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THE HEGEMONY OF KEYBOARD DEFAULTS

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When Friedrich Nietzsche started writing on a typewriter, a 52-key brass Hansen Writing Ball, his correspondents noticed that his writing style changed dramatically. As one biographer stated, "the assumed immediacy of the written word—seemingly connected in a direct way to the thoughts and ideas of the author through the physical movement of the hand—was displaced by the flow of disconnected letters on the page, one as standardized as the other" (Emden 2005). The effects of this early writing machine are found throughout his work of this period, a brief one, as the typewriter eventually broke. On one page, the first line reads "MELSDNDRGILSTHCZMQNMOY" (ibid.). While these effects are legible in the early days of keyed writing machines, they remain largely hidden in our own. The computer keyboard, even more than the Hansen Writing Ball, conceals a hegemonic mechanism that silently shapes our writing.

No single tool is more fundamental to writing today—and more unexamined—than the computer keyboard. It is crucial that we examine this physical means of production of cognitive/virtual labor—one whose power is elided by a sense that it sits passively in the background of our writing, rather than shaping it. In this paper we critically evaluate the impact of keyboard defaults, both on English speakers (for whom QWERTY was originally designed), as well as speakers of other languages.

We use data from Keyman, a free source of downloadable keyboards that support more than 2000 languages, in conjunction with Kornai's digital vitality index (2013) and Zaugg's 2017 Ethiopic case study, to investigate how low-resource language speakers work to make communication possible using current keyboard technologies. Kornai's work argues that less than 5% of languages will achieve digital vitality while 95% or more face digital extinction. His analysis utilizes Wikipedia size as the key marker of languages' digital use. We argue that due to the culturally-specific nature of the encyclopedia model (Wadhwa & Fung 2014), as well as patterns in multilingual

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societies of using English and other colonial/imperial languages within educational and professional realms (Zaugg 2017), Wikipedia is a poor indicator of digital vitality for low-resource languages. We argue that patterns in the downloading of language-specific Keyman keyboards provides technologists' insight into "hidden" digital vitality, such as language use in PMs and social media, among language communities that would benefit from increased digital support.

Most of us in the West never consider that the standard QWERTY key layout, i.e. the staggered key design and the selection of keys available, is anything but the received, traditional means of text input. As such, keyboard/device manufacturers wield a unique form of power: they dictate the kind of words we can create. They further decide, however unconsciously, the motions our fingers take when we write. The traditional QWERTY layout places the most frequently-used English letters far apart from one another, and from the typist's home row. This was designed to prevent mechanical typewriters from jamming, but serves no practical purpose on modern keyboards (let alone mobile devices). This design choice, along with the staggered key layout inherited from typewriters, is responsible for repetitive stress injuries that could be reduced by improved ergonomics. Similarly, characters like the underscore (_), carat (^) and tilde (~) existed to add underlines or accents to characters on a typewriter, when used in conjunction with the backspace key, but have lost those meanings on computer keyboards. Meanwhile, other frequently-used English characters, such as the em-dash (—) and curly quotation marks (“”), can only be accessed via modifier keys or software layers. QWERTY may even shape the meaning of words that we type (Jasmin & Casasanto 2012). Furthermore, considering the global reach of QWERTY against the backdrop of language diversity, and particularly the approximately 300 non-Latin scripts in existence, the hegemony of default QWERTY keyboards is a manifestation of the ongoing impacts of the colonial legacy within digital technologies.

The challenges that English-speakers face when using QWERTY are magnified for those using a QWERTY-keyboard to write other languages. Typing in Latin-based languages requires extra steps to utilize characters outside the basic English character set. For other writing systems, bending QWERTY to fit one's needs often results in drastic measures. Some users capitalize on visual similarities between Latin characters and their own writing system, such as Arabic written in "Arabizi." In other cases, such as Amharic—Ethiopia's national language, written in the Ethiopic script—QWERTY defaults result in roughshod Latin transliteration, i.e. approximating the sound of a word in the Latin alphabet.

While an inventive workaround for those lacking access to an Ethiopic keyboard, this practice has negative ramifications. First, it is difficult to read transliterated text, as no widely-used standardized spelling exists. This also encumbers "search" because of the many possible variations in spelling. These variations are compounded by the fact that Amharic includes sounds that do not exist in English and are therefore not readily represented using Latin characters. Furthermore, despite the characterization of Ethiopic as a syllabic script in Western scholarship, Ethiopic characters in fact embody multiple levels of meaning, including a religious and numeric meaning associated with the ancient Ethiopian Orthodox Tewahedo Church. Transliteration into Latin depletes Amharic words of their multiple layers of meaning (Zaugg 2020). A non-traditional

content analysis of Facebook comments Zaugg conducted in 2017 revealed that more than half of those written in Amharic are transliterated into the Latin script, highlighting the large impact that gaps in Ethiopic keyboard access and use are having in the digital sphere.

A further “cost” of QWERTY defaults is a switch to English, a second/additional language for many Ethiopians, as many prefer to type in English to transliteration. As such, QWERTY keyboards are contributing to patterns of online (and likely downstream effects offline) language shift away from Amharic and towards English, as well as potentially degrading young people’s literacy in their native script due to disuse. This form of subtle language imperialism is happening across the globe. Furthermore, the knock-on effects of QWERTY extend beyond the digital sphere in the form of “logics” that impact policy. For example, in 1991 Ethiopia’s regional government of Oromia declared that Oromo would henceforth be written in Latin characters rather than Ethiopic. While widely recognized as a political move to distance ethnic Oromos from other Ethiopic language communities, one official justification given was that Latin characters are better supported by digital technologies (Yimam 1992).

Despite the persistence of keyboard defaults, the future of keyboards holds some potential for change. As smartphone use overtakes use of traditional computers, we may see the proliferation of alternative keyboard layouts, such as Colemak and Dvorak, as well as software keyboards which are more customizable. Hope also lies in the potential for reimagining physical keyboards, as in small-run keyboards by Optimus and Nemeio, which allow users to program LED/e-Ink labels for each key. Keyman download statistics also point to digitally-active language communities (including a robust Amharic-speaking community) that are seeking out and also developing keyboards that fit their scripts and languages, despite in many cases a lack of sufficient support from major tech companies. We hope our investigation will lead to greater critical consideration of keyed computer input methods, as well as innovations that serve linguistic equity, humane values, and independence.

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