

Free as in Swatantra: Free Software and Nationhood in India

Michael Truscello
Wilfrid Laurier University
mtruscello@wlu.ca

Abstract

This article interrogates the cross-cultural production of the software of the United States and India, and the articulation of nationhood through Free and Open Source Software (FOSS), specifically with what in India is known as Swatantra Software, a label that epitomizes the counter-hegemonic sentiment of the FOSS movement, and the counter-imperialist sentiments of its adoption in India, by utilizing a Hindi word meaning “(one who is) self-determined or self-motivated.” The name “Swatantra Software” embodies a social aggregation of technology, history, nation, and language, and its combination of indigenous language and ethical resistance to domination by foreign multinationals enacts a favourable assemblage of national and technological modes of becoming for the reclamation of a measure of self-determination within the context of globalization.

KEYWORDS: Free and Open Source Software; India; Swatantra Software; nationalism; New Economy; globalization; postcolonialism; digital culture; sovereignty; digital commons; software localization

We set out alone towards our goal
but others kept joining us
and our caravan kept growing

Urdu poet Majrooh Sultanpuri¹

The common perception of postcolonial studies and media studies is that they have strived toward highly divergent, if not antithetical ends. “The two fields have had opposing goals,” as Maria Fernández phrases this perception:

Postcolonial studies has been concerned primarily with
European imperialism and its effects: the construction

of European master discourses, resistance, identity, representation, agency, gender, and migration, among other issues. By contrast, in the 1980s and early 1990s electronic media theory was primarily concerned with establishing the electronic as a valid and even dominant field of practice. (59)

Technology has traditionally been theorized as an extension of colonialism; in particular, by not interrogating seriously the materiality of new media, but instead circumscribing online activities and virtual reality as disembodied and anonymous forms, media studies prior to the dotbomb crash seemed to celebrate the conquest of Western imperialism in the form of a utopian new media project. However, the late-nineteen nineties to the present has witnessed a host of significant studies that embed high technology, especially software, in the context of ideology and history, and therefore challenge the idea that postcolonial studies and media studies have “opposing goals.” In terms of colonialism, this means there is never simply the imposition of technology on the colonial situation:

The more historians take into account the ideological dimensions of science, technology and medicine, the more we move from seeing them as “tools of empire” to explore their social, cultural and political dimensions, the more apparent it becomes that there was no simple, one-directional process of scientific and technological “transfer,” but rather a series of cross-cultural exchanges and interactions. (Arnold 211)

The case of America, India, and the New Economy illustrates just such a cross-cultural exchange, with the boundaries between the colonizing Western technology and the colonized Eastern “consumer” or “subject” of technology harder to distinguish with each passing year. Even now, years after the stock market bubble burst and countries such as India and China became ascendant in the high-technology marketplace, and after the ideological constitution of software has become generally accepted over the narrative of its uninterrupted algorithmic rationality, there is still an unwillingness among media theorists to acknowledge the significant—perhaps essential—role of India in making the New Economy possible. While much attention has been given to the practice of outsourcing as a

popular form of economic exploitation, less attention has been given to the role of Indian entrepreneurs and scientists in the development of the New Economy in America, and still less attention has been reserved for the cultural translation of software as a marker of post-independent nationalism in India. The latter two concepts will be the focus of this essay.

In the discussion that follows, I examine the relationship between nationhood and software by tracing the presence (but narrative absence) of India in the story of American technocultural hegemony,² the emergence of the Indian software industry as an international force that is still structurally dependent on American multinationals, and in particular the embrace by some Indian technologists of Swatantra Software, the Indian variant of Free Software. *Swatantra* is a Hindi word meaning “(one who is) self-determined or self-motivated.” While non-proprietary and collaborative Free Software struggles to define itself in terms of liberty and not price, Swatantra Software overcomes the ambiguity of the English word “free” and simultaneously embodies an assemblage of technical, cultural, and affective possibilities for post-independence India. The invocation of the word *swatantra* instead of *free* in the context of software development may seem like an innocuous distinction, even when technocultural assemblages are considered, but this linguistic singularity is an effect of the transnational sodality Arjun Appadurai calls a “community of sentiment,” an affective solidarity capable “of moving from shared imagination to collective action” (8). This particular instance of the cross-cultural constitution of software represents “the work of the imagination ... a space of contestation in which individuals and groups seek to annex the global into their own practices of the modern” (4). Such a sodality—part of the “cultural turn” in Free Software from the technophilic spaces of its origins to the heterogeneous dimensions of its contemporary deployment—has implications for the quotidian technicities that define nationality, sovereignty, globalization, and the various forms of identity and solidarity in increasingly mediated cultures. The following exploration of Free Software adoption in India addresses Mark Poster’s criticism of Appadurai’s “thesis of globalization,” which “inadequately” explores “the specificity of different media” (Poster 35). Swatantra Software, while certainly not a panacea for India’s engagement with globalization, articulates a digital form of cultural preservation and resistance.

Indian-American Software

Just as the stock market collapse removed the utopian sheen from media studies, the relocation of white-collar technology jobs from the West to India in the past decade has focused much attention in the West on the cross-cultural construction of information and communication technology (ICT). The prominence of corporate “outsourcing” peaked in America in 2004 because of the U.S. Presidential Election, but the exodus has been ongoing for over a decade and will continue into the foreseeable future.³ The flow of jobs and capital from America and Europe to India may represent a paradigmatic shift in the production of ICTs; the Fletcher Forum of World Affairs at Tufts University predicts “it is only a matter of time before American and European dominance in [the global software] sector begins to wane” (qtd. in Sheshabalaya 77). While most of the jobs that used to be relocated to India were in grunt-level programming and call centres, many of the positions now being created in India and relocated from America are core activities in research and development, and high-level systems analysis and design.

The social construction of software industries along national boundaries is subject to the same ongoing negotiation and fluidity of which national boundaries themselves are constituted. The American software industry is only nominally an “American” enterprise, on at least two essential counts. First, virtually all major American technology companies have non-U.S. subsidiaries, and many of these subsidiaries house core enterprise expertise. Confining attention just to the thematically focal country of my argument, the American technology companies with sizeable operations in India include Accenture, BearingPoint, Cisco, EDS, Google, IBM, Microsoft, Oracle, Sun Microsystems, and Yahoo. “More than anything else,” Ashutosh Sheshabalaya argues in *Rising Elephant: The Growing Clash With India Over White-Collar Jobs and Its Challenge to America and the World*,

the fact that America’s leading IT firms have their CMM [Capability Maturity Model] Level 5 certifications [the highest standard of excellence for the U.S. Department of Defense] in India, rather than the U.S., indicates the “core” nature of their Indian effort, and their inextricable commitment to the country. (113)

In addition to software-producing companies, software-driven industries from the West, like financial services companies, are outsourcing services to India.⁴ The list of financial services companies with significant Indian outsourcing includes A.T. Kearney, Bank of America, Bank of New York, Deutsche Bank, GE, J.P. Morgan Chase, Morgan Stanley, and McKinsey & Co. Everything from payroll and accounting services—the central services of the early software industry in America—to the processing of American income tax forms is being done in India, at a fraction of the cost to do these activities in the United States.

The second reason American high technology—software in particular—is only nominally “American” is because foreign-born scientists and entrepreneurs working in the United States played a significant role in the constitution of the New Economy, very notably among them, Indians. In addition to establishing Y2K software service firms such as Complete Business Solutions, IMR, Intelligroup, Mastech, and Syntel, by 1999, according to Berkeley sociologist AnnaLee Saxenian, “nearly half of all Silicon Valley companies were founded by Indian entrepreneurs” (qtd. in Sheshabalaya 139), and “by 2000, Indian engineers were at the helm of 972 Silicon Valley-based technology companies, which accounted for approximately \$5 billion in sales and 25,811 jobs” (Saxenian 181). No other country made as substantial a contribution to American high technology; in fact, the contribution is so substantial and continuous that demarcating the New Economy as a particularly “American” invention seems disingenuous.⁵ In *Rising Elephant*, Sheshabalaya charts several pages of distinguished Indian-born professionals currently working in executive layers of American high-technology companies, and notable innovators of the past, from Umang Gupta, who wrote Oracle’s first business plan in 1981, to Vinod Khosla, co-founder and first Chief Executive of Sun Microsystems. Add to this the presence of the Indian-born contingent in the scientific community in the U.S.—over 30 percent of NASA, for example (Sheshabalaya 143)—and the national boundary around the accomplishments of American high technology seems increasingly porous and dependent.

Perhaps the most compelling statistics, however, are not those related to Indian entrepreneurship—as impressive as those numbers are—but the place of foreign-born students in higher education in science and technology-related fields: “Between 1990 and 1996, 16,749 Chinese and 8,211 Indian students received PhDs in the U.S., with 92 percent (15,454) of the Chinese and 83 percent of the Indian degrees (6,786) in the science

and engineering fields” (Saxenian, “The Silicon Valley Connection” 172). Sheshabalaya documents an enormous supplement of foreign-born talent supporting American technocultural hegemony:

In engineering, for example, “43 [percent] of the master’s degrees and 54 [percent] of the doctoral degrees awarded by U.S. universities go to foreign-born students.” On its part, the National Science Foundation estimates “foreign-born workers with bachelor’s degrees represented 17 percent of all science and engineering positions..., 29 [percent] of master’s degree positions and 38 percent of PhDs” in the U.S. (263)

The number of Indian-born entrepreneurs and scientists involved in the foundation of the New Economy but omitted from its foundational narratives problematizes current historical accounts; this is an issue of constructing the past. However, the continuing displacement or absence of Americans in science and technology education in its most advanced forms may signal a further eroding of America’s technocultural hegemony in the future.

Cross-Cultural Exchange in the Construction of Technology

The colonial period in India exemplified a similar dialectical mixture of indigenous and foreign materials and participants, a bi-national co-production of the technological artefact. Historian David Arnold suggests the physical and cultural diversity of India contributed to “variety and local specialisation” and impeded attempts by British colonialists and Indian nationalists alike from using science and technology as tools of conquest and cultural homogenization (7). The Eurocentric historicization of the colonial period would have it that the British “transferred” technology to India; but the everyday social heterogeneity and remarkable reach of Indian history refute this unidirectional imposition of modernity. Instead, the model of cross-cultural exchange alluded to above extends to software and its rhetorical demarcation of the nation in post-development India.

Not everyone sees it that way, however. Recently, for instance, Abhijit Gopal, Robert Willis, and Yasmin Gopal advanced a case that ICTs are simply colonialism by other means, a reinvention of the colonial apparatus and its formal properties of standardization and control. Coloniza-

tion, they argue, imposed the colonizer's "technologies and values" where previously there had been indigenous industries, and this "deindustrialization" removed the presence of what Arnold Pacey calls "technological dialogue" (Gopal, Willis, and Gopal 236). "What is possible today," say Gopal *et al.*, "through digital networks and digital information technologies, is a revival of the colonial vision of the control of remote markets and resources *without actually having to be there*" (246; italics in original). Contrary to the colonial vision, Pacey's "technological dialogue" suggests the ways in which "recipients of a new body of knowledge and technique 'interrogate' it on the basis of their own experience and knowledge of local conditions," which allows for "modifications" in "social arrangements affecting [the technology's] use" (Pacey vii-viii). However, digital technology and its ability to control at a distance seems to preclude such a dialogue based on local conditions. Information and its technologies, the "blood and bones" of Western capital (Gopal, Willis, and Gopal 238), impose a standardized, predominantly English and market-driven psychology on the indigenous culture. This standardization is embodied by the enterprise system:

The quintessential information system, we might venture to surmise, is the enterprise system, "the programs that manage a company's vital operations, from order taking to manufacturing to accounting"; a key exemplar is the R/3 system from SAP ... a set of "tightly interwoven programs ... that came together as a powerful network that can speed decision-making, slash costs, and give managers control over global empires." (Gopal, Willis, and Gopal 243)

Thus the monologic proprietary software that shapes the infrastructure of Western capital epitomizes colonizing media. The goal for the subjects of such colonizing media, say Gopal *et al.*, should be "to re-establish technological dialogue," and to do so "ICTs will need to be reconstituted as belonging to the 'civil commons,'" a now familiar concept in discussions of intellectual property, and defined, for example, by John McMurtry in *Unequal Freedoms: The Global Market as an Ethical System* (249). McMurtry explains:

The nature of the civil commons can be expressed as follows: *It is society's organized and community-funded capacity of universally accessible resources to provide for the life preservation and growth of society's members and their environmental life-host.* The civil commons is, in other words, what people ensure together as a society to protect and further life, as distinct from money aggregates. (24; italics in original)

In fact, this describes a growing condition in India. Forms of “technological dialogue” and the expansion of the “civil commons,” that is, already exist in India in the proliferation of Free and Open Source Software (FOSS).

Advocates of FOSS promote the accessibility and distribution of software source code for operating systems and applications. Free Software activists equate the transparency of source code with an egalitarian society: software should be free to access, modify, and redistribute, regardless of price. Open Source advocates, alternatively, see software licenses as a pragmatic engineering choice, not an ethical one, and often permit combining non-proprietary and proprietary software. Obviously, the generic definitions of FOSS are limited in scope and misleading. Open Source advocates represent Open Source as nothing but a pragmatic choice, because the licenses are more flexible than Free Software licenses and allow for the proprietization of Open Source Software. They also characterize Free Software as a “political” or “ideological” or “moral” choice, because it does not allow the source code to be taken private under any conditions. The distinction raised by advocates of Open Source and Free Software creates a false impression that one is ideological and the other is not, when both are clearly ideological because both engender particular social formations and advocate for particular rights on behalf of users. A different set of terms is required to demarcate rhetorically the implicit politics of FOSS. I have suggested elsewhere the notion of the “rhetorical ecology of the technical effect” (Truscello 349).⁶ But a useful place to begin is with Matthew Fuller’s definition of FOSS as “a socio-technical pact between users of certain forms of license, language, and environment. The various forms of free or open-source software are developed as part of the various rhythms of life of software production” (24). While most studies of FOSS obsess over “forms of license,” the current discussion is also an attempt to draw attention to the “language” and “environment” of the cross-cultural construction of software. As the FOSS case outlined

below will make more explicit, the social construction of technology need not conceive of the nation as an entity exclusive of the civil commons. Swatantra Software is one example of technological artefacts that belong simultaneously to the civil commons and the contingent construction of the history and culture of India.

The Indian Software Industry

Glyn Moody, in his history of the GNU/Linux operating system, *Rebel Code*, says that India represents the most prominent contemporary national advocate of FOSS computing:

India has the advantage not only of a widespread use of English⁷—the lingua franca for hacker collaboration over the Net—but also of a huge and highly educated middle class with ready access to computers. In short, India represents perhaps the perfect recruiting ground for free-software coders in the future. (317)

India's position in the global software market, and the incentive for Indians to adopt FOSS as a national policy, is the product of both culturally-specific notions of post-independence nationhood and relatively recent economic liberalizations—social and economic contrasts that are at times difficult to suture into a unified narrative of the body politic. Despite a remarkable expansion of software and software services exports from under half a billion dollars in 1994 to \$9.9 billion in 2002 (D'Costa, "Indian" 7), India's software industry occupies "a marginal position in the world market," its exports are "largely low value output," and these exports remain structurally dependent on the United States (1). In addition, despite the enormous success of India's software sector, this sector is only a small portion of the economy, and the country at large remains quite poor.⁸ The pockets of "technology parks" around the country and the wealth they spawn are creating two very distinct notions of everyday life in India. As Kristin Ross notes in her seminal study of post-war France, "Modernization is, of course, not an event but a process, made up of slow- and fast-moving economic and social cycles" (4). In India, one notion of everyday life is based in the accelerated economic cycles of software production:

Culturally, socially and economically, the stratum inhabited by software exporters has less and less in common with “ordinary Indians” and more and more in common with a transnationalised elite. (Heeks, *India’s Software Industry* 270, n. 13)

The numerous Indians employed by American subsidiaries “can be seen as ‘Trojan horses’ which are present within the Indian political economy but which are encouraging policy changes that benefit foreign multinationals” (264). Indeed, “there is little evidence that the growth of software and services industry is reflected in improved living conditions, more schools, greater justice, better healthcare, more jobs or other benefits for ordinary Indians” (Bagga, Keniston, and Mathur 32). The spread of FOSS offers an opportunity for Indians to expand software development, which has many potential public goods, beyond the proprietary model (that is largely subservient to American/transnational capital) while retaining greater control over India’s national sovereignty and economy. The current state of the proprietary Indian software industry proves of little use to the majority of Indians; but development of the public commons holds potential benefits for all Indians, and provides a non-proprietary form of digital preservation for Indian culture.

The international commercial success of India’s software industry contains within it a cultural and historical component in addition to the liberalizing economic policies of the early-nineteen nineties. From the time the first computer was introduced in 1956 at the Indian Statistical Institute to the “first time the computer significantly affected the general public ... in 1986 with the computerization of the nation’s railway passenger reservation system” (Gupta 40), the Indian government promoted a primarily statist policy of planned development and national self-reliance. As McDowell argues, “This support for a set of nationally oriented policies [prior to 1984]—rather than internationally oriented measures—had its basis in the social and political census within India about the role of the state and appropriate development strategy that had been constructed before independence” (28). Until the early-nineteen eighties, Prime Minister Nehru and his daughter Indira Gandhi “discouraged imports and stressed self-reliance and controlled growth” (Nidumolu and Goodman 15). The cultural sense of nationhood prior to the economic liberalizations of the nineteen nineties, more than international economic factors, determined the direction of the computer industry:

The social consensus on the importance of self-reliant development constituted a symbolic form of power that supported state institutions and information and communication policies in a period of state-led planned development. (McDowell 31)

Reforms in the mid-nineteen eighties loosened restrictions on hardware imports, on which the burgeoning software industry depended. By the early-nineteen nineties, India's software industry had become intimately connected with foreign markets through the export business of "body shopping" to foreign multinationals. Funding from the World Bank in 1990 provided \$95 million to be used "in improving training to software professionals" (39). Since then, as Paul Saffo of the Institute for the Future in Menlo Park, California says, "Indians are taking the lead in colonizing cyberspace" (Kripalani, Engardio, and Hamm). Saffo's assessment, though it evokes a striking historical reversal, is limited in its appreciation of India's software industry.

The current state of the Indian software industry is a success by many measures, but a failure by others. First, it is worth noting the strengths of India's software industry. Aside from its "first mover" advantage—India was first among developing countries to make bold strides in software exports—the undeniable strength of India's economic ascendance resides in its massive, highly educated population. With approximately 520,000 (Engardio, Bernstein, and Kripalani) to 813,500 IT professionals (as of February 2004) (Sheshabalaya 115) and around 4.5 million "technical workers" from over 1,900 educational and polytechnic institutions, which graduate "more than 70,000 software professionals every year" (Gupta 41), India has an impressive proportion of the world's high-tech expertise and its numbers are expected to increase significantly in the coming years. Only the United States produces more English-speaking scientific professionals (40). Estimates suggest by 2008 in India, "IT work and other service exports will generate \$57 billion in revenues, employ 4 million people, and account for 7% of gross domestic product" (Engardio, Bernstein, and Kripalani). To put these estimates in perspective: "By the year 2008, Indian software revenues are forecast to be larger than the entire economies of Chile, Nigeria or Pakistan" (Sheshabalaya 5).

The limitations of India's software success, in addition to those already mentioned, include the nation's "significant penetration in only three domains"—finance, communications and media, and manufacturing

(Sridharan 33); its distance from the almost \$100 billion packaged software market in the U.S., for which an immersion in the tacit knowledge of the region is important (Krishnan and Prabhu 142); and its “structural position” in the international corporate land grab called intellectual property rights. This last point is most important for the current discussion, because FOSS posits a legal alternative to the subjugation of the state by foreign multinationals. India’s continuing dependence on American subsidiaries and software services imports would create the conditions of colonialism-by-other-means described by Gopal *et al.*:

The structural position of Indian firms contributes to the inability of either generating or retaining intellectual property rights (IPR). First, the dominance of the export market and the outsourcing arrangement makes Indian firms surrender virtually all IPR to the client. Second, whatever IPR is developed by multinational subsidiaries in India is captured by the multinational firm. (D’Costa, “Export” 68)

Considering this dramatic imbalance—a kind of intellectual indentured servitude—and taking into account the cultural forces that encourage self-reliance in defining the nation, perhaps it is no surprise that Swatantra Software is an emerging factor in the Indian technoculture.

Swatantra Software

Despite pervasive cultural reasons for India to embrace FOSS, it is still something of a revelation to find that, with an economy profiting from the export of proprietary software and services, India’s President, Dr. A.P.J. Abdul Kalam, endorsed open software in a speech delivered to the International Institute of Information Technology. “The most unfortunate thing,” he said,

is that India still seems to believe in proprietary solutions. Further spread of IT which is influencing the daily life of individuals would have a devastating effect on the lives of society due to any small shift in the business practice involving these proprietary solutions. It is precisely for these reasons open source software need to be built which

would be cost effective for the entire society. In India, open source code software will have to come and stay in a big way for the benefit of our billion people. (qtd. in “President”)

Kalam even met with Richard Stallman of the Free Software Foundation in January 2004. Kalam is a respected scientist and engineer who emerged from India’s national security complex, joining the Indian Space Research Organisation in 1962 and moving to the Defence Research and Development Organisation (DRDO), as its director in 1982, where his research focused on guided missiles. Kalam also administered India’s underground nuclear weapons testing in May 1998, and advocates the promotion of the nuclear program for the advancement of India on the international stage. The industries with which Kalam has been affiliated throughout his career—aerospace, missile and nuclear programmes—are central components in the evolution of India’s software industry: “The intimate connection between Indian military technology and its success in software was noted as far back as 1997 by *Asia Times*, which suggested that the credit for Bangalore’s success as a global software center must be given to India’s military and aerospace program; this provided ‘rich pickings’ for U.S. corporations” (Sheshabalaya 179).

Even after Microsoft pledged \$400 million for “education, software localization and development” in India, President Kalam was openly advocating FOSS for India (Noronha, “Bill Gates”). The Gates’ Foundation’s Project Shiksha, which sought to train more than 80,000 teachers and 3.5 million students, tied its donation to the provision that only licensed Microsoft software be used in the training. Agreements such as Project Shiksha are precisely what President Kalam warned about in his speech, and they are exactly why many programming professionals in India have turned to the Free Software alternative in India, Swatantra Software. The name (based, recall, on a Hindi word for self-determination and reliance) not only overcomes the ambiguities of the English word *free*, it also “harkens back to India’s historic anti-colonial struggle” (Noronha, “FLOSS”). Swatantra Software shares the same license agreement as Free Software, the GNU General Public License; however, Swatantra Software is linguistically marked in a sociotechnical struggle with colonialism. In other words, the license mechanism is embedded in the legal machinery of transnational capital, but the cultural orientation—or *sentiment*, to use Apparadurai’s word—of Swatantra Software evokes locality and an indigenious language.

The word *swatantra* embodies a social aggregation—an ecology—of technology, history, nation, and language. And though Swatantra Software is not a solution for all of India’s social concerns, its combination of indigenous language and resistance to domination by foreign multinationals enacts a favourable social assemblage of national and technological modes of becoming for the reclamation of a measure of self-determination within the context of globalization. Software may emerge to a large extent from, and exist within, a sizeable military-industrial complex (in India and the United States), but the potentially beneficial effects of ICTs (health care technologies, literacy, digital art, for example) need not be discarded because of the undesirable provenance of the technology. Swatantra Software returns some portion of ICTs to the civil commons, and puts into law the ethics embedded in the software that will complement the civil commons.

One of the key areas in which enterprises such as Swatantra Software are already providing practical benefits for the people of India is in the area of software localization. Many proprietary vendors were slow to realize the benefits of translating their software tools into languages other than English and some European languages. In India, where there are over 850 languages spoken, a sizeable population cannot use software in their native tongue.

Some Indian regional languages are larger than those spoken by whole countries elsewhere. Hindi, with 366 million speakers, is second only to Mandarin Chinese. Telugu has 69 million; Marathi, 68 million; and Tamil, 66 million. Sixteen of the top 70 global languages are Indian languages with more than 10 million speakers. (Noronha, “Indian”)

If a given piece of software is proprietary, it is up to the corporation to translate its product into local languages. There is little incentive to do this for “undeveloped markets.” However, Indian FOSS advocates who promote localization projects see them as more than just additives for an expanding marketplace. IndLinux.org, an organization that promotes localization, describes its purpose in terms of cultural preservation: “Since culture is embedded in language to a significant degree,” says its website, “the ability to compute in one’s native language can give Indian culture a significant boost. We believe that technology, particularly the Internet,

can be one of the finest means of recording, archiving and propagating Indian culture” (<http://indlinux.org/about/>). The group also seeks to provide software applications for the non-English speaking majority in India, while making software affordable for India’s poor. Similarly, Rajesh Ranjan, a Hindi Language Maintainer at Red Hat and the Indic Language Co-ordinator for the Native Language Confederation of OpenOffice.org, argues that “if a language is not becoming part of digital advancement, then the language will become outdated and endangered,” and “the end of a language means the end of a culture.” Ranjan reminds readers that for “the people of real India,” English “represents the language and culture of British domination and exploitations.” To this end, “the localization movement in India has made ‘alien’ computer ‘desi’ one—*hamara computer, tumhara computer*” (Ranjan). Such localization projects are numerous, including an Indian government initiative to produce localized CDs in India’s 22 “official” languages. Other localization projects include: Ankur (<http://www.bengalinux.org/>), whose goal is to localize a GNU/Linux OS in the Bengali language; Utkarsh (<http://www.utkarsh.org/>), which localizes in the Gujarati language; a Punjabi project based in rural India (<http://punlinux.sourceforge.net/>); and projects in Malayalam, Kannada, Sinhala, and others. Ranjan frames FOSS as an extension of an “Indian tradition of selfless distribution of knowledge”: “We can say that the free software movement is the western version of the old Indian tradition,” he writes. Dr. G. Nagarjuna, Chairman of the Free Software Foundation of India and Scientist at Homi Bhabha Centre for Science Education, describes free software as a “cultural movement” focused on freedom more than economics: “We’re all generating code, we’re all generating expression, we’re all generating knowledge. That’s where we want to focus on. Not just on the industrial use of software. We want to demonstrate the potential of software for the country as a whole” (qtd. in Noronha, “What, Why”). Javed Tapia, President of Red Hat Indian Subcontinent until June 2006, went so far as to call free software “a humanitarian issue” (qtd. in “What Does”). The performance metrics that dominated the social construction of software for decades are gradually ceding to the affective markers indicative of the “cultural turn” in FOSS, most pronounced in the embrace of FOSS by developing countries.

FOSS localization efforts include a handheld device called the Simputer, which Bruce Sterling named the “most significant innovation in computer technology” for 2001. Designed by Indian firms such as Encore Software and the Indian Institute of Science to cost under \$200, the Sim-

puter runs on GNU/Linux and translates English-language websites into Indian languages, “reading the content aloud to illiterate users” (Sterling 98). The hardware specifications for the Simputer are licensed under the Simputer General Public License, which means the specifications are freely available. The Simputer is currently used “as a handheld solution for electricity billing in the state of Karnataka and in Kerala’s Akshaya digital literacy program” (Sheshabalaya 224). The Simputer has also been produced for Asia and Africa (D’Costa, “Indian” 20), though overall sales have not lived up to expectations. As with other FOSS initiatives, the Simputer offers both a cost savings for poorer countries that cannot afford proprietary Western licenses, and software and hardware specifications that remain part of the civil commons.

Conclusion

As Canadian Internet consultant Russell McOrmand argues, free software is a “sovereignty issue” (qtd. in Noronha, “Open”). Swatantra Software is one configuration of software license, language, and environment that returns technological expertise to the civil commons and reflects cultural and historical markers of Indian independence while postponing or even reversing the encroachment of American technocultural hegemony. As the case of India demonstrates, the cross-cultural articulation of modernity does not produce an “even” assimilation of local Indian culture to globalizing modernity; rather, Swatantra Software and software localization are instances of the cross-cultural exchanges in the dialectical construction of ICT, perturbations and resistances to colonizing proprietary software.

Just as the American software industry is only nominally “American,” the Indian software industry is only nominally “Indian.” “The geographic location of what is called the Indian software industry,” writes McDowell, “is neither coterminous with India’s borders nor with firms identified as Indian firms” (44). The real “location” of the American and Indian software industries is the heterogeneous experience of everyday life—walking the streets of Bangalore, using an ATM in Silicon Valley, learning to read off a Simputer in Kerala, or watching Saturday morning cartoons in Crawford, Texas. “As the *Associated Press* observed, ‘Indians today are linked to the United States in ways unimaginable only a few years ago’” (Sheshabalaya 198). The transformation of everyday life via technology occasions multiple subjectivities in disparate geographies: when Americans watch cartoons, order books from Amazon.com, use a

cell phone, or get an x-ray, the odds are India is producing some aspect of these encounters with technology (Sheshabalaya 3). As Appadurai writes,

The transformation of everyday subjectivities through electronic mediation and the work of the imagination is not only a cultural fact. It is deeply connected to politics, through the new ways in which individual attachments, interests, and aspirations increasingly crosscut those of the nation-state (10).

The notion of “free” in Free Software has long been defined according to speech and beer: “Free as in free speech,” Stallman is fond of saying, “not free as in free beer.” But as the Free Software movement takes the “cultural turn” Geert Lovink says it “is heading towards,” these metaphors may be “running out” as Free Software “transcends its original scene where every user by default was a programmer” (qtd. in Noronha, “Liberation”). In the future it may be more apt to talk about *free* as in *swatantra*, not free as in *masala tea*.

Notes

¹ Quoted by open source activist Venkatesh Hariharan at <http://osindia.blogspot.com/2007/05/success-of-open-source.html>.

² Software historian Martin Campbell-Kelly attributes America’s dominance of the software industry to its relatively early entrance into the computing marketplace, its substantial “diffusion of computers” in the domestic population, the clustering of computing expertise in places such as Silicon Valley and Route 128 in Massachusetts, and, perhaps most important, the sizeable government sponsorship of the SAGE defense system—about \$1 billion—with which the United States gained “a world lead in real-time systems that lasted at least a decade” (303-311). Massive government spending on software for military applications created a large pool of trained professionals that subsequently launched the U.S. software industry.

³ Forrester Research estimates that “offshoring” high-technology services could send “3.3 million American jobs overseas by 2015,” and Deloitte Consulting recently predicted that the financial services sector alone in the West would relocate a total of 2 million jobs over the next five years (Sheshabalaya 7). According to the Deloitte study, “\$356 billion worth of global financial services will relocate to India in the next five years [2004-2009]” (60).

⁴ “The Gartner Group estimates India had a 60 percent share of the offshore BPO [Business Process Outsourcing] (or back-office) market in 2003, and by 2007, Indian BPO revenues are forecast to grow 11-fold to \$13.8 billion” (Sheshabalaya 70).

⁵ As Sheshabalaya notes, “By 1996...Indian engineers in the U.S. accounted for nearly as much as the rest of the world put together. By the end of the decade, they accounted for no fewer than 20 percent of Microsoft’s U.S. employees, according to its Chairman Bill Gates, and 25 percent of Cisco’s, according to Chief Executive John Chambers” (137).

⁶ The *technical effect* is a term I appropriate from European Union software patent law. It offers an exemplar of the rhetorical ways in which software is demarcated in relation to the materiality of everyday life. Understanding software from the perspective of rhetorical ecology reveals that software participates in the complex processes that shape everyday habits, and is not simply a disembodied tool. Software inculcates habits that orient subjects in space, habits that respond to and feed into socially constituted moments, and habits that unite and divide cross-culturally. This discussion of Swatantra Software is an example of the cross-cultural technicity of software.

⁷ Moody’s characterization of the “widespread use of English” refers primarily to urban, industrialized India. Advocates of software localization note that only about 10% of Indians are literate in English, and without localization projects in indigenous languages most of rural India would not be able to use computers.

⁸ Author Pankaj Mishra warns of “the myth of the New India”: “Recent accounts of the alleged rise of India barely mention the fact that the country’s \$728 per capita gross domestic product is just slightly higher than that of sub-Saharan Africa and that, as the 2005 United Nations Human Development Report puts it, even if it sustains its current high growth rates, India will not catch up with high-income countries until 2106.” In addition, “nearly 380 million Indians still live on less than a dollar a day,” and the information technology sector, as successful as it is, represents only 1.3 million out of a working population of 400 million.

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