LEGAL CORPUS LINGUISTICS: GAMBLING TO GAMING LANGUAGE POWERS AND PROBABILITIES

Kezziah Dale

INTRODUCTION

Lawyers use words like mechanics use tools. The usefulness of words, to lawyers, lies largely in their meanings — both explicit and implicit, rational and emotional. Lawyers spend a great deal of time seeking to anticipate and eliminate ambiguity and uncertainty in what they say and write. Ambiguous words, like a broken wrench, mean more difficult work and less rewarding results.

This note uses concepts derived from the emerging field of corpus linguistics to quantify and analyze the differences between the legal and American English meanings of the term gaming. These differences will be of interest to lawyers practicing in the field of gaming. Perhaps more significant to lawyers are the interpretive and demonstrative possibilities presented by tools borrowed from the field of corpus linguistics, which can then be applied to the practice of law. These tools sharpen an understanding of meaning, identify and clarify the extent of ambiguities, and suggest useful interpretive and persuasive strategies.

This note examines language patterns of gambling and gaming over a 237-year timeline, spanning 1780 to 2017, based on queries from four different jurisdictions operating under the purview of the federal government and continues to August 2017. The United States Court of Appeals for the Third Circuit was established in 1801. Federal Judiciary Center, https://www.fjc.gov/history/administration/federal-judicial-circuits-third-circuit (last visited Aug. 1, 2017). Nevada became a state in 1864. Nevada Statehood, http://www.onlinenevada.org/articles/nevada-statehood (last visited Aug. 5, 2017). New Jersey became a state in 1787. Short History of New Jersey, NJ.Gov, http://www.nj.gov/nj/about/history/short_history.html (last visited Oct. 8, 2017). While there were federal courts operating in several of the present-day states that comprise the Third Circuit, the Third and Ninth were part of

1 I am indebted to Major Ary L. Dale, Prof. Rachel A. Hinman de Lloret, and Judge Richard A. Lloret for their invaluable support and advice. I am deeply grateful to the Gaming Law Journal staff and the William S. Boyd School of Law family for making this note a reality. Mistakes are my own.

2 The timeline starts at the earliest year that one of the four jurisdictions began operating under the purview of the federal government and continues to August 2017. The United States Court of Appeals for the Third Circuit was established in 1801. Federal Judiciary Center, https://www.fjc.gov/history/administration/federal-judicial-circuits-third-circuit (last visited Aug. 1, 2017). Nevada became a state in 1864. Nevada Statehood, http://www.onlinenevada.org/articles/nevada-statehood (last visited Aug. 5, 2017). New Jersey became a state in 1787. Short History of New Jersey, NJ.Gov, http://www.nj.gov/nj/about/history/short_history.html (last visited Oct. 8, 2017). While there were federal courts operating in several of the present-day states that comprise the Third Circuit, the Third and Ninth were part of
Supporting documentation contained within Datasheet I allows the investigator to efficiently (within a single file) test each gambling and gaming hypothesis. With statistical functions and Microsoft Excel software, this paper examines gambling and gaming term ambiguity. Gambling and gaming are profitable enterprises worth investigating, whether in the legal field, business arena, or mobile games market. Discovering gaming language patterns may reveal the language behavior of this consumer-based, billion-dollar industry. Part I of this note supplies a short introduction to concepts from corpus linguistics. Part II contains the analysis of legal and colloquial English corpora concerning gaming and gambling. Part III suggests some of the legal possibilities of tools derived from corpus linguistics.


3 These four databases are Corpus of Historical American English (COHA), Corpus of Contemporary American English (COCA), LexisNexis and WestLaw. Here, COHA, COCA, LexisNexis and Westlaw were selected because each corpora or database contains concordance functions. Specifically, an investigator is not required to utilize programming language to gain frequencies in a user-friendly format. Each corpora selected already contains natural language or Boolean search functions that deliver search results in a simple, structured format.

4 See Datasheet I, https://docs.google.com/spreadsheets/d/e/2PACX-1vQrBoFuNgXiuJ3kL3rAg_7V8UWrAPqgf54gNAJJJoofz1eOsjdOON7KnnAMY_PeiZdOSlUqv7A8DZd/pubhtml (last visited Mar. 20, 2018).


6 For example, gaming industry generated $240 billion economic impact, including $38 billion in taxes paid by the gaming sector in 2013 to local/state/federal agencies. Interestingly, the same data and economic impact referenced in an article about gaming is also in article about gambling. This could serve as an example in use of term ambiguity or may simply be redundant information misappropriated from one author by another. Elizabeth Barber, Report: U.S. Gaming Industry Generated $240 Billion Economic Impact in 2013, TIME (Sep. 30, 2014), http://time.com/3451338/report-u-s-gaming-industry-generated-240-billion-economic-impact-in-2013 [hereinafter Barber, Economic Impact]; Pierceall, $240 Billion, supra note 5.


8 See id.; Barber, Economic Impact, supra note 6; Pierceall, $240 Billion, supra note 5.
I. WHAT IS CORPUS LINGUISTICS AND HOW DOES IT BENEFIT LAWYERS?

A. Legal Language is Power

Language, whether written or spoken, is a powerful tool in the legal profession. Legal advocates with strong communication skills can be powerful and influential on a national scale — beyond the scope of advocacy. Awareness of how, where, when, and why changes in language effect the practice of law can aid an advocate or litigant in accomplishing their goals, whether they be regulatory, litigious, or commercial.

While the field of law is as old as civilization, the corpus linguistic field is quite new. In particular, legal corpus linguistics is an emergent academic method and a new type of language theory. Corpus linguistics “discover[s]
patterns of authentic language use through analysis of actual usage.”16 By using corpus linguistic analysis, a lawyer studying the results of written or spoken text may discover that meaning is affirmed by the use-in-context of a word or phrase. The meaning of a word or phrase could also be based on a referral to a standard or official definition. With this kind of empirical data, lawyers can examine what language patterns reveal about language behavior.17 For example, the meaning of the term gaming depends on the context in which it is used.18 As opposed to a static definition, context provides information about how and when a word is used.19 Before examining how and when gaming should be used for the greatest intended impact on an audience, there must be an initial investigation into the use of gaming language. Corpus linguistics is a helpful way to determine such a pattern.

B. Raw Frequencies and Context Suggest Intended Meaning20

The corpus linguistics conception of meaning-making in language, as mediated by natural language practices, is helpful in the legal profession because objective data replaces intuition or guesswork.21 Corpus analyses are
useful because identifying how often (frequency) and where (context, term-in-use) a word occurs allows a lawyer to see what scenario is likely to result in a particular meaning. Armed with frequency and contextual information discovered through corpus linguistics, lawyers can access subliminal language patterns, and intentionally craft the language best suited to communicate a particular message with their intended audience.

Like a multi-purpose pocket knife, various devices are used in the corpus linguistics field, which have their analogs in legal canons of construction. In the field of law, canons of construction are typically used to clarify ambiguous terms. Here, ejusdem generis is the screwdriver, cycling through a list toward the goal of intended use. Noscitur a sociis is the stud finder, searching for the meaning based on the context created by surrounding words. To consider societal and other influences shaping the meaning of different terms, corpus linguistics can provide an additional, multi-purpose method to legal canons and their overlapping concepts.

C. Are Judges and Practitioners Using Corpus Linguistics?

Courts across the country have used corpus linguistics when applying two-dimensional statutory language to three-dimensional cases. In 2011, Justice Lee of the Supreme Court of Utah used corpus linguistics to reason through an interpretation challenge on an adoption case. Although the Utah Supreme Court did not recognize corpus linguistics as an interpretive tool on par with

Path Forward (suggesting that lawyers import corpus linguistics when addressing the question of ordinary meaning).

22 See Lee & Mouritsen, The Path Forward, supra note 21; Krieger, Corpus, supra note 16.

23 See Krieger, Corpus, supra note 16 (“Corpus linguistics provides a more objective view of language than that of introspection, intuition and anecdotes.”). Also, corpus linguistics may provide a means of communication that is less subject to conscious manipulation. See e.g., Markus Wolf et al., Linguistic Analyses of Natural Written Language: Unobtrusive Assessment of Cognitive Style in Eating Disorders, 40 INT’L J. EATING DISORDERS 711, 712. (“[D]esire to present oneself in a favorable light. . .and offer another approach to nonreactive assessment. . .a person might be capable of consciously influencing the content. . .[they] will not be able to change the manner in which it is expressed. . .the language and words that are used.”).

24 A legal canon that limits the meaning of a word in a list by the sense of other words in a list. Ejudsem Generis, BLACK’S LAW DICTIONARY (10th ed. 2014).

25 A legal canon where one term may be determined by “the words immediately surrounding it.” Noscitur a sociis, BLACK’S LAW DICTIONARY (10th ed. 2014).


27 In re Adoption of Baby E.Z., 266 P.3d 702, 704, 707, 725-29 (Utah 2011).
traditional legal canons, in a 2015 case, Justice Lee’s concurrence adamantly defended the use of corpus linguistics as a tool that could help inform the court’s interpretation and understanding of statutes. By 2016, the Supreme Court of Michigan used the Corpus of Contemporary American English (hereinafter “COCA”) to identify the intended meaning and appropriate application of the term “information,” and ultimately reversed a Court of Appeals’ conclusion due to error. Corpus linguistic analyses may therefore expand the variety of interpretive tools available to lawyers and judges beyond the scope of the canons or dictionary use.

Legal interpretive theory benefits from an innovative way to “analyze ordinary meaning through a method that is quantifiable and verifiable.” As recently as 2016, the first law and linguistics symposium took place at Brigham Young University Law School (BYU Law). The 2017 Law and Corpus Linguistics Symposium hosted at BYU Law created an environment where legal and linguistics scholars explored incorporating linguistic study within legal practice. Therefore, legal corpus linguistics continues to gain momentum by creating a space where legal and corpus linguistics practitioners can discuss, examine, and explore the application of a new approach to understanding communicative methods.

30 People v. Harris, 499 Mich. 332, 345-349, 358, 885 N.W.2d 832, 838-41, 845 (Mich. 2016) (discussing that empirical data from a corpus demonstrated the opposite position to dissent’s claim about ordinary use of term interpretation).
34 Id.
II. CORPUS LINGUISTICS ANALYSIS OF GAMING AND GAMBLING

With word frequencies, a lawyer can examine whether or not utilized terms of art like gaming are due to random chance. Moreover, with context, a lawyer can decide which meaning of the word gaming most appropriately corresponds to the intended audience. In order to illustrate, this note’s analysis reviewed several billion words, compared written and spoken corpora, and charted natural language and legal language trends over a 237-year timeline. By employing statistical probability instead of faulty intuition or local assumptions, lawyers can choose between the use of gaming or gambling to effectively convey the intended message.36

A. Know Your Audience — Appreciate the Differences

Language patterns yield insight and clarity37 to legal practitioners and business professionals who seek to know their audience. Applications of language pattern results include aiding with statutory interpretation,38 improving purposeful and effective communication during litigation,39 and

36 The results of analyzing gaming are valuable because language behavior provides insight on the most appropriate meaning. Krieger, Corpus, supra note 16 (citing Jane Willis, Concordances in the Classroom Without a Computer, in MATERIALS DEVELOPMENT IN LANGUAGE TEACHING 51 (Brian Tomlinson, ed., Cambridge, 1998)). A lawyer, like a student, may be able to determine different meanings and uses of common words, useful words and typical collocations a person might use themselves, the structure and nature of spoken and written discourse, certain language features that are more typical of some kinds of text than others. See generally Lawrence M. Solan & Tammy A. Gales, Finding Ordinary Meaning in Law: The Judge, the Dictionary or the Corpus?, BROOKLYN L. SCH. LEGAL STUD., Research Paper No. 474 (Oct. 2016).

37 Clarity is achieved through addressing communication difficulties. A common difficulty associated with successful communication between two speakers exchanging information is the impact that a listener’s familiarity with the subject matter has on understanding the speaker’s message. Overview on Referential Communication, CTR. FOR ADVANCED RES. ON LANGUAGE ACQUISITION, http://carla.umn.edu/learnerlanguage/reference.html (last visited Oct. 2, 2017) [Hereinafter CARLA] (discussing that reference to things and people “are evaluated in terms of their communicative effectiveness” such as which entity, where the action took place, and what the entity did are used to evaluate communicative clarity). See GEORGE YULE, REFERENTIAL COMMUNICATION TASKS (2nd ed. 2013) (discussing that the definition of referential communication as those “communicative acts, generally spoken, in which some kind of information is exchanged between two speakers”). The effectiveness of communication is further dependent on whether the speaker’s information is old or new to the listener. That is, if the speaker assumes the audience is familiar or not with the communicated material. See CARLA, supra note 37.

38 Claimed statutory ambiguity, for example, may instead be an issue of reference or vagueness. Sanford Schane, Ambiguity and Misunderstanding in the Law, 25 T. JEFFERSON L. REV. 167 (2002).

39 An example of employing unambiguous (or contrarily vague) language would be on direct examination. See FED. R. EVID. 611(c); see also Anar Sarsenova & Diana
adopting a successful commercial marketing strategy. Effective communication is a means of relating to an audience on a personal level while also imparting ideas and theories or resolving a conflict, and is therefore a tool that any lawyer can put to use in practice.

Particularly in the legal profession, the diverse meaning imparted with gaming can create an ambiguity that can cause serious problems. For instance, a person who uses the word gaming may intend for the audience to understand the term as either a legal, business, or video game term of art. Thus, writers who seek to convey a particular word’s meaning should be aware of how the meaning can change with the contextual differences in meaning between legal and general usage. Indeed, the ambiguity may need to be spelled out if the expected audience consists of both types of listeners, and the writer may need to adopt document-specific conventions to point to a specific meaning.

Madibekova, Misunderstanding in Language and Ambiguity in Law, DIPLO FOUNDATION (Nov. 6, 2017) https://www.diplomacy.edu/blog/misunderstanding-language-and-ambiguity-law (“[W]e cannot know a word is vague, unless we know something about its use.”).


41 J. Kevin Barge, Creating Healthy Communities Through Affirmative Conflict Communication, 19 CONFLICT RESOL. Q. 89-90, 99 (Fall 2001) (discussing that text analytic methods quantify, among other categories, a writer’s “cognitive strategies”). Evidence of the cognitive strategy of the writer, supplied through text analytic methods, is a useful tool to assess, understand, and evaluate the impact of the communicative message expressed to an audience, as well as to the state of mind or intent of the writer. See Markus Wolf et al., supra note 23.

42 Assuming the scenario is one where clear communication is preferred over deliberate ambiguity. See Luuk Lagerwerf, Deliberate Ambiguity in Slogans, Recognition and Appreciation, 3 DOCUMENT DESIGN 245, 247 (2002), https://www.researchgate.net/publication/233623028_Deliberate_ambiguity_in_slogans_Recognition_and_appreciation (stating that there is a difference between deliberate ambiguity and word play).


44 Techniques from second-language teaching practices may be helpful when a person transition from a non-legal background to an environment like law school. See CARLA, supra note 37 (citing ELAINE TARONE & GEORGE YULE, FOCUS ON
meaning and avoid serious misunderstandings.

The terms *gambling* and *gaming* are often used similarly in statutory language.\(^{45}\) Both words describe social activities involving a "game,"\(^{46}\) the results of which involve and determine value transfers.\(^{47}\) Table 1 below illustrates the various meanings of the term *gambling*, depending on the dictionary source. Here, the *italic* words highlight similarities between the contemporary English dictionary (Merriam-Webster) and a legal dictionary (the Law Dictionary) — the latter of which derives its definitions from the second edition of Black’s Law Dictionary.

### Table 1: Gambling - Contemporary American English and Legal Registers

<table>
<thead>
<tr>
<th>Merriam-Webster Definition(^{48})</th>
<th>The Law Dictionary Definition(^{49})</th>
</tr>
</thead>
</table>
| **Verb with Direct Object**\(^{50}\) 1) to **risk** by gambling or wager 2) venture, hazard | To play a game in which you can **win or lose** money or possessions; to bet money or other valuables  
Betting; wagering. Results in either a _gain or total loss_ of wager, the money or asset put up. |
| **Verb without Direct Object**\(^{51}\) 1(a) to play a game for money or property 1(b) to bet on an uncertain outcome | To **risk** losing (an amount of money) in a game or bet  
To **risk** losing (something valuable or neither risk-taking nor investing, nor like insurance.  
_Risk taking_ or speculation takes on _substantial short-term risk to potentially get high gain_.  
Investing uses property or assets to potentially increase in worth. |

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\(^{45}\) *Gaming*, _The Law Dictionary_, http://thelawdictionary.org/gaming/ (last visited Mar. 10, 2017) (quoting *Gaming*, BLACK’S LAW DICTIONARY (2nd ed. 1910)) (“The words ‘gaming’ and ‘gambling,’ in statutes, are similar in meaning, and either one comprehends the idea that, by a bet, by chance, by some exercise of skill, or by the transpiring of some event unknown until it occurs, something of value is, as the conclusion of premises agreed, to be transferred from a loser to a winner, without which latter element there is no gaming or gambling.”).

\(^{46}\) _Game_ and its abstractions, such as “game theory,” are themselves a fascinating study. _See_ David K. Levine, _What is Game Theory?,_ DEP’T OF ECON., UCLA, http://levine.sscnet.ucla.edu/general/whatis.htm (last visited Oct. 8, 2017).

\(^{47}\) _Gaming_, _The Law Dictionary_, _supra_ note 45.


\(^{50}\) _Gamble_, MERRIAM-WEBSTER, _supra_ note 48.

\(^{51}\) _Id._
2) to stake something on a contingency, take a chance (important) in order to do or achieve something securing long-term capital gains. Insurance can prevent financial loss but has no way to gain.

Unlike *gambling*, *gaming* definitions are not similar across dictionaries. Here, a major difference between the contemporary and legal dictionaries is “the playing of games that simulate actual conditions (as of business or war)”\(^{52}\) or “playing of video games.”\(^ {53}\) Table 2 below illustrates the complexity of *gaming* as a three-fold ambiguous term, since its meaning varies depending on the reference or context in which it is used.\(^ {54}\) The *italic* words highlight similarities across the definitions, while those that are *underlined* showcase a dissimilar or outright separate meaning.

### Table 2: Gaming - Contemporary American English and Legal Registers

<table>
<thead>
<tr>
<th>Gaming</th>
<th>Merriam-Webster Definition</th>
<th>The Law Dictionary Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) the practice of gambling (2) (a) the playing of games that simulate actual conditions (as of business or war) especially for training or testing purposes, (2)(b) the playing of video games</td>
<td>The act or practice of <em>playing games</em> for stakes or wagers; <em>gambling</em>; the playing at any game of hazard. An agreement between two or more persons to play together at a game of chance for a stake or wager which is to become the property of the winner, and to which all contribute.</td>
<td>Gaming is an agreement between two or more to risk money on a contest or chance of any kind, where one must be loser and the other gainer.</td>
</tr>
</tbody>
</table>

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\(^{53}\) *Id.*


\(^{55}\) *Gaming*, *MERRIAM-WEBSTER*, supra note 52.

\(^{56}\) *Gaming*, *THE LAW DICTIONARY*, supra note 45.
As you can see in these tables, the word *gaming* has multiple meanings that depend on the context and audience. To discover the term’s intended meaning in a given text, one can begin with instances of the term used in context. Additional methods to observe and analyze term use include charting language patterns and mapping probabilities.

**B. What Does a Language Pattern Look Like?**

With a visual representation of how a term is used, lawyers can review that term’s ordinary meaning in action. In this study, a charted control group and test groups illustrate the change of a word’s meaning over time. The control group contained dated complied from Corpus of Historical American English (COHA) and Corpus of Contemporary American English (COCA) query results. The control group serves as a baseline for frequency and contextual use. Comparing and contrasting the control group to the test group’s case law data can unveil possible language trends.

This study’s test group represented four jurisdictions: Nevada, New Jersey, the Ninth Circuit, and the Third Circuit. New Jersey and Nevada were selected because each contain a traditional gambling metropolitan area, while written opinions from the Ninth and Third Circuits expand the sample group and

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57 See infra note 73.
58 The timeline starts at the earliest year one of the four jurisdictions began operating under the purview of the federal government and continues to August 2017. New Jersey became a state in 1787. http://www.nj.gov/nj/about/history/short_history.html (last visited Aug. 5, 2017 at 10:17PM). Nevada became a state in 1864. http://www.onlinenevada.org/articles/nevada-statehood (last visited Aug. 5, 2017 at 10:16PM). The United States Court of Appeals for the Third Circuit was established in 1891. https://www.fjc.gov/history/administration/federal-judicial-circuits-third-circuit (last visited Aug. 1, 2017 at 7:13PM). While there were federal courts operating in several of the present-day states that comprise the Third Circuit, the Third and Ninth were part of the thirteen federal circuits designated in 1891. See https://ballotpedia.org/United_States_Court_of_Appeals_for_the_Third_Circuit (last visited Aug. 1, 2017 at 7:18PM).
61 New Jersey contains Atlantic City where games of chance have operated exclusively. Michael Belletire, et al, Legislating and Regulating Casino Gaming: A View from State Regulators, 5, Mar. 1, 1999, http://govinfo.library.unt.edu/ngisc/reports/belletire.pdf (“In New Jersey, casinos are limited to a single location—Atlantic City.”). Single location casino operations differ from the Nevada licensure model. Id. at 4, (“Casino gaming in Nevada most closely approximates the free market. . . model of economic activity.”).
improve dataset diversity. By applying corpus linguistics analysis to this data, lawyers can test theories on gaming’s ordinary meaning, and determine whether the term’s social and legal uses are similar or significantly different.

Here, data gleaned from the COHA queries illustrate the frequency of the two similar terms over 190 years. While gambling and gaming are separated in 2000 by only 4.57 normalized points, gambling remained the most common term without overlap or dipping below gaming frequencies. Table 3 is an illustration of the COHA results for the use of gaming and gambling from the 1810s to 2000s.

Table 3

<table>
<thead>
<tr>
<th>Year</th>
<th>COHA Gaming</th>
<th>COHA Gambling</th>
</tr>
</thead>
<tbody>
<tr>
<td>1810</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td>1830</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>1850</td>
<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>1870</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>1890</td>
<td>4.0</td>
<td>4.5</td>
</tr>
<tr>
<td>1910</td>
<td>5.0</td>
<td>5.5</td>
</tr>
<tr>
<td>1930</td>
<td>6.0</td>
<td>6.5</td>
</tr>
<tr>
<td>1950</td>
<td>7.0</td>
<td>7.5</td>
</tr>
<tr>
<td>1970</td>
<td>8.0</td>
<td>8.5</td>
</tr>
<tr>
<td>1990</td>
<td>9.0</td>
<td>9.5</td>
</tr>
</tbody>
</table>

In contrast, the data collected from COCA shows what appears to be an increase in gaming over gambling starting in 2009. Table 4 below is an illustration of the COCA results for the use of gaming from the 1990s to 2017. The COCA results are fascinating — over a twenty-five-year period, use of the multi-faceted term gaming surpassed the verb gambling in frequency.

The moving average smooth scatter plot shown is the most useful for this fluctuating dataset; the logarithm, polynomial, power, linear, and exponential trend lines were considered but all had an R value between .4 and .8, not within .01 of 1. See Choosing the Best Trendline for Your Data, MICROSOFT, https://support.office.com/en-us/article/Choosing-the-best-trendline-for-your-data-1bb3c9e7-0280-45b5-9ab0-d0c93161da8 (last visited Oct. 9, 2017); see also infra Appendix I; Datasheet I, supra note 15, at tab COHA COCA Norm.


63 The moving average smooth scatter plot shown is the most useful for this fluctuating dataset; the logarithm, polynomial, power, linear, and exponential trend lines were considered but all had an R value between .4 and .8, not within .01 of 1. See Choosing the Best Trendline for Your Data, MICROSOFT, https://support.office.com/en-us/article/Choosing-the-best-trendline-for-your-data-1bb3c9e7-0280-45b5-9ab0-d0c93161da8 (last visited Oct. 9, 2017); see also infra Appendix I; Datasheet I, supra note 15, at tab COHA COCA Norm.


65 The reason for this shift is an area open to further study of the term in context.
1. Is There a Significant Statistical Difference Between Gambling and Gaming?

Although Table 3 appears to show that gaming occurs more frequently in ordinary communication than gambling, looks can be deceiving. To test the theory that use of the term gaming is surpassing the use of gambling, the “statistical significance” must be calculated through the probability (p) equation. For a difference to be statistically significant — as opposed to being “practically significant” — the resultant p-value should be less than 0.05. Table 5 below illustrates the probabilities of gaming and gambling as used in the COHA and COCA.

Table 5: Gambling and Gaming Probabilities

<table>
<thead>
<tr>
<th>Linguistic Corpora</th>
<th>Gambling to Gaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>COHA 1810 to 2000</td>
<td>1.66E-08 &lt; P &lt; .05</td>
</tr>
<tr>
<td>COCA 1990 to 2015</td>
<td>2.17E-06 &lt; P &lt; .05</td>
</tr>
</tbody>
</table>

See Datasheet I, supra note 4, at tab COHA COCA Norm (providing numerical values).

0.05 is the conventional or arbitrary p-value. Jeff Sauro, What Does Statistically Significant Mean?, MEASURINGU (Oct. 21, 2014), https://measuringu.com/statistically-significant [hereinafter Sauro, Significant].

To find the probability between gambling and gaming, I applied the following excel formula: T.TEST(array1, array2, tails, type). See Datasheet I, supra note 15, at tab COHA COCA Norm, cells H6 & L65. The Data Analysis Toolpak is not included in Excel for Mac so I used a shortcut method in lieu of access to Data Analysis Toolpak. Running a -est in Excel, RWU, https://www.rwu.edu/sites/default/files/downloads/licas/mns/running_a_t-test_in_excel.pdf (last visited Dec. 9, 2017). I used normalized data from each timeline for Array 1 and 2 where Array 1 was the gambling frequency per year group and Array 2 was the gaming frequency per year group. Two tails were chosen to mitigate the risk of only capturing movement in one direction; the use of three variables was appropriate because the variance between the two was either unknown or not substantially similar within a degree of one.
Because the probability value is less than 0.05, a statistically significant difference exists between the use of gambling to gaming in historical and contemporary American English. But what about gaming as a legal term of art?

2. **Is the Difference Among Cases Containing Gambling Compared to Gaming Statistically Significant?**

The statistical probability of a significant difference is particularly interesting when viewing the results from legal corpora data. Probabilities greater than 0.05 (P > 0.05) mean that an investigator could observe a difference whether or not it truly exists. Table 6 below illustrates the frequency of gaming and gambling in the author’s research. To begin, the WestLaw data for Nevada and New Jersey resulted in P > 0.05. Therefore, amongst both states, the difference in the use of gambling and gaming is not significant enough to support the hypothesis. Conversely, the LexisNexis data resulted in P <.05, proving that a statistically significant difference exists between gambling and gaming use across both states.

<table>
<thead>
<tr>
<th>Jurisdiction: Timeline</th>
<th>Lexis Gambling to Gaming</th>
<th>WestLaw Gambling to Gaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevada: 1860 to Aug. 2017</td>
<td>.025 &lt; P &lt; .05</td>
<td>.269 &gt; P &gt; .05</td>
</tr>
<tr>
<td>New Jersey: 1780 to Aug. 2017</td>
<td>.002 &lt; P &lt; .05</td>
<td>.530 &gt; P &gt; .05</td>
</tr>
<tr>
<td>Ninth Circuit: 1891 - Aug. 2017</td>
<td>3.06E-05 &lt; P &lt; .05</td>
<td>.01 &lt; P &lt; .05</td>
</tr>
<tr>
<td>Third Circuit: 1891 - Aug. 2017</td>
<td>.001 &lt; P &lt; .05</td>
<td>.03 &lt; P &lt; .05</td>
</tr>
</tbody>
</table>

Moreover, unlike Nevada or New Jersey, a statistically significant difference exists between gambling and gaming frequencies in Ninth and Third Circuit case law across each calculated probability from the LexisNexis and WestLaw data sets. While they may be used similarly in statutes, the terms likely occur in different contexts and may therefore have multiple meanings. Therefore, a future study could examine the likelihood of gambling or gaming occurring in a given communicative context.

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69 The probability of both words occurring with a similar variation is highly unlikely, because both p-values are not only less than 0.05, they are less than .001. That means there is a 1 in 1000 possibility they are a result of random chance. See Sauro, Significant, supra note 67.

70 There is no statistically significant difference between the frequency means for gambling and gaming, supporting a null hypothesis. See Sauro, Significant, supra note 67.

71 Datasheet I, supra note 4, at tab Lexis West Norm, cells B111 to L111 (state probabilities), cells E26, H26, L26 & N26 (circuit probabilities).

72 For example: What kind of audience uses the terms gaming and gambling in similar contexts? Or, how have judges used the terms and does this use denote a change in the meaning of gaming within the legal community?
One difference that became apparent throughout the course of this study was that LexisNexis and WestLaw systems vary regarding the cases that are covered in each jurisdiction. WestLaw and LexisNexis are competing systems, owned and operated by different companies, and each database uploads and maintains different legal material. Although the accuracy of any corpus linguistic investigation is limited by the sample size and user error, in the interest of continuing a legal corpus linguistic discussion, the case law data in the upcoming Part II section C of this note only reflects LexisNexis datasets.

C. What does a Circuit or State Jurisdiction Language Pattern Look Like?

1. Are the Ninth and Third Circuits Utilizing Gambling and Gaming at a Similar Rate?

The Ninth and Third Circuits frequency per number of cases differ within each decade. Tables 7 and 8 below are illustrations of Circuit frequencies of gaming and gambling queried from 1891 to August 2017.

Table 7

<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>9th Cir. Normalized Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

Table 8

<table>
<thead>
<tr>
<th>Time (Decade)</th>
<th>3d. Cir. Normalized Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880</td>
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<tr>
<td>1900</td>
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<td>1920</td>
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<td>1980</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

Datasheet I, supra note 4, at tab Lexis West Norm, starting at cell C24.
Id. at tab Lexis West Norm, starting at cell I24.
As evidenced by tables above, gambling appears to be more prominently used than gaming in both Circuits. However, it is worth noting that the Table 7 and 8 datasets represent the total number of cases \textit{per decade}, rather than the total reported cases. Illustrating the reported case frequencies may create a very different impression of the utilization of gambling and gaming.\textsuperscript{75} Nonetheless, the rate at which the term gaming appears to arise across both Circuits could be significant, and it may indicate that the frequency of the term is not static.\textsuperscript{76} Future contextual studies could examine the frequency at which the use of gaming versus gambling changes depending on the context in which they appear in cases.\textsuperscript{77}

2. \textit{Does Gambling Occur at a Greater Frequency Than Gaming in New Jersey or in Nevada?}

New Jersey and Nevada’s jurisdictional language patterns are fascinating. The state comparison is an illustration of yet another corpus linguistic application for lawyers. Tables 9 and 10 below illustrate the New Jersey and Nevada frequencies. While recent\textsuperscript{78} New Jersey frequency patterns appear similar to the movement in the Ninth and Third Circuits during the same time period, gaming seems to outperform gambling normalized frequencies in 1840.\textsuperscript{79} This overlap may maintain a point separation where gambling occurs more often than gaming. Overall, a possible influence on New Jersey’s legal use of either term may be due to the economic changes within the state’s casino business.\textsuperscript{80}

\textsuperscript{75} The contrast and comparison of gaming to gambling in published opinions is an area open to further study.
\textsuperscript{76} The confidence interval of each term by jurisdiction is an area open to further investigation.
\textsuperscript{78} Datasheet I, \textit{supra} note 15, at tab Lexis West Norm, starting at cell B83 (providing data from 1990 to 2017).
\textsuperscript{79} Comparing 40.71 gaming normalized frequencies to 27.14 gambling. Id. at tab Lexis West Norm, cells I92, J92.
Separate from the other three jurisdictions, Nevada language patterns highlight the possibility that *gaming* has risen to the point of surpassing *gambling*. This suggests that the current dominant legal term to express activities of chance and skill may no longer be *gambling* but *gaming* within Nevada.

Datasheet I, *supra* note 4, at tab Lexis West Norm, starting at cell I83.

Comparing 107.98 *gaming* normalized frequencies to 89.56 *gambling*. *Id.* at tab Lexis West Norm, cells D109, C109.

Author uses “may” because this analysis is comprised of normalized frequencies and does not separate the terms-in-use into subcategories, such as eliminating proper nouns from sourced data, annotating common collocates, or identifying type of adjective/adverb within a certain number of words to term.

Furthermore, the variations in frequency between Nevada and New Jersey may be due to the timeline differences of when the states’ legislatures enacted relevant gaming statutes.\footnote{There were several decades between when the Nevada legislature established the Gaming Control Board (1955) and Gaming Commission (1959), and when the New Jersey legislature established the Casino Control Commission (1977), passed the first Casino Control Act (1988), and established the current, gaming-language-heavy Casino Control Act (2011). See Gaming Regulation History, NEV. RESORT ASS’N, http://www.nevadasresorts.org/regulation/history.php (last visited Oct. 10, 2017); A Brief History of the Casino Control Commission, STATE N.J. CASINO CONTROL COMM’N., http://www.nj.gov/casinos/about/history/ (last visited Oct. 10, 2017); Chuck Humphrey, New Jersey Gambling Laws, GAMBLING-LAW-US.COM, http://www.gambling-law-us.com/State-Laws/New-Jersey/ (last visited Oct. 10, 2017); Casino Control Act, N.J.S.A. 5:12-1 et seq. (2017).}

As demonstrated by this study’s data, it appears that gaming’s frequency of use is increasing across the four jurisdictions. This language pattern may be due to a number of contextual clues. For example, gaming may be replacing gambling as the formal reference to risk-laden games of skill or chance with a clear winner and loser. In a quantitative, comparable numeric format, the normalized frequencies and significant probabilities between gambling and gaming legal corpora hits may indicate a legal language shift.

III. EFFECTIVE LANGUAGE USE ANALYSIS AND BENEFITS

The commercial benefit of the informed use of language presented through a four-text data set suggests that industry use\footnote{Industry use and labels affect consumer behavior. See Ashlee McGandy, How You Name it Matters: ‘Gambling’ vs. ‘Gaming,’ CORNELL CHRON. (Oct. 15, 2013), http://www.news.cornell.edu/stories/2013/10/how-you-name-it-matters-gambling-vs-gaming [hereinafter McGandy, How You Name] (referencing original rhetoric article on consumer influence); see generally Ashlee Humphreys & Kathryn A. LaTour, Framing the Game: Assessing the Impact of Cultural Representations on Consumer Perceptions of Legitimacy, CORNELL U. SCH. OF HOTEL ADMIN. (Aug. 23, 2013), http://scholarship.sha.cornell.edu/articles/597 [hereinafter Humphreys & LaTour, Framing].} of gaming may establish the term’s legitimacy over the cultural understanding of gambling.\footnote{See Humphreys & LaTour, Framing, supra note 86; see also McGandy, How You Name, supra note 86.} In other words, gaming as a term of art may be utilized to establish social legitimacy\footnote{From the earliest part of Nevada state history, the legislative perspective on games of chance and skill was that of a legitimate, valued, revenue source. Nevada Constitutional provisions exempted the state from the Johnson Act provisions; gambling was essential to economy and general welfare. Mike Roberts, The Constitutionality of Gaming in Tennessee, 61 TENN. L. REV. 675, 681-682 (1994).} of what was previously considered illegal and immoral gambling activity.\footnote{See Ronald J. Rychlak, Lotteries, Revenues and Social Costs: A Historical Examination of State-Sponsored Gambling, 34 B.C. L. REV. 11, 13-14 (1992) [hereinafter Rychlak, Historical Gambling] (discussing that costs associated with gambling include social ills where gambling was regulated as early as 1611 to}
Awareness of a term’s ambiguity is an essential element to effectively communicating product legitimacy and market viability, particularly when it comes to a former vice like gaming. Gambling and gaming operations in the United States are regulated by federal, state, and local laws.\(^90\) Across these laws, the question of what exactly constitutes legal betting fluctuates depending on (for example) the type of value transfer, and whether the interaction is online or in-person.\(^91\) Purposeful communicative use of terms like *gaming* versus *gambling* in legal discourse can heighten the legitimacy of the profession and promote organizational goals.

Policy decision makers and litigators can benefit from this new form of argument and analysis of language.\(^92\) By using Legal Corpus Linguistic concepts to understand a specific term’s usage, attorneys can be equipped with persuasive statistical data to consider when arguing for the use of one term against another. This is important to the legal profession, since language behavior affects and directs an audience. Therefore, establishing rapport through persuasion may be accomplished by choosing between familiar or formal language.\(^93\)

Corpus linguistics goes beyond interpretive use in the context of statutes and case law. Gaming is present from Atlantic City, New Jersey all the way to and beyond Las Vegas, Nevada. Games of chance can be found from public gas stations along an interstate and atop public waterways,\(^94\) to resorts on Native land. Thus, the choice of using one term over the other may have real-world effects. For instance, tourists to a gaming mecca contribute significantly to the local population. In a single fiscal year, Southern Nevada visitors generated

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\(^90\) See Belletire, *Legislating and Regulating*, supra note 61, at 1.


\(^92\) This particular analysis benefits from further specific inquiry regarding term-in-use across multi-phrase modalities. With additional legal corpus linguistics quantitative studies, determining why the terms hit and in what manner, provides additional guidance toward unambiguous, clear meaning of phrases used by professionals when they communicate with their intended audiences.

\(^93\) Author’s general reference to convergent and divergent discourse.

\(^94\) See Belletire, *Legislating and Regulating*, supra note 61, at 5 (“...require operational riverboats”).
two billion dollars in public revenue. On the Las Vegas strip, casino hotels are the largest employers in the region by over fifty percent — making it a sector that provides over 280,000 jobs. Drawing from this study’s analysis, any business formerly known as a gambling business should consider promoting itself as a gaming business due to the recent increase in the latter term’s use and its growing association with games of chance.

CONCLUSION

The birth, influence, and effect of gaming law connote prescriptive power, which shapes the legal present and molds the future of skill and chance wagers with a clear winner and loser. That being said, it is of particular importance for lawyers and policy makers to understand the difference between the terms gaming and gambling, along with the connotations they carry and the contexts in which they appear. As this study discussed, Legal Corpus Linguistics is an evolutionary process where the application of corpus linguistics in the legal field produces diverse interpretative methods. The application of Legal Corpus Linguistics continues to grow in popularity as an alternative to the familiar legal cannons that are used as interpretive tools. Through corpus linguistics methods, a lawyer can better understand their audience, become aware of term ambiguity, and gain an advantage over miscommunication — all of which are especially valuable in a field like gaming.


Twelve of the twenty largest employers in Southern Nevada are casino hotels and there were 289,000 positions as of July 2015. The Importance of Tourism to the Southern Nevada Labor Market, APPLIED ANALYSIS ECON. IMPACT SERIES BRIEF, at 1 (Sept. 2015), http://www.lvcva.com/includes/content/images/media/docs/EIS-Importance-of-Tourism-to-So-NV-Labor-Market-Sep-2015.pdf.

There may be specific audience segments that respond more favorably to the term gambling than to the term gaming. Nevertheless, the cultural and legal shift revealed by the data suggest that “gaming” is currently more often used than “gambling” to describe games of chance that determine value transfers. The direction of change in the data suggest that this shift continues, and that the term “gaming” will become more useful. See Dataset I, supra note 15.

Legal theory and ordinary meaning interpretation methods are not simply changing over time — the diversity created by new forms of legal thought involve descent through statistical and legal inherited tenants. See generally An Introduction to Evolution, UNDERSTANDING EVOLUTION, http://evolution.berkeley.edu/evolibrary/article/evo_02 (last visited Oct. 12, 2017).