



HAL
open science

Semantics, Cross-Cultural Style

Edouard Machery, Ron Mallon, Shaun Nichols, Stephen Stich

► **To cite this version:**

Edouard Machery, Ron Mallon, Shaun Nichols, Stephen Stich. Semantics, Cross-Cultural Style. *Cognition*, 2003. <ijn_00000399>

HAL Id: ijn_00000399

https://hal.science/ijn_00000399v1

Submitted on 24 Sep 2003

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

Semantics, Cross-Cultural Style

Edouard Machery (Sorbonne)

Ron Mallon (University of Utah)

Shaun Nichols (College of Charleston)

Stephen P. Stich (Rutgers University)

Abstract

Theories of reference have been central to analytic philosophy, and two views, *the descriptivist view of reference* and *the causal-historical view of reference*, have dominated the field. In this research tradition, theories of reference are assessed by consulting one's intuitions about the reference of terms in hypothetical situations. However, recent work in cultural psychology (e.g., Nisbett et al. 2001) has shown systematic cognitive differences between East Asians and Westerners, and some work indicates that this extends to intuitions about philosophical cases (Weinberg et al. 2001). In light of these findings on cultural differences, two experiments were conducted which explored intuitions about reference in Westerners and East Asians. Both experiments indicate that, for certain central cases, Westerners are more likely than East Asians to report intuitions that are consistent with the causal-historical view. These results constitute *prima facie* evidence that semantic intuitions vary from culture to culture, and the paper argues that this fact raises questions about the nature of the philosophical enterprise of developing a theory of reference.

Key words: semantic intuitions, proper names, reference, cultural differences, Kripke, descriptivism, causal-historical theory.

1. Introduction

Theories of meaning and reference have been at the heart of analytic philosophy since the beginning of the twentieth century. Two views, *the descriptivist view of reference* and *the causal-historical view of reference*, have dominated the field. The reference of names has been a key issue in this controversy. Despite numerous disagreements, philosophers agree that theories of reference for names have to be consistent with our *intuitions* regarding to whom or what the names refer. Thus, the common wisdom in philosophy is that Kripke (1972/1980) has refuted the traditional descriptivist theories of reference by producing some famous stories which elicit intuitions that are inconsistent with these theories. In light of recent work in cultural psychology (Nisbett et al. 2001; Weinberg et al. 2001), we came to suspect that the intuitions that guide theorizing in this domain might well differ between members of East Asian and Western cultures. In this paper, we present evidence that probes closely modeled on Kripke's stories elicit significantly different responses from East Asians (Hong Kong undergraduates) and Westerners (American undergraduates), and we discuss their significance for the philosophical pursuit of a theory of reference.

1.1. Two Theories of Reference

Theories of reference purport to explain how terms pick out their referents. When we focus on proper names, two main positions have been developed, *the descriptivist view of reference* (e.g., Frege 1892, Searle 1958) and *the causal-historical view* associated with Kripke (1972/1980).

- Two theses are common to all descriptivist accounts of the reference of proper names¹:
 - D1.** Competent speakers associate a *description* with every proper name. This description specifies a set of properties.
 - D2.** An object is the referent of a proper name if and only if it *uniquely or best satisfies* the description associated with it. An object uniquely satisfies a

¹ There are a variety of ways of developing description theoretic accounts (e.g., Frege 1892, Searle 1958, Lewis 1970, Loar 1976, Searle 1983, Jackson 1998, Garcia-Carpintero 2000).

description when the description is true of it and only it. If no object entirely satisfies the description, many philosophers claim that the proper name refers to the unique individual that satisfies most of the description (Searle 1958, Lewis 1970). If the description is not satisfied at all or if many individuals satisfy it, the name does not refer.

- The causal-historical view offers a strikingly different picture (Kripke 1972/1980)²:
 - C1.** A name is introduced into a linguistic community for the purpose of referring to an individual. It continues to refer to that individual as long as its uses are linked to the individual *via a causal chain* of successive users: every user of the name acquired it from another user, who acquired it in turn from someone else, and so on, up to the first user who introduced the name to refer to a specific individual.
 - C2.** Speakers may associate descriptions with names. After a name is introduced, the associated description *does not play any role* in the fixation of the referent. The referent may *entirely* fail to satisfy the description.

1.2. The Gödel Case and the Jonah Case

There is widespread agreement among philosophers on the methodology for developing an adequate theory of reference. The project is to construct theories of reference that are consistent with our intuitions about the correct application of terms in fictional (and nonfictional) situations.³ Indeed, Kripke's masterstroke was to propose some cases that elicited widely shared intuitions that were inconsistent with traditional descriptivist theories. Moreover, it has turned out that almost all philosophers share the intuitions elicited by Kripke's fictional cases, including most of his opponents. Even contemporary descriptivists allow that these intuitions have falsified traditional forms of

² This picture has been refined in various ways (e.g., Devitt 1981, Salmon 1986, Devitt and Sterelny 1999, Soames 2001).

³ Philosophers typically assume that speakers know (perhaps implicitly) how the reference of proper names is picked out. The intuitive judgments of the speakers are supposed somehow to reflect that knowledge (Kripke 1972, 42, 91, Segal 2001).

descriptivism and try to accommodate them within their own sophisticated descriptivist frameworks (e.g., Evans 1973, Jackson 1998).

We present two of Kripke's central cases in greater detail and describe the corresponding descriptivist⁴ and causal-historical intuitions.

- The Gödel Case (Kripke 1972/1980, 83-92)

Kripke imagines a case in which, because of some historical contingency, contemporary competent speakers associate with a proper name, "Gödel", a description that is entirely false of the original bearer of that name, person *a*. Instead, it is true of a different individual, person *b*. Descriptivism implies that the proper name refers to *b* because *b* satisfies the description. The descriptivist intuition is that someone who uses "Gödel" under these circumstances is speaking about *b*. According to the causal-historical view, however, the name refers to its original bearer, since contemporary speakers are historically related to him. The Kripkean intuition is that someone who uses "Gödel" under these circumstances is speaking about *a*. According to Kripke (and many other philosophers), our semantic intuitions support the causal-historical view:

Suppose that Gödel was not in fact the author of [Gödel's] theorem. A man called 'Schmidt' (...) actually did the work in question. His friend Gödel somehow got hold of the manuscript and it was thereafter attributed to Gödel. On the [descriptivist] view in question, then, when our ordinary man uses the name 'Gödel', he really means to refer to Schmidt, because Schmidt is the unique person satisfying the description 'the man who discovered the incompleteness of arithmetic'. (...) But it seems we are not. We simply are not. (83-84)

- The Jonah Case (Kripke 1972/1980, 66-67)

Kripke imagines a case in which the description associated with a proper name, say "Jonah", is not satisfied at all. According to descriptivism, "Jonah" would then fail to

⁴ We use "descriptivism" to refer to the simple, traditional versions of descriptivism, and not to its recent, sophisticated elaborations. We call intuitions that are compatible with the causal-historical theory and incompatible with the traditional versions of descriptivism *Kripkean intuitions*. In contrast, we call those that are compatible with the traditional descriptivist theories and incompatible with the causal-historical theory *descriptivist intuitions*.

have a referent. The descriptivist intuition is that someone who uses the name under these circumstances isn't speaking about any real individual.⁵ On the contrary, on the causal-historical view, satisfying the description is not necessary for being the referent of a name. The Kripkean intuition is that someone can use the name to speak about the name's original bearer, whether or not the description is satisfied.⁶ Again, our intuitions are supposed to support the causal-historical view:

Suppose that someone says that no prophet ever was swallowed by a big fish or a whale. Does it follow, on that basis, that Jonah did not exist? There still seems to be the question whether the Biblical account is a legendary account of no person or a legendary account built on a real person. In the latter case, it's only natural to say that, though Jonah did exist, no one did the things commonly related to him.
(67)

1.3. Cultural variation in cognition and intuitions

Philosophers typically share the Kripkean intuitions and expect theories of reference to accommodate them. As we discuss more fully in section 3, we suspect that most philosophers exploring the nature of reference assume that the Kripkean intuitions are universal. For suppose that semantic intuitions exhibit systematic differences between groups or individuals. This would raise questions about whose intuitions are going to count, putting in jeopardy philosophers' methodology.⁷

Recent work in cultural psychology suggests, however, that one should be wary of simply assuming cultural universality without evidence. In an important series of experiments, Richard Nisbett and his collaborators have found large and systematic differences between East Asians (EAs) and Westerners (Ws) on a number of basic cognitive processes including perception, attention and memory. These groups also differ in the way they go about describing, predicting and explaining events, in the way they categorize objects and in the way they revise beliefs in the face of new arguments and evidence (for review, see Nisbett et al. 2001). This burgeoning literature in cultural

⁵ Or that the statement "Jonah exists" is false (given that the name has no referent).

⁶ Or that Jonah might have existed, whether or not the description is satisfied.

⁷ A few philosophers have acknowledged the possibility that there is variation in semantic intuitions (e.g., Dupre 1993, Stich 1990, 1996), but this possibility has not previously been investigated empirically.

psychology suggests that culture plays a dramatic role in shaping human cognition. Inspired by this research program, Weinberg et al. (2001) constructed a variety of probes modeled on thought experiments from the philosophical literature in epistemology. These thought experiments, like Kripke's hypothetical naming scenarios, were designed to elicit intuitions about the appropriate application of epistemic concepts. Weinberg et al. found that there do indeed seem to be systematic cross-cultural differences in epistemic intuitions. In light of these findings on epistemic intuitions, we were curious to see whether there might also be cross-cultural differences in intuitions about reference.

We lack the space to offer a detailed account of the differences uncovered by Nisbett and his colleagues. But it is important to review briefly some of the findings that led to the studies we will report here. According to Nisbett and his colleagues, the differences between EAs and Ws "can be loosely grouped together under the heading of holistic vs. analytic thought." Holistic thought, which predominates among East Asians, is characterized as "involving an orientation to the context or field as a whole, including attention to relationships between a focal object and the field, and a preference for explaining and predicting events on the basis of such relationships." Analytic thought, the prevailing pattern among Westerners, is characterized as "involving detachment of the object from its context, a tendency to focus on attributes of the object in order to assign it to categories, and a preference for using rules about the categories to explain and predict the object's behavior" (Nisbett et al. 2001, 293).

One range of findings is particularly significant for our project. The cross-cultural work indicates that EAs are more inclined than Ws to make categorical judgments on the basis of similarity; Ws, on the other hand, are more disposed to focus on causation in describing the world and classifying things (Norenzayan et al. 1999; Watanabe 1998 & 1999). This differential focus led us to hypothesize that there might be a related cross-cultural difference in semantic intuitions. For, on a description theory, the referent has to satisfy the description, but it need not be causally related to the use of the term. In contrast, on Kripke's causal-historical theory, the referent need not satisfy the associated description. Rather, it need only figure in the causal history (and in the causal explanation of) the speaker's current use of the word.

Given that Ws are more likely than EAs to make causation-based judgments, we predicted that when presented with Kripke-style thought experiments, *Westerners would be more likely to respond in accordance with causal-historical accounts of reference, while East Asians would be more likely to respond in accordance with descriptivist accounts of reference.*⁸ To test this hypothesis, we assembled a range of intuition probes to explore whether such differences might be revealed. The probes were designed to parallel the Jonah case and the Gödel case.

2. Experiments

Experiment 1

Method

Participants

19 undergraduates at the College of Charleston (13 females; 6 males) and 32 undergraduates from the University of Hong Kong (16 females; 16 males) participated. The University of Hong Kong is an English speaking university in Hong Kong, and the subjects were all fluent speakers of English. A standard demographics instrument was used to determine whether subjects were Western or East Asian.⁹ Using this instrument, all of the Charleston undergraduates were classed as W. Five of the Hong Kong undergraduates were classed as non-EA, leaving a total of 27 EA participants from Hong Kong (13 females; 14 males). One additional Hong Kong subject and one additional Charleston subject were excluded for failure to answer the questions.

Materials and Procedure

In a classroom setting, participants were presented with 4 probes counterbalanced for order. The probes were presented in English both in the USA and in Hong-Kong

⁸ There is a common concern that the labels ‘East Asian’ and ‘Western’ are too rough to do justice to the enormous diversity of cultural groups such labels encompass. We are sympathetic to this concern. However, the crudeness of these groupings does nothing to undermine the studies we present. On the contrary, if we find significant results using such crude cultural groupings, there is reason to believe more nuanced classifications should yield even stronger results.

⁹ In classifying subjects as East Asian or Western, we used the same ethnic identification questionnaire that Nisbett and his colleagues have used. In the second experiment, we used a simplified version of the questionnaire.

(similarly, in the second experiment). Two were modeled on Kripke's Gödel case (the Luttius probe and the Abdrak probe), and two were modeled on Kripke's Jonah case. However, there were materials problems with the Jonah-cases in this experiment, so we omit them from further discussion. The Luttius probe was as follows (see appendix for the Abdrak probe):

Suppose that there was an important Roman mathematician, Luttius, who is credited with an important mathematical theorem, commonly known as the Roman Theorem. The proof was preserved on a piece of parchment identifying Luttius as the person responsible for the theorem. The only thing that anyone believes about Luttius is that he devised the Roman Theorem. Now suppose that in fact, the person who devised the Roman Theorem was really Maxus, but his friend Luttius, who was also a mathematician, got hold of the manuscript and put his own name on it. In that case, if someone today says 'Luttius was a mathematician', is she really talking about:

- i. the Roman mathematician who actually devised the Roman Theorem or
- ii. the friend who put his name on the parchment?

Results and Discussion

Scoring

The scoring procedure was straightforward. Each question was scored binomially. An answer consonant with causal-historical accounts of reference (ii) was given a score of 1, the other answer (i) was given a score of 0. The scores were then summed, so the cumulative score could range from 0 to 2. Means and standard deviation for summary scores are shown in table 1.

	Score (SD)
Gödel cases	
Westerners	1.42 (.77)
East Asians	.65 (.75)

Table 1. Mean scores for experiment 1 (SD in parentheses)

On the Gödel cases, an independent samples *t*-test yielded a significant difference between EA and W participants ($t(43) = -3.366, p < .01$) (all tests two-tailed). Ws were more likely than EAs to give causal-historical answers. In light of the dichotomous nature of the underlying distributions, we also analyzed each item non-parametrically, and the results were largely the same. Ws were more likely than EAs to give causal-historical answers on both the Luttius probe ($\chi^2(1, N=45) = 3.942, p < .05$) and on the Abdrak probe ($\chi^2(1, N=45) = 9.644, p < .01$).

Thus, the experiment confirmed our prediction that Ws would be more likely than EAs to respond to the thought experiments in accordance with causal-historical accounts of reference. Since there were materials problems with the Jonah cases, this gave us an opportunity to attempt to replicate the results on the Gödel cases in a second experiment.

Experiment 2

For this experiment, we presented participants with new probes: 2 were modeled on the Gödel case (the Gödel probe and the Tsu Ch'ung Chih probe) and 2 on the Jonah case (the Attila probe and the Chan Wai Man probe).

Method

Participants

40 undergraduates at Rutgers University and 42 undergraduates from the University of Hong Kong participated. Nine non-W participants were excluded from the Rutgers sample, leaving a total of 31 W participants from Rutgers (18 females; 13 males). One non-EA subject was excluded from the Hong Kong sample, leaving a total of 41 EA

participants from Hong Kong (25 females; 16 males). One additional Hong Kong subject was excluded for failure to answer the demographic questions.

Materials and Procedure

The probes used in this experiment were similar to those used in experiment 1 with a few significant differences. First, they were more closely modeled on Kripke's own formulations (one probe, the Gödel probe, used Kripke's own story). In addition, one probe modeled on Kripke's Gödel case (the Tsu Ch'ung Chih probe) and one probe modeled on Kripke's Jonah case (the Chan Wai Man probe) used names and situations that were familiar to the EA subjects. This was intended to control for the possibility that the results of experiment 1 may result from the higher familiarity of W subjects with the names. (See appendix for probes.) Otherwise the procedure was the same as in Experiment 1.

Results and Discussion

Scoring

The scoring procedure followed that of experiment 1. Each question was scored binomially. An answer consonant with causal-historical accounts of reference was given a score of 1, the other answer was given a score of 0. The scores were then summed, so the cumulative score could range from 0 to 2. Means and standard deviation for summary scores are shown in table 2.

	Score (SD)
Gödel cases	
Westerners	1.13 (.88)
East Asians	.63 (.84)
Jonah cases	
Westerners	1.23 (.96)
East Asians	1.32 (.76)

Table 2. Mean scores for experiment 2 (SD in parentheses)

Independent samples *t*-tests yielded significant differences between EA and W participants on the Gödel cases ($t(70) = -2.55, p < .05$) (all tests two-tailed). Ws were more likely than EAs to give causal-historical responses. However, in the Jonah cases, there was no significant difference between EA and W participants ($t(69) = .486, n.s.$).

As in experiment 1, we analyzed the individual items nonparametrically. Again, the results were largely the same. Ws were more likely than EAs to give causal-historical responses on both the Tsu Ch'ung Chih probe ($\chi^2(1, N=72) = 3.886, p < .05$) and on the Gödel probe ($\chi^2(1, N=72) = 6.023, p < .05$).

Thus, as in Experiment 1, we found that probes modeled on Kripke's Gödel case (including one that used Kripke's own words) elicit culturally variable intuitions. As we had predicted, EAs tend to have descriptivist intuitions, while Ws tend to have Kripkean ones. However, our prediction that Ws would be more likely than EAs to give causal-historical responses on the Jonah cases was not confirmed. There are a number of possible explanations for this. Setting out the Jonah cases precisely requires a lengthy presentation (see appendix), so it's possible that our probes were simply too long and complex to generate interpretable data. Another, more interesting possibility hinges on the fact that in the Jonah cases, the descriptivist response is that the speaker's term fails to refer. It might be that for pragmatic reasons, both Ws and EAs reject the uncharitable interpretation that the speaker is not talking about anyone.

3. The End of the Innocence

Our central prediction was that, given Ws' greater tendency to make causation-based judgments, they would be more likely than EAs to have intuitions that fall in line with causal-historical accounts of reference. This prediction was borne out in both experiments. We found the predicted systematic cultural differences on one of the best known thought experiments in recent philosophy of language, Kripke's Gödel case. These findings raise a number of significant questions for future research. For instance, we predicted that Ws would be more likely than EAs to have Kripkean intuitions *because they are more likely to make causation-based judgments*. Although our results are consistent with this hypothesis, they fail to support it directly. For they do not establish unequivocally that the cultural difference results from a different emphasis on causation. In future work, it will be important to manipulate this variable more directly. In addition, our focus in this paper has been on intuitions about proper names, since proper names have been at the center of debates about semantics. However, it will be important to examine whether intuitions about the reference of other sorts of terms, for example natural kind terms (see, e.g., Putnam 1975), also exhibit systematic cross-cultural differences.

Although there are many empirical questions left open by our experiments, we think that the experiments presented here already point to significant philosophical conclusions. As we noted above, we suspect that philosophers employing these thought experiments take their own intuitions regarding the referents of terms, and those of their philosophical colleagues, to be universal. But our cases were modeled on one of the most influential thought experiments in the philosophy of reference, and we elicited culturally variable intuitions. Thus, we conclude that it is wrong for philosophers to assume a priori the universality of their own semantic intuitions.

Perhaps, however, philosophers do not assume the universality of semantic intuitions. In that case, philosophers of language need to clarify their project. One possibility is that philosophers of language would claim to have no interest in unschooled, folk semantic intuitions, including the differing intuitions of various cultural groups. These philosophers might maintain that, since they aim to find the *correct* theory of reference for proper names, only *reflective* intuitions, that is intuitions that are

informed by a cautious examination of the philosophical significance of the probes, are to be taken into consideration.

We find it *wildly* implausible that the semantic intuitions of the narrow cross-section of humanity that makes up Western academic philosophers are a more reliable indicator of the correct theory of reference (if there is such a thing, see Stich 1996, Ch. 1) than the differing semantic intuitions of other cultural or linguistic groups. Indeed, given the intense training and selection that undergraduate and graduate students in philosophy have to go through, there is good reason to suspect that the alleged *reflective* intuitions may be *reinforced* intuitions. In the absence of a principled argument about why philosophers' intuitions are superior, this project smacks of narcissism in the extreme.

A more charitable interpretation of the work of philosophers of language is that it is a proto-scientific project modeled on the Chomskyan tradition in linguistics. Such a project would employ intuitions about reference to develop an empirically adequate account of the implicit theory that underlies ordinary uses of names. If this is the correct interpretation of the philosophical interest in the theory of reference, then our data are especially surprising, for there is little hint in philosophical discussions that names might work in different ways in different dialects of the same language or in different cultural groups who speak the same language. So, on this interpretation, our data indicate that philosophers must radically revise their methodology. Since the intuitions philosophers pronounce from their armchairs are likely to be a product of their own culture and their academic training, in order to determine the implicit theories that underlie the use of names across cultures, philosophers need to get out of their armchairs. And this is far from what philosophers have been doing for the last several decades.

Acknowledgements

We are grateful to Vivian Chu, Max Deutsch, Tim German, Chad Hansen, Ping Lau, and Philippe Schlenker for advice, discussion and helpful comments.

References:

- Burge, T. (1973). Reference and proper names. *The Journal of Philosophy*, 70, 425-439.
Reprinted in P. Ludlow, ed., 1997.
- Devitt, M. (1981). *Designation*, New York: Columbia UP.
- Devitt, M., & Sterelny, K. (1999). *Language and reality: An introduction to the Philosophy of Language*, Second edition, Cambridge, MA: MIT Press.
- Dupré, J. (1993). *The Disorder of Things: Metaphysical Foundations of the Disunity of Science*, Cambridge, MA: Harvard UP.
- Evans, G. (1973). The Causal Theory of Names. *Proceedings of the Aristotelian Society*, Supp. 47, 187-208. Reprinted in G. Evans, 1985, *Collected Papers*, Oxford: OUP, and P. Ludlow, ed., 1997.
- Frege, G. (1892/1948). On sense and Reference. Translated by M. Black. *The Philosophical Review*, 207-230. Reprinted in P. Ludlow, ed., 1997.
- Garcia-Carpintero, M. (2000). A Presuppositional Account of Reference Fixing. *The Journal of Philosophy*, 97, 3, 109-147.
- Geurts, B. (1997). Good news about the description theory of names. *Journal of Semantics*, 14, 319-348.
- Jackson, F. (1998). Reference and Description Revisited. *Philosophical Perspectives*, 12, *Language, Mind, and Ontology*, 201-218.
- Kripke, S. (1972/1980). *Naming and Necessity*, Cambridge, MA: Harvard UP.
- Lewis, D. (1970). How to Define Theoretical Terms. *The Journal of Philosophy*, 67, 427-446.
- Loar, B. (1976). The semantics of singular terms. *Philosophical Studies*, 30, 353-377.
- Longobardi, G. (1994). Reference and proper names : A theory of N-movement in syntax and logical form. *Linguistic Inquiry*, 25, 4, 609-665.
- Ludlow, P. (ed.). (1997). *Readings in the philosophy of language*, Cambridge, MA: MIT Press.
- McDowell, J. (1977). The sense and reference of a proper name. *Mind*, 86, 159-189.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic vs. analytic cognition. *Psychological Review*, 108, 291-310.

- Norenzayan, A., Smith, E., & Kim, B., 2002. Cultural Preferences for Formal versus Intuitive Reasoning. *Cognitive Science*, 26, 653-684.
- Putnam, H. (1975), The Meaning of "Meaning". Reprinted in H. Putnam, 1975, *Philosophical papers: Vol. 2, Mind, language, and reality*, New York: CUP.
- Recanati, F. (1993). *Direct reference, From language to thought*, Oxford: Blackwell.
- Salmon, N. (1986). *Frege's puzzle*, Cambridge, MA: MIT Press.
- Searle, J. (1958). Proper Names. *Mind*, 67, 166-173. Reprinted in P. Ludlow, ed., 1997.
- Searle, J. (1983). *Intentionality : An Essay in the philosophy of mind*, Cambridge: CUP.
- Segal, G. (2001). Two Theories of Names. *Mind and Language*, 16, 5, 547-563.
- Soames, S. (2001). *Beyond necessity: The unfinished semantic agenda of Naming and Necessity*, New York: OUP.
- Stich, S. (1990). *The Fragmentation of reason*, Cambridge, MA: MIT Press.
- Stich, S. (1996). *Deconstructing the mind*, Oxford: OUP.
- Strawson, P. (1950). On referring. *Mind*, 59, 320-344.
- Watanabe, M. (1998). Styles of reasoning in Japan and the United States: Logic of Education in two cultures. Paper presented at the American Sociological Association Annual Meeting, San Francisco, August, 1998.
- Watanabe, M. (1999). *Styles of reasoning in Japan and the United States: Logic of education in two cultures*. Unpublished Ph.D. thesis, Columbia University.
- Weinberg, J., Nichols, S., & Stich, S. (2001). Normativity and Epistemic Intuitions. *Philosophical Topics*, 29, 1&2, 429-459.

Appendix:

Second probe of Experiment 1

Suppose that there was an ancient Babylonian, Abdrak the Great, and that historians maintain that all that is known about Abdrak is that he was a great king who conquered most of the Middle East and that he died at the height of his power because of a respiratory infection. Now suppose that there was really a Babylonian king who conquered most of the Middle East, and who died at the height of his power. All these facts are true. But in fact, his name was ‘Raffo the Great’ and not ‘Abdrak the Great’: ‘Abdrak’ was the name of the king’s brother who outlived the king and forced the scribes to change the records to indicate that he was responsible for the conquest of the Middle East. In that case, if someone today says ‘Abdrak was from Babylonia’, is he really talking about:

- i. the person who really conquered the Middle East or
- ii. the brother of the person who conquered the Middle East?

Gödel-cases for Experiment 2:

Ivy is a high school student in Hong Kong. In her astronomy class she was taught that Tsu Ch’ung Chih was the man who first determined the precise time of the summer and winter solstices. But, like all her classmates, this is the only thing she has heard about Tsu Ch’ung Chih. Now suppose that Tsu Ch’ung Chih did not really make this discovery. He stole it from an astronomer who died soon after making the discovery. But the theft remained entirely undetected and Tsu Ch’ung Chih became famous for the discovery of the precise times of the solstices. Many people are like Ivy; the claim that Tsu Ch’ung Chih determined the solstice times is the only thing they have heard about him. When Ivy uses the name “Tsu Ch’ung Chih,” is she talking about:

- (A) the person who really determined the solstice times?
or
(B) the person who stole the discovery of the solstice times?

Suppose that John has learned in college that Gödel is the man who proved an important mathematical theorem, called the incompleteness of arithmetic. John is quite good at mathematics and he can give an accurate statement of the incompleteness theorem, which he attributes to Gödel as the discoverer. But this is the only thing that he has heard about Gödel. Now suppose that Gödel was not the author of this theorem. A man called “Schmidt” whose body was found in Vienna under mysterious circumstances many years ago, actually did the work in question. His friend Gödel somehow got hold of the manuscript and claimed credit for the work, which was thereafter attributed to Gödel. Thus he has been known as the man who proved the incompleteness of arithmetic. Most people who have heard the name “Gödel” are like John; the claim that Gödel discovered the incompleteness theorem is the only thing they have ever heard about Gödel. When John uses the name “Gödel,” is he talking about:

(A) the person who really discovered the incompleteness of arithmetic?

or

(B) the person who got hold of the manuscript and claimed credit for the work?

Jonah-cases for Experiment 2

In high school, German students learn that Attila founded Germany in the second century A.D. They are taught that Attila was the king of a nomadic tribe that migrated from the east to settle in what would become Germany. Germans also believe that Attila was a merciless warrior and leader who expelled the Romans from Germany, and that after his victory against the Romans, Attila organized a large and prosperous kingdom.

Now suppose that none of this is true. No merciless warrior expelled the Romans from Germany, and Germany was not founded by a single individual. Actually, the facts are the following. In the fourth century A.D., a nobleman of low rank, called “Raditra”, ruled a small and peaceful area in what today is Poland, several hundred miles from Germany. Raditra was a wise and gentle man who managed to preserve the peace in the small land he was ruling. For this reason, he quickly became the main character of many stories and legends. These stories were passed on from one generation of peasants to the next. But often when the story was passed on the peasants would embellish it, adding

imaginary details and dropping some true facts to make the story more exciting. From a peaceful nobleman of low rank, Raditra was gradually transformed into a warrior fighting for his land. When the legend reached Germany, it told of a merciless warrior who was victorious against the Romans. By the 8th century A.D., the story told of an Eastern king who expelled the Romans and founded Germany. By that time, not a single true fact remained in the story.

Meanwhile, as the story was told and retold, the name “Raditra” was slowly altered: it was successively replaced by “Aditra”, then by “Arritrak” in the sixth century, by “Arrita” and “Arrila” in the seventh and finally by “Attila”. The story about the glorious life of Attila was written down in the 8th century by a scrupulous Catholic monk, from whom all our beliefs are derived. Of course, Germans know nothing about these real events. They believe a story about a merciless Eastern king who expelled the Romans and founded Germany.

When a contemporary German high school student says “Attila was the king who drove the Roman from Germany,” is he actually talking about the wise and gentle nobleman, Raditra, who is the original source of the Attila legend, or is he talking about a fictional person, someone who does not really exist?

(A) He is talking about Raditra.

(B) He is talking about a fictional person who does not really exist.

Lau Mei Ling is a high school student in the Chinese city of Guangzhou. Like everyone who goes to high school in Guangzhou, Mei Ling believes that Chan Wai Man was a Guangdong nobleman who had to take refuge in the wild mountains around Guangzhou in the 11th century A.D, because Chan Wai Man was in love with the daughter of the ruthless Government Minister Lee, and the Minister did not approve. Everyone in Lau Mei Ling’s high school believes that Chan Wai Man had to live as a thief in the mountains around Guangzhou, and that he would often steal from the rich allies of the Minister Lee and distribute their goods to the poor peasants.

Now suppose that none of this is true. No Guangdong nobleman ever lived in the mountains around Ghangzhou, stealing from the wealthy people to help the peasants. The real facts are the following. In one of the monasteries around Guangzhou, there was a helpful monk called “Leung Yiu Pang”. Leung Yiu Pang was always ready to help the peasants around his monastery, providing food in the winter, giving medicine to the sick and helping the children. Because he was so kind, he quickly became the main character of many stories. These stories were passed on from one generation of peasants to the next. Over the years, the story changed slowly as the peasants would forget some elements of the story and add other elements. In one version, Leung Yiu Pang was described as a rebel fighting Minister Lee. Progressively the story came to describe the admirable deeds of a generous thief. By the late 14th century, the story was about a generous nobleman who was forced to live as a thief because of his love for the Minister’s daughter. At length, not a single true fact remained in the story.

Meanwhile, the name “Leung Yiu Pang” was slowly altered: it was successively replaced by “Cheung Wai Pang” in the 12th century, “Chung Wai Man” in the 13th, and finally by “Chan Wai Man”. The story about the adventurous life of Chan Wai Man was written down in the 15th century by a scrupulous historian, from whom all our beliefs are derived. Of course, Mei Ling, her classmates and her parents know nothing about these real events. Mei Ling believes a story about a generous thief who was fighting against a mean minister.

When Mei Ling says “Chan Wai Man stole from the rich and gave to the poor”, is she actually talking about the generous monk, Leung Yiu Pang, who is the original source of the legend about Chan Wai Man, or is she talking about a fictional person, someone who does not really exist?

- (A) She is talking about the generous monk, Leung Yiu Pang.
- (B) She is talking about a fictional person who does not really exist.