinarily complex. One of the reasons why this is so is that ordinary reasoning does not occur only in the brain of a person but in everyday exchanges between individuals and the history of their community. The fact that research on ordinary reasoning cannot be dissociated from these everyday exchanges has frequently become an objection against the empirical research model based on a domain-specific approach. Are the possible laws or explanation types determined by material aspects of the culture, the history or even the folk-epistemology of a community or not? Is that also the case of the validation criteria or even that of the theoretical stabilisation processes that we identify with ordinary reasoning?

The study of cultural variations with which knowledge can be understood, as well as our presumed competence to reason about it, cannot be undertaken without a specific historiographical model that allows the more or less specific presentation of our conceptions about the history of reasoning. Historicizing the style of reasoning called 'everyday reasoning' while accepting the assumptions of historical epistemology allows the introduction of objects, propositions, laws and even types of explanation in the historiographical debate. If the cultural variations concerning knowledge and research on ordinary reasoning are part of cultural history, what kind of historiographical method is needed in order to present the history of its evolution? Answering this question is not simple. It is also unprecedented. In spite of that, it is crucial to be able to present the cultural phenomenon called 'reasoning' as a historiographical fact.

Research on ordinary reasoning is usually organised following criteria related to the evolution of the disciplines and trends that have analysed and proposed theories of reasoning. As a consequence, what frequently determines what the object of investigation is or how the theories of reasoning or even everyday inference itself are defined is (a) the disciplinary context and the debates related to trends (i.e., cognitive psychology; naturalized epistemology; cognitive anthropology, etc.); (b) the effect of the accumulation of conceptual analyses and its determining effect (e.g., inferentialism; belief change; counterfactual reasoning; evolutionary approaches; tacit epistemology; computational explanation of everyday reasoning, etc.); (c) the programmatic perspectives adopted in research on

ordinary reasoning classified as the componential approach, the rules or heuristics approach, and the mental models approach. Therefore, it can be stated that the search for a historiographical model that suits the analysis of ordinary reasoning evolution is a secondary matter.

The latter perspective, that has to do with the genesis and evolution of the history of reasoning and the properties of inferences, is frequently identified with (and reduced to) the study of cultural difference and the different thought systems—a paradigmatic example of this would be the study by Nisbett et al. [19] about holistic versus analytic cognition. There is no doubt that the results of the research by Nisbett et al. would support the thesis that was presented in the initial pages of this article—that ordinary reasoning is a historical and cultural phenomenon. Nevertheless, these results also reveal the pertinence of asking about which historiographic perspective may be coherent or even necessary in order to study this cultural and social phenomenon.

Everything seems to point out that, in order to obtain more detailed responses to how and why the agents came to be as they are, it is necessary to carry out research on people's default positions. And such a research includes the challenge of discussing what historiographical model is the best suited to undertake a cultural history of everyday reasoning evolution. In the following pages it is argued that several principles found in Deaños's ordinary reasoning conception are relevant in order to justify a historiographic perspective on everyday reasoning research.

2 Language as stimulus to calculus

From Alfredo Deaño's *Introducción a la lógica formal* [5], it can be inferred that its author maintained that natural language might be seen as a source of stimuli to which calculus could be applied. It may be possible to understand natural language – so to speak – as a kind of opportunity for calculus. Interpretations such as that of Harada [15] state that, in this regard, the optimism shown by Deaño (as correct as it was precocious, if we note the date at which it was put forward, and cross-reference it with the scientific work which would come, years later, to corroborate its rationality) is not based – at least not principally – on the use of classical logic, but on linguistics and non-classical logics. Proof that this interpretation is correct is found in remarks about, and descriptions of, fuzzy logic, made by Deaño himself, and in his characteristic analysis of the inferential relations between statements about fuzzy sets. However, his assertions can be fully explained, and allow us to better discern the philosophical motivations of their author, when we look at the internal development of his thinking, as he himself outlined it, on what we will call the three fundamental findings on ordinary reasoning:

- The prismatic structure of communication
- Political similes in the relationship between logic and philosophy
- The spontaneous use of reasoning

The first feature he attributes to the practice of communication is 'its prismatic structure' [6]. With this feature, Deaño is pointing out that the study of human communication can only be undertaken through an interdisciplinary approach. Accordingly, he assigns the task of accompanying the properly philosophical investigation into informative communication to at least four scholarly disciplines: linguistics, information theory, psychology, and sociology. This preliminary consideration acquires with Deaño the status of a programmatic principle of his philosophy, and is inspired by the conviction he shares with Javier Muguerza [18] that 'language is not a simple instrument for communication, but rather its sine qua non, and, thereby, the sine qua non of all informative communication... When I say that language is the condition sine qua non of all informative communication, I mean that it is so for the objectivity of the knowledge that supports that information.' In keeping with the interdisciplinary character and ideal that it seems must preside over any investigation of informative human communication (in contrast to artistic communication where, as José Luis López Aranguren insisted, the communication and the message seem to be one and the same thing), Deaño summarizes this prismatic structure in the following findings:

(i) Thought and the use of language must be conceived of as two parts of a single process [24].

(ii) The organization of a language can only be explained if it is considered an instrument of communication in the service of a human group [12].

(iii) The unity of thought and the use of language has a discrete origin, and divergence only arises through human social development.

(iv) Language is the indispensable vehicle of thought.

Undoubtedly, this prismatic structure could continue to be illustrated by new fundamental assertions about informative communication, but all of them would derive from the aforementioned disciplines; and demonstrating this suffices for the purpose of showing the sense in which such a structure is prismatic. Deaño considers the above findings sufficient on their own for another reason: they can give an idea of the interdisciplinary character of a philosophical investigation into communicative or informative language. Proof of this lies in the fact that the principal philosophical problems regarding language (e.g. communicative or informative language) can be reduced to the following

three, meaning that, when all is said and done, consideration of the findings would have provided the philosopher with the necessary speculative return by demonstrating the need for the following three research questions:

- Which is preferable: constructing precise artificial languages, or establishing the actual functioning of natural language?
- Is it possible or desirable to unify language?
- Which philosophical method is the most profitable or most useful speculatively: the rational reconstruction of language, or the description of its ordinary use?

The way I see it, from the texts analysed, it can be inferred that these questions (those in which the philosopher must make an effort to collaborate scientifically with the other disciplines mentioned) are not only the speculative result of the prismatic structure of communication, but are a co-cause of it.

3 Political similes in the relationship between logic and philosophy

When defining the relationship between logic and philosophy, Deaño remarks, in a seemingly anecdotal way, that it is plural, or even that there are several, and moreover, lends itself to the use of political similes. The writer himself expressed this idea as follows: ‘Using political similes, we would say that the relationship between logic and philosophy has moved on from more or less paternal authoritarianism (in Frege and Russell), to dictatorship (in early Wittgenstein), from this on to formal democracy (logical positivism), from formal democracy to anarchy (latter Wittgenstein), and from this, finally, to bipartisanship (the philosophy of ordinary language).’ Afterwards, Deaño adds something else to describe the political slant of his own proposal, which he identifies, without the slightest hesitation, in just one word: ‘self-management’ (autogestión) [6].

We will not offer here any reconstruction of the panorama of such relations put forward by Deaño, nor of the aspects of them that might be interpreted in order to produce the arguments through which the political similes listed might be understood (similes which, in any case, stand as self-evident and immediately comprehensible.) A superficial interpretation of them might lead us to suppose that the author is making use of a pedagogical form to effect a genuine reasoned exposition of the stages of philosophy of language that is already given by the authors mentioned themselves.

It may be more interesting, however, to venture our own interpretation of Deaño’s position, the political thrust of which lies behind the progressive character of his presentation of earlier political forms in the

history of the philosophy of language. The term 'self-management' does not appear in the document again, but it can be identified with the support Deaño showed for the approach taken by Noam Chomsky, who stands out for the creative aspect he attributes to language, or to put it more appropriately, for the radical creativity of language that he associates with the use of generative rules, and in particular with the use of rules of recursion, which allow us to progressively widen the expressivity of our thought.

The speaking subject seems to have assimilated a coherent system of rules which permit him to realise semantic interpretations of a potentially infinite number of phrases in real language. It is generative grammar that Deaño has in mind when he uses the term 'self-management' to describe his particular political simile as he searches for the relationship between logic and philosophy. Self-management seems to be the most honest option, if we realize, like Deaño, that 'logic has hypnotized us. Obsessed by its sublime profundity, by its precision, we look for a logically-perfect language, and, when we use it to analyse ordinary language, we believe we find, beneath the imperfections (...) its hidden essence.' [6].

These political similes are evidently significant, and connote piercing insight if we think of all the politically-driven investigations which would later be carried out not only into the history of philosophy, where the elemental historiographical constraints of the subject give an idea of how fruitless is the attempt to evade the influence of political activity on historical research, but also in disciplines like analytic social epistemology (e.g., Alvin Goldman), if not in social and political epistemology (e.g., Steve Fuller).

Earlier examples of political similes can also be found in Deaño's work, with not only a pedagogical, but a philosophical function, such as in the following statement: 'Far from trying to harmonize logic and dialectic, Adorno, Marcuse and in general what is known as the 'Frankfurt school' come to argue plainly that the 'consequence of the self-critique of logic is dialectics'. Dialectics – negative, critical thinking – is constituted as a critique of formal logic, the established logic, the logic of domination.' [8]. Two years later, in *Revista de Occidente* [9], Deaño would write some clearly pertinent keys to understanding the matter of the relationship between analysis and dialectics (a relationship that underlies the comments in the quote above). The most reliable interpretation of the reasons why Deaño's interest was aroused by the distinction between analytical and dialectical logic is still that formulated by Gustavo Bueno. According to him, this distinction was at its height during the Cold War, in the years when the Communist Bloc (along with its satellite countries) was characterised by its interest in works of dialectical logic, whereas in contrast, the countries belonging to the capitalist sphere turned to analytical logic.

Taking as a starting point that astute insight regarding the influence exercised by geopolitics on the historiographical distinctions which transcend this simple plane, and acquire – gradually, and sometimes covertly – the level of philosophy, Bueno recalled the above mentioned issue of *Revista de Occidente* specifically because it was edited by Deaño himself. In its pages, the philosophers in Spain were divided into two groups: the analytical and the dialectical. This division would also give names to two methods (i.e., the analytical method, and the dialectical method). Considering the opposition between analytical and dialectical logic, which was based on the idea that the former was insufficient, and that it was therefore necessary to produce a dialectical logic, Bueno wondered: ‘What criteria can be followed in order to distinguish this supposed distinction?’

The most widely followed criterion was surely that of contradiction: analytical logic does not admit contradiction, whereas dialectical logic accepted the principle of contradiction. But this distinction is absurd, because contradiction can have no place in any logical treatise, or in any ordinary discourse.’ [3]. To complement this view, one cannot but recall that in his posthumously-published book, *Las concepciones de la lógica*, Deaño would insist on the necessity of putting forward a reconstruction of the history of the discipline with an eye to its possible introduction into the curriculum of the Spanish universities of the time, but without, in so doing, forgetting the task of advancing arguments on the function that logic must have in any philosophical investigation [10]. He is still worth consulting on the role of that edition in the question of the reception of analytical philosophy in Spain [2].

On this latter point, Muguerza gives the definitive interpretation of Deaño’s philosophy, understanding it as a study of the principles on which the notion of implication between utterances is based. An investigation which would lead unequivocally – in this case – towards a kind of transcendental reflection. The closing lecture given by Muguerza in 1978 at the *Jornadas de Filosofía* (Philosophy Conference) as a homage to the philosopher from Lugo was based on the explanation of this interpretation of Deaño’s thought. This event took place in the *Colegio Mayor Isabel de España*; it started on 11 April, 1978, and was brought to a close by Muguerza’s magisterial lecture on 26 April. The young pro-democracy newspaper *El País* that had appeared in 1976, just a few months after Franco’s death, reviewed the event [25]. Deaño was a regular contributor and reviewer of this newspaper’s culture and philosophy pages that also published several articles [26] after his dramatic and premature death.

The quintessential insight of journalist Javier Pradera’s account of Deaño’s personality and intellectual contribution is perhaps best captured in the following statement: ‘... he displayed, through the example of his work and his life, the best attributes of men of ability: intellectual rigour, a

certain iron perspective, a thoroughgoing refinement, and theoretical imagination.’ [21] Equally moving and powerfully expressive are the words of Mariano Antolín Rato: ‘Deaño had a Galician father, and he was an astonishing genius, the most intelligent person I have met. Throughout college and university, he gained the top grade in every subject, including Religion, Physical Education, and National Spirit Training. And he did not study much more than his companions, because at that time, he was also writing plays.’ [22] Likewise worthy of note is the homage offered to the Galician philosopher by the Sociedad Asturiana de Filosofía in 1978 at the Universidad de Oviedo where he studied. The event was given over to the exploration of one of the relationships that most interested Deaño, as we shall see later: the dilemma inherent in the relationship between logic and psychology. A decisive element of that exploration was the collaboration between Deaño and Juan Delval Merino [11], a specialist in evolutionary psychology and education, a student of Jean Piaget’s, and a philosopher by training, whose approach was surely of enormous interest to Deaño, and made a great impression on him.

Years later, the review *El Basilisco* would dedicate several pages by José Antonio López Brugos to a comprehensive reconstruction of the arguments used by Deaño to show in what sense logical laws would appear to be the laws of the formal constitution of the transcendental subject [17].

4 The spontaneous use of reasoning

In his introduction and definition of non-classical logics of 1976, Alfredo Deaño drew attention in an original way to the difference between form and content in reasoning when he stated:

‘Distinguishing between the content and the form of an act of reasoning, formal logic – hence the qualifying adjective – abstracts from the content and retains only the form. And it busies itself with studying these forms of reasoning, those modes of argumentation, these patterns of inference, which are valid per se (that is to say, by virtue of their structure, since that is all they have). In what has just been said there lies implicit the reason why logic uses, instead of ordinary language, that symbolic language which bewilders the bewildered, and serves as a tool for those who are not. Logic operates by separating form from content, and subsequently retaining the former. And the thing is that, in ordinary language, form and content always occur together: when we reason in the world – and not in a logic class – we reason in a particular way and about particular content. Form never appears on its own; rather, it is always incorporated in a particular matter.

For this reason, if logic wishes to operate on pure form, it

cannot do it using ordinary language: it needs an artificial language, especially constructed to reflect logical form in isolation – separately from all concrete content, but without thereby forgetting that in fact, in the spontaneous use of reasoning, that form always appears giving shape to some content. Put another way: form dispenses with – it abstracts – specific content, not the idea of content.’ [7].

This fragment, dedicated to explaining the sense in which the content and form of a piece of reasoning are an object of analysis for formal logic, gives us an idea of the importance Deaño attributed to what he called ‘the spontaneous use of language’. According to Deaño, in this use, form is always such inasmuch as it relates to some content, and therefore ‘always appears giving form to some content.’ It is often said that through ordinary reasoning we are able to adopt or assume new beliefs, starting from others we already have. But ordinary reasoning shows us one even more defining feature: through it, we can not only accumulate new beliefs, but also affect processes of transformation and retraction of previously accumulated and accepted beliefs, information and knowledge. This phenomenon proves definitive because in it we see that the inferential rules which explain the adoption of new beliefs allow us to act with them in sporadic and temporary ways, which is why it is often said that human reasoning is clearly suppositional.

This aspect of inferential rules really attracted Deaño's attention, and is an underlying element not only of the preceding description of the spontaneous use of reasoning, but of characteristic aspects of his thought, which foreseeably, had it been possible, would have continued to develop as part of the line of investigation that he was set on exploring. And it is in this sense that we should understand his criticism of Rudolf Carnap's principle of tolerance, which he found ‘repressive’ in its first formulation, since if language is neither fixed, nor a given (after all, we find ourselves permanently in a position of self- management of it and of ourselves when we explore what we are through informative communication), we are led to the idea that the most deep-rooted aspect of it is none other than the constant activity of linguistic and philosophical clarification and creation in which we find ourselves immersed, as well as to an appreciation of the potential scholarly worth of that.

Thus, the first formulation of that principle seemed repressive to him since it appeared to indicate that, although we enjoy complete freedom in the use of language, that freedom could lead the speaker to meaninglessness and logical error. Analysing Deaño, we can infer that, in his judgment, those extremes have been held as undesirable (‘a form of libertinism...’ - says Deaño - ‘...which in logic is associated with

meaninglessness') which is why they tend to be too quickly considered as though they were unproductive and even scientifically irrelevant: a serious error of interpretation.

Once again, a political and moral simile in the analysis of the relationship between philosophy and logic, leads its author to proffer unexpected criticism, which, as I see it, finds its explanation in the reasons that led Gustavo Bueno to identify the galaico-asturiano (Galician-Asturian) Deaño as a prominent member of what he named the Spanish philosophical generation of the change ('la generación filosófica española del cambio'), with the aim of establishing a criterion of historiographical classification. That generation would be succeeded by the silent generation, according to Bueno. This latter aspect of reasoning to which we have alluded (i.e. the relationship between form and content) constitutes the key to the spontaneous use of ordinary reasoning and gives us an idea of the inextricable relationship between the permanent form of content, and the best interests reasoning – the true protagonist in our daily lives. And it was precisely this type of reasoning which was so central for Deaño when he insisted that the exaltation of ordinary language must not blind us to one of its primordial characteristics, that is, that it is impossible to avoid its tendency to keep developing. This very idea – which he associated on this occasion with constructivism – may possibly be the key to understanding the political simile of self-management in which he rooted his approach, convinced as he was of the essential creativity of ordinary language and of those of us who, so to speak, continuously self-manage our unrelentingly autopoietic natures.

5 Conclusions

At the risk of being mistaken, if we had to choose a line of investigation in which Deaño's approach would not only find a reasoned interpretation – in addition to a coherent accommodation –, but which also allowed us to make a counterfactual forecast as to the reach his findings might have attained, it would be none other than that set down by Jonathan E. Adler and Lance J. Rips [1]. Reasoning is a form of non-accidental transition of thought. 'Non-accidental transition' because the beliefs, information, knowledge, and so forth, provide the foundations or reasons for reaching another thought. This form of transition can be predicated on both theoretical reasoning (which addresses the question of whether p is the case) and practical reasoning (which addresses the question of whether it is the case that we must believe p). From this elemental distinction, Adler and Rips elaborate a wide-ranging explanation of the history of reasoning [1]. Many aspects relating to their compilation (the selection of authors and their backgrounds in particular disciplines, the themes, the design of the index) could be used to analyse the scientific relevance of Deaño's approach.

Here is one example: Gilbert Harman's fundamental assertion, made in 1986 [15] according to which theoretical reasoning implies the activity of revising the beliefs we have, but not the rules of logic or implication, is one of the ideas we find in the work of Deaño. However, we can go further. Deaño not only established a clear distinction between the psychological elements, that of intentionality and those elements integral to the medium into which inferential production in its specific epistemological projection is converted, he also insisted on the importance and particularity of content in the ordinary formation of inferences, as well as on the characteristics of the most suitable formal-logical analysis as a function of the particularities of that content, the permanent substantive and/or structural modification of which continuously affects the content (i.e. producing, substituting, modifying beliefs) but also the form (i.e., reorganizing, reinterpreting, readjusting, and so forth in a different manner, and to a different degree, bodies of belief).

Deaño's philosophical influence seems to have continued to have a clear impact on the psychology of reasoning, where his approach was examined and acclaimed, for example, during a cycle of lectures, 'Psychology as Science', held at the Fundación de Investigaciones Marxistas in Madrid, from 9-18 May, 1982. At that cycle, Delval dedicated his dissertation to Deaño, and focused on the consequences derived from the reasoning tasks of Johnson-Laird and Peter Wason in 1970.

Those three questions that Deaño posed to himself with the aim of arriving at the precision tools needed to capture the secret of how ordinary reasoning worked, might have been transfigured by Rips' 1975 work on the psychology of reasoning and deduction [23], together with those of Nisbett, Krantz, and Kunda in 1983 [19], and later, those of Carey, in 1985 [4], among others. Why? Because the description of the ordinary use of reasoning would have led him to wonder – along with the authors mentioned – what turns a property (a piece of content) into an (inferentially) projectable property? What makes a case generalizable? And multiple cases? How do adults project the properties of one category of animal onto another category? Does the homogeneity of categories have an effect on that projection or transition leading to the production of strong inferences?

This latter point [14] seems to be contradictory to Deaño's interest in reflecting on the possibility conditions of logic, which he located neither in mental acts, nor in ideal entities, but in principles. However, it was his analysis of the manner in which logic is rooted in everyday life (and in the content of premises) that led him to examine the cases in which it is shown that the inferences made by human subjects diverge from normative models [20]. This is why Deaño insisted that logic is rooted in everyday life (real or imagined), and did so using the analysis of famous literary extracts.

Acknowledgements

This work was possible thanks to a contract funded as part of the 'Juan de la Cierva' programme (Reference JCI-2011-09425) and to the project FFI2013-46361-R funded by the Spanish Ministry for the Economy and Competitiveness.

References

1. Adler JE and Rips, LJ (Eds): Reasoning. Studies of Human Inference and Its Foundations. Cambridge, MA, Cambridge University Press 2009.
2. Blanco, JL: La recepción de la filosofía analítica en España. Isegoría. Revista de filosofía moral y política 1991, 3:138-146.
3. Bueno, G: Lógica analítica y lógica dialéctica. Tesela no. 15, on 9 February 2010 in Fundación Gustavo Bueno accessible at: www.fgbueno.es/med/tes/t015.htm (last access on 3 November 2013)
4. Carey, S: Conceptual change in childhood. Cambridge, MA, MIT Press 1985.
5. Deaño, A: Introducción a la lógica formal. Alianza Editorial, Madrid 1974.
6. Deaño, A: Pensamiento, comunicación y lenguaje. Convivium 1971, 34:26-53.
7. Deaño, A: Lógicas no clásicas. In Diccionario de filosofía contemporánea. Edited by Quintanilla M, Ediciones Sígueme 1976:263-264.
8. Deaño, A: Lógica formal, lógica dialéctica by H. Lefebvre. Revista de Occidente 1972, 109:120-123.
9. Deaño, A: Análisis y dialéctica: la razón de unas páginas. Revista de Occidente 1974, 138:129-149.
10. Deaño, A: Las concepciones de la lógica. Taurus 1980.
11. Delval Merino, JA: Lógica y psicología del razonamiento. In Investigaciones sobre lógica y psicología. Edited by Delval JA, Alianza Universidad 1977.
12. François, F: Le Langage. In Encyclopédie de la Pléiade, Gallimard 1968:1-19.
13. Fishburn, PC: Utility theory for decision making. Wiley 1970.
14. Heit, E: Properties of inductive reasoning. Psychonomic Bulletin & Review 2000, 7:569-592.
15. Harada Olivares, E: Argumentos, formalización y lógica informal. Ciencia ergo sum 2009, 16:125-136.
16. Harman, G: Change in View. Principles of Reasoning. The MIT Press 1986.
17. López Brugos, JA: Mis concepciones de "Las Concepciones de la Lógica" de Alfredo Deaño. El Basilisco 1980, 11:57-72.
18. Muguerza, J: El problema de Dios en la filosofía analítica. Revista de Filosofía 1966 vol. XXV 96-99:294.

19. Nisbett, RE, Krantz DH, Jepson C, and Kunda, Z: The use of statistical heuristics in every-day inductive reasoning. *Psychological Review* 1983, 90:339-363.
20. Osherson DN, Smith EE, Wilkie O, López A, and Shafir E: Category-based induction. *Psychological Review* 1990, 97:185- 200.
21. Pradera J: Ha muerto el filósofo Alfredo Deaño. *El País* 26 January 1978.
22. Rato MA: Me confesé en el Corazón de María con una revista pornográfica en el bolsillo. *La Nueva España-Diario Independiente de Asturias* 23 January 2011.
23. Rips LJ: Inductive judgments about natural categories. *Journal of Verbal Learning & Verbal Behavior* 1975, 14:665-681.
24. Shaff A: Lenguaje y conocimiento. *Grijalbo* 1967:178-179.
25. Closing of the Conference on Philosophy in homage to Alfredo Deaño. *El País*, 27 April 1978.
26. Aranguren JL: El filósofo es un transgresor. *El País*, 12 April 1978. J. 2002, 'Epistemological custard pies from functional brain imaging', *Philosophy of Science* 69, 3, S59S71.