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The QWERTY Effect Does Not Extend to Birth Names

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The QWERTY effect suggests a consequence to word meaning deriving from the placement of letters on a QWERTY keyboard. Jasmin and Casasanto (2012) reported that words formed primarily of letters from the left side of the keyboard were more aversive in nature, whereas those on the right side were more attractive (right-side advantage, RSA); they concluded that those individuals branding new products could ensure a positive affect by attending to the balance of letters. I tested this hypothesis on arguably the most important branding decision an individual can make, the naming of a baby, by associating name popularity against RSA. Names and their rank among the top 1000 names reported to the Social Security Administration were gathered for each decadal interval between 1880 and 2010 (*n* = 28,000 names). I found no evidence for the QWERTY effect in child names (β_{RSA} = 0.007; 95% CI = [–0.014, 0.027]). Instead, gender-specific patterns in name popularity were related to length of name ($\beta_{Name\ Length}$ = 0.079 [0.058, 0.099]). Parents should not be concerned that positive affect is dictated by the QWERTY effect.

KEYWORDS birth name, cumulative link model, name length, ordinal regression, right-side advantage, Social Security

Fluent motor action, as in sports and handicrafts, is generally regarded with positive feelings and experiences (Oppenheimer, 2008; Ping et al., 2009). Jasmin and Casasanto (2012) recently suggested typing as a motor action has the potential to influence perception of words through a phenomenon described as the QWERTY effect. Putatively, the location of letters on a QWERTY keyboard influences the intrinsic attractiveness or aversiveness of words (Beilock and Holt, 2007; Van den Bergh et al., 1990). The asymmetry of the QWERTY keyboard makes letters on the right side of the keyboard easier to type, and therefore words comprised of a majority of "right-side" letters (i.e. y, u, i, o, p, h, j, k, l, n, m) are often regarded as more attractive. Jasmin and Casasanto (2012: 504) recently provided evidence for a relationship between the magnitude of the QWERTY effect (as measured by the magnitude difference between right-side letters and left-side letters in a word) and attractiveness

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(as measured by the positivity attributed on average to a particular set of words), and concluded with the following, “People responsible for naming new products, brands, and companies might do well to consider the potential advantages of consulting their keyboards and choosing the ‘right’ name.” I tested this hypothesis on arguably the most important branding of new products, the naming of babies (Edwards and Caballero, 2008; Whissell, 2009). I assessed whether right-side advantage was associated with rank popularity in birth names as recorded by the Social Security Administration of the United States since 1880.

As Jasmin and Casasanto (2012) noted, the QWERTY keyboard was invented in 1868, with the patent awarded to Christopher Sholes in 1878 (Logan and Crump, 2011; Yasuoka and Yasuoka, 2009). Telegraph operations, notably Teletype in 1910, and subsequent computing terminals, adopted the QWERTY keyboard (Yasuoka and Yasuoka, 2009). The coincidence of the birth name register of the Social Security Administration and the invention and subsequent commercialization of the QWERTY keyboard design allows for testing whether the rise in keyboarding led to changes in the attractiveness or aversiveness of birth names over the last 130 years. If the QWERTY effect were a broad phenomenon influencing the way people perceive words, then we should expect to see a right-side advantage emerge over time in the choices for and popularity of baby names.

Methods

The Social Security Administration provides a ranked list of the 1000 most popular names given to male and female children born in the United States in any given year between 1880 and 2010 (<http://www.ssa.gov/cgi-bin/popularnames.cgi>). According to the Social Security Administration, many people born before 1937 never applied for a Social Security card, so their names were not included in the database. Because of potential bias in the number of birth names in the early portion of the records, I focused analyses on name rank rather than name frequency. I collected the 1000 male and 1000 female names, along with their corresponding name rank, reported at each decadal interval between 1880 and 2010, for a total of 28,000 names (n = 2 genders × 14 intervals). Each name was ranked from 1 (most popular) to 1000 (least popular). For each name, I determined the frequency of right-side letters (y, u, i, o, p, h, j, k, l, n, m) and left-side letters (q, w, e, r, t, a, s, d, f, g, z, x, c, v, b). As in Jasmin and Casasanto (2012), I calculated right-side advantage (RSA) as [RSA = (# right-side letters) − (# left-side letters)]. I also calculated the length of each name and the frequency occurrence of each letter.

Name rank is an ordinal scale variable. Cumulative link models (Agresti, 1990) are an appropriate analytical approach for such data because observations are treated correctly as categorical, the ordered nature of those categories is recognized, and the flexibility of regression, including associated model diagnostics, allows in-depth analyses. As such, to test the hypothesis that RSA contributed to infant birth name popularity, I fit a cumulative link mixed-effects model (Agresti, 2002):

$\mathrm{logit}(P(\mathrm{Rank}_i \leq j)) = \theta_j - \beta_1(\mathrm{RSA}_i) - \beta_2(\mathrm{Name\ Length}_i) - \beta_3(\mathrm{Gender}_i) - \beta_4(\mathrm{Age\ Category}_i) - \beta_5(\mathrm{RSA}_i \times \mathrm{Name\ Age}_i) - u[\mathrm{Name}_i]$, where $i = 1, \ldots, n$, $j = 1, \ldots, J - 1$; i indexes all observations, j indexes ranks. The likelihood was calculated with the adaptive Gauss-Hermite quadrature approximation set to −10. (R. H. B. Christensen, pers. comm.)

As in Jasmin and Casasanto (2012), I included Name Length as a fixed effect covariate because of the role it can play in determining the magnitude of RSA. I treated Gender as a fixed categorical variable. Because of shared name occurrences across decades and genders, I included Name as a random effect. Because at least 58 percent of ranked names existed at the time the QWERTY keyboard came into existence, I also examined whether right-side advantage emerged among newly described names over time by including an interaction of RSA and Name Age. Name Age was a categorical variable ranging from 0 for names existing in 1880, 1 for names new to the rank of 1000 top names in 1890, and so on up to 13 for those names new in 2010; if the QWERTY effect were an important determinant of name popularity, we should expect a negative coefficient, potentially increasing in magnitude with time, for RSA × Name Age (as Name Age and RSA increase, popularity should increase and therefore rank value should decrease [i.e., go toward the most popular ranking, #1]).

All calculations were conducted in R 2.14 (R Development Core Team 2011), including package *ordinal* (Christensen, 2011). It is worth noting that, because of the large sample size and continuous nature of the ranks, results of this model were the same as that given by a linear mixed-effects regression of Name Rank against the fixed and random effects, as calculated in package *lme4* (Bates et al., 2011). To visualize temporal patterns in parameter estimates, I plotted decadal coefficients and their profile likelihood confidence intervals from cumulative link fixed-effects models, *sensu* Gelman and Hill (2007).

Results

There were 5399 names in the 28 lists of the top-ranked 1000 names. Some names, such as Jessie (n = 28; RSA = +2), Jean (n = 26; [0]), Lee (n = 26; [−1]), Leslie (n = 26; [0]), and Dana (n = 25; [−2]), were ubiquitous, ranked among the most popular 1000 names in most decades for both genders. Other names (n = 809 female, 608 male) occurred only once among the 28 top-1000 lists. Names were, in general, attractive according to the QWERTY effect (RSA = +0.66; 95% CI = 0.64, 0.69). The QWERTY effect in birth names was, however, largely a phenomenon of 7 letters (left-side: a, e, r, t; right-side: l, n, o), each correlated with right-side advantage (Pearson's r >|0.23|). I did not find, however, that right-side advantage contributed to Name Rank (β_{RSA} = 0.007; 95% CI = [−0.014, 0.027]), nor did it increase over time as hypothesized (Figure 1). Names new to the name rankings (names not observed in the 1880 Social Security ranking of names) were related to name rank (newer names were more popular in each decade) but newer names did not show appreciably more right-side advantage (mean difference between new ranked names versus names ranked in 1880, 0.14 [95% CI: 0.11–0.17]). Further, newer names exhibited no significant associations in the hypothesized negative direction except in one of fourteen decades, 1930. Rather than a relationship with right-side advantage, I found Name Rank was largely determined by Name Length ($\beta_{\text{Name Length}}$ = 0.079 [0.058, 0.099]). Male names were marginally shorter than female names (5.7 letters for males versus 5.9 letters for females). In early decades, shorter female names were more frequently given to newborns until about 1990 when longer names became more common (Figure 1); for males, shorter names were more popular in most decades.

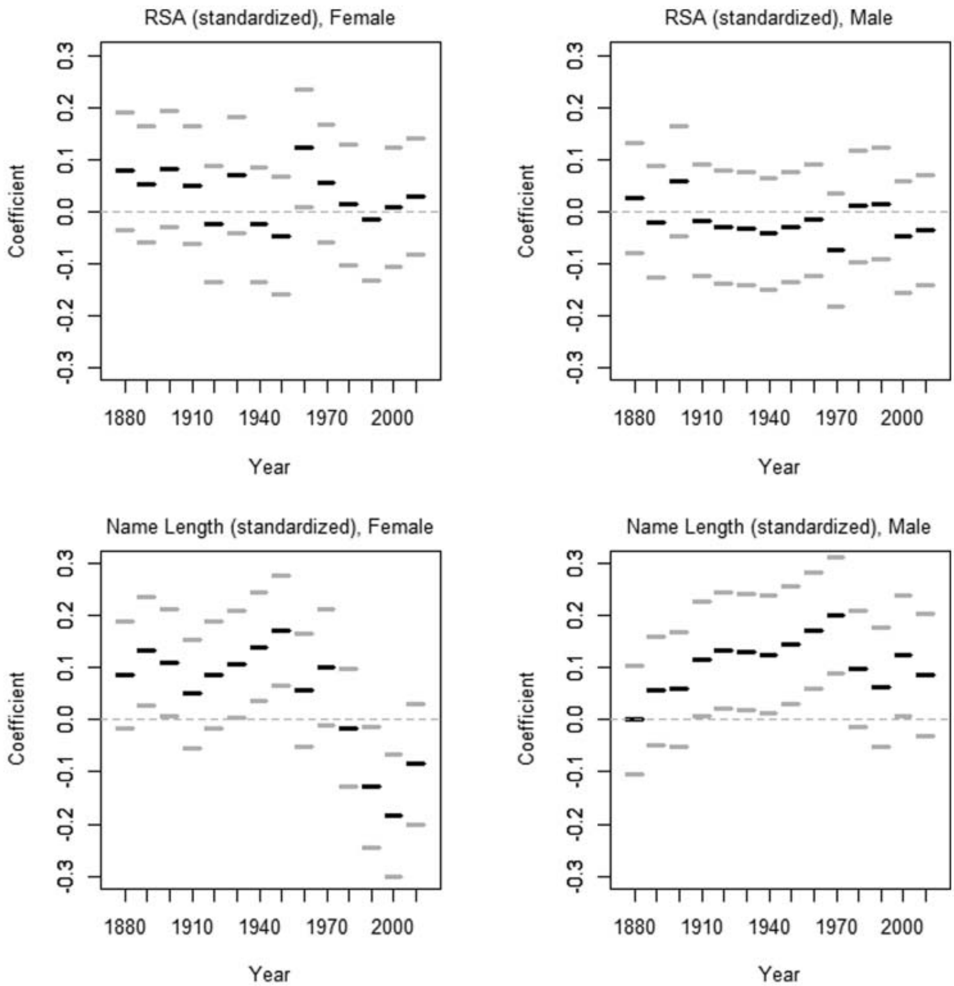

FIGURE 1 Median gender-specific parameter estimates (black) and their associated 95% confidence interval (gray) from decadal-specific cumulative link models relating birth name popularity in the United States (1880–2010) to right-side advantage (QWERTY effect) and name length. Coefficients confidently above the dashed line indicate lower name rank with increasing magnitude of the covariate; for instance, a positive covariate for female name length suggests a less popular name associated with longer names because higher rank is lower valued.

Discussion

For arguably the most important branding decision people make, the QWERTY effect does not extend appreciably to birth names. The least popular names were not the most aversive (i.e. RSA < 0), nor were the most popular names the most attractive, as measured by right-side advantage. Name length and name age, instead, were the more important determinants of name popularity. Whissel (2006) reported that name length for the most popular names in the twentieth century (those in the top ten of names given per year) was associated with a complex set of historical and socioeconomic factors, including the advent of the birth control pill and war. Edwards and Caballero (2008) emphasized the role collective identity, as determined by race, ethnicity, and faith, plays in naming preferences. Historical and socioeconomic factors shaping collective identity, rather than the QWERTY effect, are likely the formative contributors to the gender-specific temporal patterns I observed in name popularity.

Newness of the birth name influenced popularity. If parents desire a unique name for their newborn, the long-standing popularity of shorter names for boys suggests the selection of a longer older name, such as Anderson (Ranked No. 312 in 2010), Marshall (No. 374), or Franklin (No. 503). For parents of newborn girls, longer names have been popular the past couple decades, so distinctiveness may occur with selection of a shorter name, such as Helen (No. 437), Hanna (No. 515), or Ann (No. 911). Regardless, parents should not be concerned that positive affect is dictated by the QWERTY effect. This phenomenon is, if anything, a subtle one and does not warrant great consideration by those naming babies.

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