Introduction

Nomadic Concepts—Biological Concepts and Their Careers beyond Biology

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ABSTRACT

This article introduces a collection of studies of biological concepts crossing over to other disciplines and nonscholarly discourses. The introduction discusses the notion of *nomadic concepts* as introduced by Isabelle Stengers and explores its usability for conceptual history. Compared to traveling (Mieke Bal) and interdisciplinary (Ernst Müller) concepts, the idea of nomadism shifts the attention from concepts themselves toward the mobility of a concept and its effects. The metaphor of nomadism, as outlined in the introduction, helps also to question the relation between concepts' movement and the production of boundaries. In this way conceptual history can profit from interaction with translation studies, where similar processes were recently discussed under the notion of cultural translation.

KEYWORDS

biology, history of concepts, history of science, nomadic concepts, translation

The conceptual history of human and biological sciences has attracted more and more attention from historians and philosophers of science in recent years. Starting with the projects of *Archiv für Begriffsgeschichte: Bausteine zu einem historischen Wörterbuch der Philosophie* (Archive for Conceptual His-

tory: Elements of the Historical Dictionary of Philosophy) and *Historisches Wörterbuch der Philosophie* (Historical Dictionary of Philosophy),¹ various disciplines have been scrutinized in terms of their conceptual frameworks in a diachronic perspective, with a special interest in the way their respective concepts were developed, modeled, and molded into the ever tighter communication networks we now know as disciplines. In a recent dictionary of biological concepts, for instance, Georg Toepfer has shown that major changes in biological theory in the nineteenth century notwithstanding, biologists assimilated and adopted concepts originating as far back as antiquity.² Engaging with the history of such concepts is fundamental to be able to understand the development and trajectories of disciplines as we know them today.

Such projects more often than not focus on disciplinary networks as a point of departure. Recently, a group connected to Ernst Müller at the Center for Literary and Cultural Research in Berlin named another category called interdisciplinary concepts as the field of inquiry.³ The thematic group of articles presented here, however, takes yet another step forward, taking not the concepts but rather their movement across disciplinary boundaries as a starting point and evaluating the impact caused by their movement—for concepts themselves and on the cultural fields and disciplines they cross. Nomadic (Isabelle Stengers) or traveling (Mieke Bal) concepts move across disciplines, being imbued with new or changed meanings and at the same time retaining traces of old meanings while crossing these boundaries. They are thus both stabilizers and agents of cultural productivity, cross-disciplinary fertilizers as well as representatives of disciplinary conservatism. Concepts are neither invariable “things”, nor do they change only in time. The way they function and change depends on their cultural embedding: a concept in one discipline may operate differently than in another, making travel from one milieu to another a factor of modification. Concepts can be thus metaphorized as being plastic. They are a kit providing support to some arguments, but at the same time not endlessly formable, since they have a tendency to resist ways of use beyond the scope of their semiotic boundaries. More technically, one could speak about

1. Joachim Ritter and Karlfried Gründer, eds., *Historisches Wörterbuch der Philosophie*, 13 vols. (Basel: Schwabe, 1971–2007). The journal *Archiv für Begriffsgeschichte*, established in 1955 by Erich Rothacker, was seen as a forerunner for a dictionary of basic concepts in philosophy; this aim, together with the second part of the title, was dropped after Rothacker's death in 1965.

2. Georg Toepfer, *Historisches Wörterbuch der Biologie: Geschichte und Theorie der biologischen Grundbegriffe* [Historical dictionary of biology: History and theory of biological key concepts], 3 vols. (Darmstadt: Meiner Verlag, 2011).

3. See Ernst Müller, “Introduction: Interdisciplinary Concepts and Their Political Significance,” *Contributions to the History of Concepts* 6, no. 2 (2011): 42–52, doi: <http://dx.doi.org/10.3167/choc.2011.060203>.

such concepts as always underdetermined or, to use Yehuda Elkana's metaphor, constantly in flux.⁴

It is not difficult to argue, however, that concepts in general are subject to continuous movement. With the exception of those concepts existing in a single publication or in the vocabulary of a single author, they move through authors, communities, disciplines, languages, time, and/or space. Similarly, they enter different media in which they are confined to particular modes of presentation. Sometimes they become rephrased and sometimes they remain "untranslatable" as a recently published dictionary suggests.⁵ Our collection of studies, originating from a conference with the same title as this introduction held in October 2012 in Marburg,⁶ gives attention precisely to these forms of nomadization and circulation of concepts using the example of biological concepts crossing over to other disciplines and nonscholarly discourses.⁷ In this context, conceptual history enables concentration not only on the changes of the concept itself, but on the epistemological transformations caused by such transgressions as well.

The genealogy and idea of *nomadic concepts* as outlined below aligns our project with the idea of "interdisciplinary concepts" recently introduced by Ernst Müller,⁸ who proposes a new "methodical frame for research" concentrating on the interdisciplinary character of concepts, particularly those in the natural sciences. The main interests are "concepts that, in circulation between different disciplines, display different semantics in each discipline,"⁹ while concepts that were defined by individual disciplines and became cultural key

4. Yehuda Elkana, "Helmholtz' 'Kraft': An Illustration of Concepts in Flux," *Historical Studies in the Physical Sciences* 2 (1970): 263–298.

5. Barbara Cassin, ed., *Vocabulaire européen des philosophies: Dictionnaire des intraduisibles* [European vocabulary of philosophies: Dictionary of untranslatables] (Paris: Seuil/Le Robert, 2004).

6. "Nomadic Concepts: Biological Concepts and Their Careers beyond Biology," Second Annual Conference of Leibniz Graduate School for Cultures of Knowledge in Central European Transnational Contexts, Herder Institute for Historical Research on East Central Europe—Institute of the Leibniz Association in cooperation with the Department of History, Central European University, Budapest, accessed 10 October 2014, http://www.herder-institut.de/fileadmin/user_upload/pdf/Aktuelles/tagungen/Nomadic_Concepts_Program.pdf.

7. A second collection of articles concerned with nomadic concepts within biological sciences has been published in *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 48, Part B (2014).

8. Müller, "Introduction," and other articles published in the special panel in *Contributions to the History of Concepts* 6, no. 2 (2011); see also the e-journal *Forum Interdisziplinäre Begriffsgeschichte*, published in Berlin since 2012, accessed 10 October 2014, at <http://www.zfl-berlin.org/forum-begriffsgeschichte.html>.

9. Müller, "Introduction," 43.

concepts are only occasionally included. The very notion of interdisciplinarity focuses the lenses of inquiry on disciplines and, as Müller puts it, “transdisciplinary discursive orders,”¹⁰ thus leaving other, nonscientific, concept-forming fields of knowledge aside. As this group of articles shows, not only is the circulation of biological concepts in nonscientific arenas as formative as that between disciplines; it also allows problematization of the very concept of disciplines itself. While we agree with many of the points raised by Müller and his colleagues, we are interested more in the routes of concepts,¹¹ their role in shifting and propelling semantics, or even in mediating (with) existing fields to open new ones. While Müller’s “interdisciplinary concepts” focus on concepts, the discussion of *nomadic concepts* here shifts the attention toward roaming and traveling, or simply the mobility of a concept and its effects. We feel that the two approaches address the same problem, namely, how to deal with tools developed for disciplinary analyses in a deconstructivist, poststructuralist manner. This apparent congruence of both projects has, however, not only a different name, but also distinct roots and routes—in other words, a different concept of the “history of concepts” in general.

Traveling and Nomadic Concepts

In an introduction to her seminal edited collection on the history of biological concepts, Isabelle Stengers introduced the idea of *concepts nomades* (nomadic concepts), characterized by a movement that is based on constant exchange between various disciplines. She further asks: “Why do certain scientific concepts lead a nomadic life, from one science to the next? What do they become as they travel from a “hard” science to a “soft” science, or the other way round? Does their meaning stay the same? Do they help to unify the field of the sciences? Or do they rather complicate the picture?”¹² The nomadic lives of concepts have been presented and interpreted in the contributions to Stengers’s collection through diverse examples ranging from “calculus” to “transfer”, providing a lively, dynamic picture of exchange that blurs the commonly accepted boundaries between entities called disciplines. As Stengers accentuates, her key

10. Ibid., 44.

11. For the distinction between routes and roots of concepts, see Paul Gilroy, *The Black Atlantic: Modernity and Double Consciousness* (Cambridge, MA: Harvard University Press, 1993), chap. 1.

12. Isabelle Stengers, ed., *D’une science à l’autre: Des concepts nomades* [From one science to another: Nomadic concepts] (Paris: Seuil, 1987); translation from Manuela Rossini, “Introduction: Energy as a Nomadic Concept,” in *Energy Connections: Living Forces in Inter/Intra-action*, Manuela Rossini, ed. (London: Open Humanities Press, 2012), accessed 29 June 2013, <http://www.livingbooksaboutlife.org/books/Energy/Introduction>.

term to describe this movement, “propagation of concepts”, can be understood in two ways: in “propagation of heat”, it resembles distribution with dilution of the phenomenon, while in “epidemic propagation” it may stand for concepts that behave like bacteria such that the newly “infected” body becomes an autonomous center of further propagation.¹³ This chain reaction-like process is, according to Stengers, the ideal type of conceptual movement in science, even if, unlike bacteria, concepts should be understood as flexible entities.¹⁴ In a publication from the same year as Stengers’s, Christian Girard saw nomadic concepts as agents participating in a movement of rationality and as vectors of the exploration of multiple and heterogenic fields.¹⁵ He stressed that in such a setting, a discipline should not be characterized as a stable entity or as an “autonomous conceptual system”, but rather as a dynamic field of conceptual relations—a “place of production of fixed concepts, continuously intertwined with nomadic concepts; a field of coexistence of multiplicities which can, without question, ‘make a system,’ but never in an integral and totalizing sense.”¹⁶

Our project regards nomadic concepts as factors of change, based on the very concept of the nomad itself. Gilles Deleuze and Félix Guattari (nomadology) or, more recently, Rosi Braidotti (nomadic thought, nomadic subject, nomadic ethics) have also used the metaphor of nomadism to describe non-standard, antiestablishment modes of philosophy.¹⁷ Re-evaluating Kant’s famous idea of antibourgeois skeptics being destructive, never-settled nomads,¹⁸ they saw nomadism as a positive asset. Nomadic thinking was thus conceptualized as a way of thinking that transgressed traditional epistemological spheres and was therefore not limited by any boundaries, even the ones it had established itself. Nomadic thought, especially for Braidotti, was also a way to react against any form of methodological nationalism and Eurocentrism, which brought it closer to the conceptual remodeling proposed by postcolonial theory.¹⁹

While it is not our intention to follow this particular path—however tempting and rewarding it may be—the cultural-geographical aspect of no-

13. Stengers, *D’une science à l’autre*, 17–18.

14. *Ibid.*, 19.

15. Christian Girard, *Architecture et concepts nomades* [Architecture and nomadic concepts] (Brussels/Liège: Pierre Mardaga, 1986), 197.

16. *Ibid.*, 213; unless stated otherwise, all translations by the authors.

17. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987); for example, see Rosi Braidotti, *Nomadic Theory: The Portable Rosi Braidotti* (New York: Columbia University Press, 2011).

18. Immanuel Kant, “Vorrede,” in *Critik der reinen Vernunft* [Critique of pure reason], 2nd ed. (Riga: Johann Friedrich Harknoch, 1781), 9.

19. Rosi Braidotti, “Nomadism: Against Methodological Nationalism,” *Policy Futures in Education* 8, nos. 3–4 (2010): 408–418, doi: <http://dx.doi.org/10.2304/pfie.2010.8.3.408>.

madic concepts requires a special kind of attention. The history of concepts has paid too little attention to the known phenomenon of epistemic violence. The work of Reinhart Koselleck, which remains a very important point of reference, aimed more at bringing forward the common cultural heritage of particular groups or cultures than deconstructing them.²⁰ In contrast, by referring once more to the concept of *concepts nomades*, Oliver Christin shifted his attention toward the cultural interdependence of scholarship and proposed critical reflection on the terminology of social sciences that would concentrate on the processes of transgressions of cultural boundaries and of cultural adaptation: “Transfers are never innocent; they intervene also in precise contexts and serve the actors and specific aims.”²¹

The idea of scientific concepts, conceived through the reference to change through movement, shifts toward these concepts being producers of differences in specific cultures. (The term “culture” should be understood here as a semiotic or signifying system, with reference to entities like disciplines, academic cultures, linguistic cultures, or different social groups.) Even if they are expressed through neologisms, their productivity has to be analyzed recursively. Concepts that emulate similarity through terminology have a tendency to interfere with the cultural sets they are most closely associated with, and since the dichotomy of term and meaning may cause serious shortcomings in this sense, it seems appropriate to widen the conceptual networks involved in the process. Studies of interlingual translation addressed such issues in manifold ways and their findings have proved important in terms of intercultural transfers as well.²²

A second point of reference that has offered a variation on the idea of nomadic concepts is Mieke Bal’s notion of traveling concepts, eagerly adopted

20. For a recent critique on this issue and counterproposals by historians of concepts, see Jani Marjanen, “Undermining Methodological Nationalism: *Histoire croisée* of Concepts as Transnational History,” in *Transnational Political Spaces: Agents—Structures—Encounters*, Mathias Albert et al., eds. (Frankfurt and New York: Campus, 2009), 239–263; Margit Pernau, “Whither Conceptual History? From National to Entangled Histories,” *Contributions to the History of Concepts* 7, no. 1 (2012): 1–11, doi: <http://dx.doi.org/10.3167/choc.2012.070101>.

21. Oliver Christin, “Introduction,” in *Dictionnaire des concepts nomades en Sciences Humaines* [Dictionary of nomadic concepts in the humanities], Oliver Christin, ed. (Paris: Editions Métailie, 2010), 15.

22. For an overview and a discussion of the influence of word choice on meaning, see, for example, Judith Schildt, Bettina Kremberg, and Artur Pelka, “Einleitung: Übersetzbarkeit zwischen den Kulturen” [Introduction: Translatability between cultures], in *Übersetzbarkeit zwischen den Kulturen: Sprachliche Vermittlungspfade—Mediale Parameter—Europäische Perspektiven* [Translatability between cultures: Linguistic routes of mediation—medial parameters—European perspectives], Judith Schildt, Bettina Kremberg, and Artur Pelka, eds. (Frankfurt am Main: Peter Lang, 2010), 10–32.

by many as the new framework in the (still) emerging field of the study of culture.²³ Bal sees concepts as dynamic and changeable elements in a disciplinary framework of creating distinction, acting, if used properly, as “short-hand theories” and thus as a “third partner in the ... interaction between critic and object.”²⁴ Traveling concepts do not simply represent an object but rather construct and change it through new emphases and orderings. Consequently, it seems more fruitful to confront, as opposed to only applying, concepts and “cultural objects being examined”. While concepts are “tools of intersubjectivity” that “facilitate discussion[s] on the basis of a common language”, their embeddedness in disciplinary frameworks creates different results each time: “[Concepts] travel—between disciplines, between individual scholars, between historical periods and between geographically dispersed academic communities. Between disciplines, their meaning, reach and operational value differ. These processes of differing need to be assessed before, during and after each ‘trip.’”²⁵ This is an expression of what Bal considers the double cultural dynamics of movement. Both the moving bodies and places visited alter themselves and others during the process. This widens the scope of our interest in concepts of movement from the simple act of travel and its consequences to the transformations and translations taking place on the road.²⁶

Bal’s “traveling concepts” can be seen as one of the recent highlights in the study of culture in Europe.²⁷ Such projects approach traveling concepts through the lens of the emerging field of the study of culture and with reference to the deconstruction of stable disciplines that had constructed their own identity as in-between fields.²⁸ Rather than countering this trend, we wish to

23. Mieke Bal, *Travelling Concepts in the Humanities: A Rough Guide* (Toronto: University of Toronto Press, 2002).

24. Mieke Bal, *A Mieke Bal Reader* (Chicago: University of Chicago Press, 2006), xii.

25. Mieke Bal, “Working with Concepts,” *European Journal of English Studies* 13, no. 1 (2009): 13.

26. Understandably, constant touring is not the only way of triggering cultural dynamics. Concepts, especially new ones, may often be devised “in solitude, independence, and freedom.” Michel Serres and Bruno Latour, *Conversations on Science, Culture, and Time*, trans. Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995), 37.

27. See, most recently, Birgit Neumann and Ansgar Nünning, eds., *Travelling Concepts for the Study of Culture* (Göttingen: De Gruyter, 2012).

28. The idea of the study of culture as an in-between field is expressed most fully in Sigrid Weigel, “Kulturwissenschaft als Arbeit an Übergängen und als Detailforschung: Zu einigen Urszenen aus der Wissenschaftsgeschichte um 1900—Warburg, Freud, Benjamin” [Cultural science as work on the transitions and as detailed research: On some early scenes from the history of science around 1900—Wahrburg, Freud, Benjamin], in *Erfahrung und Form: Zur kulturwissenschaftlichen Perspektivierung eines transdisziplinären Problemkomplexes* [Experience and form: On cultural-scientific perspectivization of an interdisciplinary complex of problems], Alfred Opitz, ed. (Trier: Wissenschaftlicher Verlag,

shift approaches entirely and turn the analytic lens on the *nomadic* element of concepts. Bal explained her transition from “nomadic” to “traveling” concepts to include an element of choice, with a simultaneous loss in the analysis of the mobile habitat.²⁹ Both metaphors have, of course, serious shortcomings—the romantic, almost orientalizing notion of the roaming movement of nomads on the one hand, and the agency-centered travel and the predetermined return home on the other. This last issue was also the reason why in German, and recently in Polish, Bal’s term was translated as *wandernde Begriffe* (rambling concepts) and *wędrujące pojęcia* (roaming/wandering concepts).³⁰ None of these metaphors, however, imply the possibility of the simultaneous existence of one single concept in several distinct locations at the same time, an allusion present in Stengers’s idea of “epidemic propagation”. Both nomadic and traveling concepts share a strong pull toward interdisciplinarity and the permanent mobility of concepts.³¹ The metaphor of nomadism, however, is more suitable to address the hybridity of the fields across which concepts move. While travel implies existing cultural difference between the place of origin and the destination, the metaphor of nomadism does not. In this case, difference can be also a product of the movement itself. Similarly to the above-mentioned concept of interdisciplinarity, travel consequently implies an inherent concept of boundary, which nomadism should help to question. This distinction is especially important when we consider that boundaries between fields and disciplines, sciences and humanities, as well as between what is considered a scientific field and a social field, are blurred, continuous endeavors to stabilize these entities notwithstanding. Stating that a culture is traversed also implies the existence of culture as an entity. The analysis of nomadic concepts, however, should do the opposite as well, and show how the existence of a particular field or culture can at the same time be transgressed and stabilized by the use of concepts. As for Deleuze and Braidotti, the nomadic component should imply criticism of established hi-

2001), 125–145. However, it remains questionable the extent to which the use of the “field in-between” metaphor does not in fact constitute a claim for new disciplinary territory.

29. See Bal, *Travelling*, 32n12.

30. See the comment on the translation of Bal’s terminology in Wojciech Józef Burszta and Anna Zeidler-Janiszewska, “Poza akademickimi podziałami: Wędrowanie z Mieke Bal” [Beyond academic divisions: Wandering with Mieke Bal], in Mieke Bal, *Wędrujące pojęcia w naukach humanistycznych: Krótki przewodnik* [Traveling concepts in the humanities: A short guide], trans. by Marta Bucholz (Warsaw: Narodowe Centrum Kultury, 2012), 15.

31. In a recent volume by Frédéric Darbellay, *concepts nomades* and *concepts voyageurs* (French for “traveling concepts”) are used almost as synonyms. Frédéric Darbellay, ed., *La circulation des savoirs: Interdisciplinarité, concepts nomades, analogies, métaphores* [Circulation of knowledge: Interdisciplinarity, nomadic concepts, analogies, metaphors] (Berne: Peter Lang, 2012).

erarchies and distinctions as well as a re-evaluation of the critical interaction between concepts and their environment.

Beyond Boundaries

Several points will be raised throughout the articles concerning the modes of nomadism and its effects: the articles engage with questions of movement across disciplines, time, space, and media; the use of concepts as supporters of one's claims and interests; and strategies of objectification by making reference to their scientific character. While these issues will be addressed more thoroughly in the individual contributions, we would like to raise two additional questions at this point: the issue of "boundary" and the question of "translation proper". These issues are less accentuated, but in our view just as central to understanding the transformation of mobile concepts.

The question of boundaries between disciplines or cultures is an issue we feel has not been given enough attention in the recent historiography of concepts and historical semantics. The idea of two or three scientific cultures, and the dubious existence of the science-technology-culture divide, has been a constant problematized presence in scholarship for several decades, and the debate has further intensified in recent years. The idea of a division between pure and applied science as well as the point of thinking strictly within disciplines are similarly hotly debated topics. Cultures as constructs, as stabilized images of fluid exchange movements, have been thematized by postcolonial theoreticians. While we acknowledge the existence of disciplines and cultures as entities structuring and organizing research, the idea of *nomadic concepts* was originally conceived in terms of countering the stability of such entities through the movement of their elements.

To use the metaphor constructed by Brian Massumi, concepts may as well be visualized as bricks on which courthouses of disciplinary or cultural reason are constructed, serving what Thomas Gieryn called boundary work.³² Ethnos or nation, βίος or *socios* may be the most obvious examples for this imagery. At the same time, concepts may also act as boundary objects (Susan Leigh Star, James R. Griesemer) and compose trading zones (Peter Galison).³³ They con-

32. Brian Massumi, "Translator's Foreword: Pleasures of Philosophy," in Deleuze and Guattari, *A Thousand Plateaus*, xii; on the concept of boundary work, see Thomas Gieryn, *Cultural Boundaries of Science: Credibility on the Line* (Chicago: University of Chicago Press, 1999).

33. Susan Leigh Star and James R. Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39," *Social Studies of Science* 19, no. 4 (1989): 387–420, doi: 10.1177/030631289019003001; Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago: University of Chicago Press, 1997), 816.

stitute the very basis of processes framed as transfer of knowledge or cultural translation.

While many concepts, biological or not, were formed precisely at the crossroads or in-between spheres,³⁴ one could well ask whether this position is not exactly the most common occurrence, whereas the position *within* is a momentary state mostly highlighted for analytic and political convenience. Concepts, like that of “race”, developed and were developed precisely at the intersection between politics, society, culture, science, and religion, with movements and reification running in all directions.³⁵ The critical reading of historical literature and the historiography of the history of science gives the impression that while the multidependence of “race” is acknowledged, the question of who is to be “blamed” for the deadly turn it took in the twentieth century remains an open, hotly debated one. In this regard, distinctions were made for political purposes to avoid problematic associations with the scientific community and to comply with their assertions following 1945 of being abused and being pressurized by ideologist politicians despite preferring to remain “pure” and “apolitical”.³⁶ Taking the Latourian perspective on historical narration and starting with an object and then telling the history of networks it produced may change the view not only on how a given concept was formed, but also how it formed and reformed discourses from various points of analysis. To return to Christian Girard, the analysis of nomadic concepts should concentrate on the conceptual systems and the processes in which they are produced and stabilized, bringing back the history of concepts from antiquarian analysis to a more dynamic view of concepts and their fields of influence

34. See, for example, Staffan Müller-Wille and Hans-Jörg Rheinberger, eds., *Heredity Produced: At the Crossroads of Biology, Politics, and Culture, 1500–1870* (Cambridge, MA: MIT Press, 2007); Stefan Willer, Sigrid Weigel, and Bernhard Jussen, eds., *Erbe: Übertragungskonzepte zwischen Natur und Kultur* [Legacy: Concepts of transfers between nature and culture] (Berlin: Suhrkamp, 2013).

35. Heidrun Kaupen-Haas and Christian Saller, eds., *Wissenschaftlicher Rassismus: Analysen einer Kontinuität in den Human- und Naturwissenschaften* [Scientific racism: An analysis of continuities in human and natural sciences] (Frankfurt am Main and New York: Campus, 1999); Carole Reynaud-Paligot, *La République raciale, 1860–1930: Paradigme racial et idéologie républicaine* [The racial republic: Racial paradigm and republican ideology] (Paris: PUF, 2006); Marius Turda, *Modernism and Eugenics* (Basingstoke, UK: Palgrave Macmillan, 2010); for earlier intersections, see, for example, Nancy Leys Stepan, “Race and Gender: The Role of Analogy in Science,” *ISIS* 77 (1986): 261–277; on the development and solidification of the term, see Mark M. Smith, *How Race is Made: Slavery, Segregation, and the Senses* (Chapel Hill: University of North Carolina Press, 2006); Srividhya Swaminathan, *Debating the Slave Trade: Rhetoric of British National Identity, 1795–1815* (Farnham, UK: Ashgate, 2009).

36. See, for example, Mark Walker, “Introduction,” in *Science and Ideology: A Comparative History*, Mark Walker, ed. (London and New York: Routledge, 2003), 1–16.

in the making. This way, their nomadic existence can lead to what Deleuze or Braidotti have proposed nomadic thought and nomadology to be.

Concepts and Translation

In recent years, authors of conceptual history have paid increasing attention to the influence historical semantics and the differences between languages have on the development of concepts. Comparative analyses or studies on the cultural transfer have been particularly helpful in showing that the lingual component of a concept plays a significant role in its influence. As Gottfried Gabriel emphasizes, many arguments about words were “in many cases ... not ‘merely’ about words, but about the linguistic and thus conceptual structure of the world.”³⁷

Lexical difference should therefore be taken seriously, as it can generate trajectories in which a concept that is thought to have the same meaning becomes different through adaptation within a given language. Xiong Yuezhi has shown this convincingly in the context of early translations of the concepts of “liberty”, “democracy”, and “president” into Chinese. In a land without a deep history or established traditions in parliamentarism and democratic ideas, the connection of new ideas to existing words complicated the linking of these concepts with liberal meanings and thus prevented their influencing the future development of liberal thought.³⁸ In imperial contexts, where political concepts were thought to be understandable among all cultures and linguistic groups of the state, the issue of managing linguistic and conceptual equivalence was in many cases of some concern to the central administration.³⁹ On

37. Gottfried Gabriel, “Begriff—Metapher—Katachrese: Zum Abschluss des Historischen Wörterbuchs der Philosophie” [Concept—metaphor—catharsis: On the conclusion of historical dictionary of philosophy], in *Begriffe, Metaphern und Imaginationen in Philosophie und Wissenschaftsgeschichte* [Concepts, metaphors and imaginations in philosophy and the history of science], Lutz Danneberg, Carlos Spoerhase, and Dirk Werle, eds. (Wiesbaden: Harrassowitz, 2009), 15.

38. Xiong Yuezhi, “‘Liberty’, ‘Democracy’, ‘President’: The Translation and Usage of Some Political Terms in Late Qing China,” in *New Terms for New Ideas*, Michael Lackner, Iwo Amelung, and Joachim Kurtz, eds. (Leiden and Boston: Brill, 2001), 69–94.

39. See, for example, the introduction to the authoritative dictionary of the juridical-political terminology of the Habsburg Empire, analyzed in Mile Mamić, “Das Deutsch-Slawische Wörterbuch der juridisch-politischen Terminologie (Seine Konzeption und Realisierung)” [German-Slavic dictionary of juridical-political terminology (its conception and realization)], in *Balten—Slaven—Deutsche: Aspekte und Perspektiven kultureller Kontakte—Festschrift für Friedrich Scholz zum 70. Geburtstag* [Balts—Slavs—Germans: Aspects and perspectives on cultural contacts—a commemorative publication for Friedrich Scholz on his seventieth birthday], Ulrich Obst and Gerhard Ressel, eds. (Münster: LIT, 1999), 131–138.

a smaller scale, the problem of conceptual idiosyncrasy can be seen in current gender studies, as the English-language distinction between sex and gender cannot be easily translated into Romance languages, as the respective words already have different meanings;⁴⁰ in German and some Slavic languages, “gender” was a neologism and remained as such in the academic discourse.⁴¹ A few proposals have been put forward—like a suggestion to introduce the term *Genus* as opposed to *Geschlecht*, or to make a distinction between *soziales Geschlecht* and *biologisches Geschlecht* in German (the latter practice has also been adopted in Hungarian and Polish).⁴² These attempts are part of the reason for the often hesitant acceptance of this conceptual duality, but at the same time they are also helpful in rethinking the situatedness of gender in Anglo-American thought.

Looking at concepts either in their interlingual transitions or comparing their behavior in different linguistic communities and cultural contexts can thus not only help our understanding of the limits of universality and globalization, but to reflect on the boundaries of the concepts as well. These boundaries are often quite flexible, depending on and determined by the agenda and agency of translators, readers, and other agents of transmission. Flexibility, moreover, is not only a characteristic attribution of boundaries, but also of terms, terminologies, and concepts, especially in cases when they are in the process of transformation themselves. A good example of this is how the Hungarian word *faj* corresponds to both species and race, and the impact this has made not only on translations and academic discussions of Darwin’s work, but also on how these concepts were integrated into political discourse on racial sciences in the public sphere. Discussions about the boundaries of a concept while trying to decide the most “proper” translation are not infrequent or particularly unexpected. Thierry Hoquet has aptly illustrated the problem with the example of the translation of the Darwinian concept of natural selection.⁴³

40. Rosi Braidotti and Judith Butler, “Feminism by Any Other Name,” *Differences* 6, nos. 2–3 (1994): 35.

41. On the other hand, for instance, there is a clear distinction in Serbo-Croatian, where instead of introducing a neologism, *rod* is used for “gender” (such as in *rodne studije* for “gender studies”) and *spol* for sex.

42. On the German situation, cf. Greta Olson, “Gender as a Travelling Concept: A Feminist Perspective,” in Neumann and Nünning, *Travelling Concepts*, 205–233; Polish terminological difficulties are noted, for instance, in Nalini Visvanathan et al., *Kobiety, gender i globalny rozwój: Wybór tekstów* [The women, gender, and development reader], trans. by Agata Czarnacka, Hanna Jankowska, and Magdalena Kowalska (Warsaw: Polska Akcja Humanitarna, 2012), 20.

43. Thierry Hocquet, “Translating Natural Selection: True Concept, But False Term?,” *Bionomina* 3 (2011): 1–23.

Wolf Feuerhahn in his contribution to this volume similarly shows that concepts frequently considered to be the same in two languages—namely, “milieu” and *Umwelt*—are not “translations” but are terms closely related to their linguistic embedding and thus national past.

Such changes in translation can affect whole research programs, and this extends to the natural sciences. In Polish, the term for oxygen was formed without reference to the concept of acids (*oxygène* is literally “he who creates acids”), but from the root *tlić* (smolder, decay), which means that the expression “acids without oxygen” (*kwasy beztlenowe*) is not an oxymoron, as it would be in other languages.⁴⁴ As a result, the Polish research programs developed on such acids are unique from an international perspective. The opposite can also occur, and the impossibility of translation may hinder conceptual transfer. For instance, Heidegger’s concept of *Vor-stellen*, based on the equivocation of imagination and moving something in front of something else, can hardly be rendered into other languages, thus requiring excessive explanations to match the meaning.⁴⁵ With the exception of philosophy, however, translation studies have not dealt with the sciences and the humanities, leaving this field still open to scholarly inquiry.

The recent cultural turn in translation studies—that is, the turn toward cultural translation or *translatio/n* bringing together the theories and methods of translating between different languages and the ideas of translating between various cultures—is not necessarily characterized by an overwhelming focus on linguistic difference.⁴⁶ This brings the mechanisms of translation close to what we describe as nomadism, or a change in movement that affects all actors and cultures in question and at the same time affects the creation of difference.⁴⁷ Yet, while translation studies are often more interested in ways translations affect cultures, or what we could generalize as the mechanism of cultural change, nomadic concepts focus more closely on the translations themselves and the way they interact with scientific and cultural contexts.

44. See Jan Surman, “Linguistic Precision and Scientific Accuracy: Searching for the Proper Name of ‘Oxygen’ in French, Danish and Polish,” in *Language as a Scientific Tool*, Miles MacLeod et al., eds. (Oxford and New York: Routledge, forthcoming).

45. Martin Heidegger, “Die Zeit des Weltbildes” [The age of the world picture], in *Holzwege* [Off the beaten track] (Frankfurt am Main: Vittorio Klostermann, 1977), 75–113.

46. See, for example, Doris Bachmann-Medick, “The Translational Turn,” in *Handbook of Translation Studies*, vol. 4, Yves Gambier and Luc van Doorslaer, eds. (Amsterdam: John Benjamins, 2013), 186–193; Boris Buden and Stefan Nowotny, “Cultural Translation: An Introduction to the Problem,” *Translation Studies* 2 (2009): 196–219, doi: 10.1080/14781700902937730.

47. Most clearly spelled out in Federico Italiano and Michael Rössner, eds., *Translatio/n: Narration, Media and the Staging of Differences* (Bielefeld: transcript Verlag, 2012).

Beyond the Nature and Culture Divide: Biological Concepts and Their Careers beyond Biology

The following articles analyze biological concepts and their movement through time and space. Nevertheless, our understanding of biological concepts does not necessarily follow the *Grundbegriffe* of the biological sciences; it is based on concepts that were formed by and through the process of inclusion in the scheme of biological terms, or were imbued with meanings originating from them. The concept of the nation, for instance, represented a conceptual tool for the biological sciences for only a short period of time, yet the social impact of this phase depended—and in some cases still depends—to a great extent on this brief encounter with the life sciences. The whole range of biological sciences—from aerobiology to zoology, including even some fields of the life sciences such as anthropology—constitutes what we see as Gottfried Reinhold Treviranus's original concept of biology, that is, a set of disciplines concerned with "different forms and manifestations of life."⁴⁸

While the twenty-first century was often welcomed as a century of biology and biotechnology,⁴⁹ Foucault claimed in *The Order of Things* that discourses of modernity after 1800 were closely associated with the discourse of anthropology, from which they borrowed concepts and methods. In this context, eugenics, social hygiene, and race theory can be mentioned as examples of how societal discourse intertwined with biological concepts, and the same can be said about less controversial concepts such as generation, stress, or intelligence.⁵⁰ In more recent history, biological concepts of the gene or the double

48. Gottfried Reinhold Treviranus, *Biologie: Oder Philosophie der lebenden Natur für Naturforscher und Aerzte* [Biology: Or philosophy of living nature for natural scientists and physicians], vol. 1 (Göttingen: J. F. Röwer, 1802), 4; on the position of man in this system, see *ibid.*, 175–177.

49. See, for example, Craig Venter and David Cohen, "The Century of Biology," *New Perspectives Quarterly* 21 (2004): 73–77; Jeremy Rifkin, *The Biotech Century: Harnessing the Gene and Remaking the World* (New York: Tarcher, 1998); Peter Sitte, ed., *Jahrhundertswissenschaft Biologie: Die großen Themen* [Biology as science of the century: Main topics] (Munich: Beck Verlag, 1999). Francis Fukuyama even postponed his end of history in consideration of the new prospects and threats of biotechnology; see Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (London: Profile Books, 2003).

50. Ohad Parnes, Ulrike Vedder, and Stefan Willer, *Das Konzept der Generation: Eine Wissenschafts- und Kulturgeschichte* [The concept of generation: History of science and culture] (Frankfurt am Main: Suhrkamp, 2008); Dana Becker, *One Nation Under Stress: The Trouble with Stress as an Idea* (New York: Oxford University Press, 2013); Clairette Karakash, "Intelligence: A Nomadic Concept," in *Intelligence and Artificial Intelligence: An Interdisciplinary Debate*, Ulrich Ratch, Michael M. Richter, and Ion-Olimiu Stamatescu, eds. (Berlin: Springer, 1998), 22–40.

helix have powerfully altered the way we think about the world. The double helix and its semantic extension, the triple helix, were seen, for example, as models for conceiving the modern knowledge economy, and probably everyone who uses the Internet has heard about the “meme”, a crude translation of the gene concept into “culture”.⁵¹

Therefore, special attention will be given to the intersection between the life sciences and concepts that regulate everyday society. The same can be said about biological concepts that have some impact on other scientific disciplines. For example, the latest developments in neurology or the zoology of emotions have influenced historiography.⁵² Hans-Jörg Rheinberger’s notion of experimental systems, originating from the biosciences, currently not only stimulates research in the history of science, but is also applied to art history and literary studies.⁵³ Similar things can be said about the way in which literature and the visual arts have interacted with biology—not as a one-way borrowing, but rather as an exchange of concepts. Various approaches to and styles of narration, the diversity of ideas about the relations between the human and the nonhuman, different forms of visual presentation and materiality of models could be named here among the many other potential examples for such exchanges.

The articles published in this issue deal precisely with ways biological concepts intertwine with social discourse. Andreas Musolff looks at the nomadization of the concept of “social parasite” between biological and social domains from antiquity to the present and from ancient Greece through Soviet Russia to the modern-day United States. As he shows, the metaphor of the parasite did not travel in one direction only, but its use in social discourse also influenced its biological applications. Musolff brings actors back into conceptual history when he claims that the longevity of the social parasite metaphor

51. Henry Etzkovitz and Loet A. Leydesdorff, *Universities and the Global Knowledge Economy: A Triple Helix of University—Industry—Government Relations* (London: Continuum International, 2001); for the cultural translation of the concept of gene as meme, see Richard Dawkins, *The Selfish Gene* (Oxford and New York: Oxford University Press, 1989).

52. For an overview, see Ewa Domańska, “Wiedza o przeszłości: Perspektywy na przyszłość” [Knowledge of the past: Future perspectives], *Kwartalnik Historyczny* 120, no. 2 (2013): 221–274.

53. Hans-Jörg Rheinberger, *Experimentalsysteme und epistemische Dinge—Eine Geschichte der Proteinsynthese im Reagenzglas* [Experimental systems and epistemic things: Synthesizing proteins in the test tube] (Göttingen: Wallstein Verlag, 2001), 23. A more distant history of the expression could lead to eighteenth-century English translations of metallurgy books by Johann Heinrich Hampe. For an application in literary studies, see, for example, Gabriele Schwab, *Imaginary Ethnographies: Literature, Culture, and Subjectivity* (New York: Columbia University Press, 2012); Thomas Hensel, “Kunstwissenschaft als Experimentalsystem” [Art science as an experimental system], *Kunstgeschichte: Texte zur Diskussion* 19 (2012), <http://www.kunstgeschichte-ejournal.net/discussion/2009/hensel/>.

depends less on “any inherent semantic characteristics of its source and target inputs, but on the ability of its users to engage with its polysemy and remain open to new scientific and social insights.”⁵⁴

The article by Wolf Feuerhahn also brings forward the way actors perceive and codify concepts: here dealing with “national” careers of alleged synonyms, “milieu” and *Umwelt*. As he argues,⁵⁵ in nineteenth-century German scholarship “milieu” was understood through intense reception of Hyppolite Taine’s theories as a politically laden French term, against which biologist and philosopher Jakob von Uexküll coined his politically laden concept of *Umwelt*. This “antimilieu” *Umwelt*, now simply translated as “milieu”, became than the point of reference for Deleuze and the theory of nomadism in general.

Julian Bauer’s article looks at yet another biological key concept—that of an “organism”—and the way it came to play a crucial role in social sciences in the twentieth century. Considering “organism” as a boundary object and combining this approach with the analysis of semantic fields, he traces the first organism-based rearrangements of social sciences in the functionalist thinking of Albert Schäffle and Guillaume de Greef. Deontologizing the reality, their use of the concept paved the way for twentieth-century organicists and most importantly for the world systems theory of, among others, Niklas Luhmann.

Stefan Halft, on the other hand, deals with a more recent concept—that of a “clone”. With reference to Hans-Jörg Rheinberger and Günter Abel, Halft describes it as a hybrid epistemic object, shaped and filled with meaning at the intersection of popular media and science. Here nomadization between two fields of human inquiry blurs boundaries between them and raises the question to what extent literature and film shapes scientific concepts and discourses even in the recent professionalized technosciences.

In all the articles it is clear that nomadic movement of the concepts in question sheds light not only on the concepts themselves, but also on the domains they cross and simultaneously rearrange. As especially Feuerhahn and Musolff show, conceptual nomadism is influenced by the local cultural contexts, and the way culture-bound actors perceive certain concepts. Thus, the implementation of a concept in a new environment is an interaction that not only puts stronger contours on certain characteristics of the concept, but also on the difference between cultures.

That said, biological concepts, however, are only one example of the potential *nomadic concepts* may have in questioning and re-evaluating customarily accepted cultural entities. Turning the analysis in this direction, there is

54. Andreas Musolff, “From Social to Biological Parasites and Back: The Conceptual Career of a Metaphor,” this issue.

55. See also Wolf Feuerhahn, “Du milieu à l’*Umwelt*: Enjeux d’un changement terminologique” [From milieu to Umwelt: The issues of a change in terminology], *Revue philosophique de la France et de l’étranger*, no. 4 (2009): 419–438.

a multiplicity of intrinsic connections that appear beyond social, cultural, and disciplinary structures conventionally used to order the intelligible world. If we acknowledge that language communities present different types of cultures, not unlike disciplines, as suggested by semioticians such as Jurij Lotman, then this also seems to suggest that the concept of *nomadic concepts* can be applied to processes of translations in-between and across these language communities. This points once more (along the lines of the already discussed contribution of Braidotti) toward the affinity of our approach with postcolonial studies, in this case especially with Homi Bhabha's notions of hybridity and "culture as translation." Ironically, we end up with three concepts that have much to do with biology, although their trajectories—which, to our knowledge, still await scholarly inquiry—could not have been more different: hybridity, culture, and translation. We hope that our concept of *nomadic concepts* will thus be read as an open one, and, to come back to the title of this introduction, will indeed translate beyond the history of biological concepts.