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Measuring and Managing Complexity in Contracts

Commercial and Contracts

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What do we mean by complexity?

When we talk about complexity, we aren't talking about deal points and nuances of legal language, but rather the structure of a document: outline elements, cross-references, defined terms, uses of those defined terms, and the relationships among them all.

In computer science, "network complexity" refers to the number of nodes and connection points within a network. A contract can be thought of as a network in which the outline elements, cross-references, defined terms and uses are nodes.

How do we measure complexity?

Using the technology behind CrossCheck365.com, we analyzed over 35,000 agreements filed with the SEC's EDGAR system dating back to 1996. We came up with some eye-opening numbers. For example:

- The average merger agreement contains 150 defined terms (used 3,795 times), 763 outline elements (including all subclauses and enumerations), and 308 cross-references.

- The most complex agreement that we analyzed (and at 538 pages, the longest) contains 913 defined terms (used 34,985 times), 4,029 outline elements, and 2,905 cross-references.

As a simple measure of complexity, we calculate the total number of nodes and direct connections between nodes. This can also be thought of as the number of things that can go wrong in a document's structure and that (ideally) should be reviewed and verified before signing.

The 538-page document mentioned above gets a complexity score of 42,832.

What issues arise from complexity?

The core issue that arises from complexity is that human reviewers cannot realistically be expected to verify the accuracy and integrity of every element we have described, especially when the document is being revised frequently and by multiple parties.

Specifically, the most common problem we see is the “broken cross-reference.” Examples are:

- A reference to a section that doesn’t exist
- A reference to the wrong section (very common in defined term indices)
- A reference to “this Section X” that is made in Section Y
- A reference to a section followed by the section caption where the caption is incorrect or belongs to a different section altogether
- A reference to “clause (a)” when there are two or more clauses in the same paragraph labeled “(a)”
- A reference to “Section X above” or “Section X below” where the section named is in the opposite direction

Other common issues include:

- Terms that are defined but never used
- Terms that are defined more than once
- Defined terms that are capitalized, hyphenated or spelled inconsistently
- Deal-specific terms that are never defined
- Missing or duplicate outline elements
- Table of Contents errors (missing sections, extra sections, etc.)
- Number / Word mismatches (e.g., “one million dollars ($2,000,000)” or “fifteen (30) days”)

How common are these issues?

Extremely common.

As an example, 97 percent of the merger agreements we analyzed contained at least one cross-reference issue; 70 percent contained 10 or more.

Among employment agreements, 70 percent of contracts analyzed had at least one cross-reference issue, and 34 percent had at least three, despite being much less complex than merger agreements.

What are the consequences of these issues?

Structural issues can lead to many problems, including misunderstandings and miscommunication during the negotiation process, but perhaps most importantly if litigation arises.

In *Labyrinth, Inc. v. Urich*, a 2023 opinion from the Court of Chancery of Delaware, the court refused a motion to dismiss fraud claims based on a stock purchase agreement in large part because the document, which Chancellor Zurn described as "rife with blunders and omissions," included critical cross-references to two sections that did not exist, including this one:

> Subject to Section 10.12, the parties acknowledge and agree that their sole and exclusive remedy with respect to any and all claims for any breach of any representation, warranty, covenant, agreement or obligation set forth herein or otherwise relating to the subject matter of this Agreement, shall be pursuant to the indemnification provisions set forth in this Section 8.

Section 10.12 did not exist in the document. The chancellor wrote, "The ambiguity, while perhaps so minor as to be a typo, requires a greater factual inquiry to determine the parties' intent."

In *Charles R. Tips Family Trust v. PB Commercial LLC* (as described in *A Manual of Style for Contract Drafting* by Kenneth A. Adams), the principal amount of a loan was set forth as "ONE MILLION SEVEN THOUSAND AND NO/100 ($1,700,000) DOLLARS." Although the borrower in fact received US$1,700,000, the Texas Court of Appeals ruled that "written terms prevail" and that, therefore, the borrower was only obligated to repay US$1,007,000.

Even if litigation does not arise, every mistake carries the potential for problems. For example, in the merger agreement between X Holdings Inc. (Elon Musk) and Twitter (as filed with EDGAR on April 25, 2022): In Section 4.4(a), there is a reference to "Existing Notes." However, "Existing Notes" is never defined. Several similar terms are defined, including "Existing Senior Notes," "Existing 2027 Senior Notes," and "Existing 2030 Senior Notes." Is "Existing Notes" intended to cover the three similar terms, or some of them, or something else altogether?

In the index of defined terms, it is stated that:

> "DTC" shall have the meaning set forth in Section 3.2(b)(ii).

There is no Section 3.2(b)(ii) in the document, and "DTC" is not defined anywhere. However, it is referred to in Section 6.10(a)(ii)(A):

> …on or prior to the Closing Date, transferring Tesla Shares to the Margin Loan Borrower and causing the Margin Loan Borrower to credit to collateral accounts pledged to the

> applicable Debt Financing Sources in respect of the Margin Loan Financing and held through the facilities of DTC**,** in each case, sufficient Tesla Shares, which shall be free from all transfer restrictions and restrictive conditions (other than permitted restrictions contemplated under the Financing Documents in respect of the Margin Loan Financing), to cause the LTV Ratio (as defined in the Margin Loan Commitment Letter) not to exceed 20% as of the Closing Date…

Is the definition of DTC critical to the meaning of the provision? Is it intended to refer to DTCC (Depositary Trust and Clearing Corporation)? It's impossible to tell from the document alone.

In Section 3.6(c), there is a reference to "this Section 3.3(c)." This might be "just a typo," but there is no clear way to know if the authors intended to refer to "this Section 3.6(c)" or "Section 3.3(c)."

In a merger agreement between U.S. Xpress and Knight-Swift dated March 20, 2023, there is an index of defined terms with a few issues:

Term	**Index Says…**	**Definition Found In…**
Anti-Bribery Laws	3.22(c)	3.22(d)(i)
Certificates	2.9(c)(i) (does not exist)	2.11(c)(i)
Company Option	2.8(c)(i) (does not exist)	1.1(y)
Company SEC Reports	3.8(d)	3.9
Exchange Fund	2.9(d)	2.11(b)(iii)
Maximum Premium	6.9(b)	6.9(c)
Merger Sub Stockholder Approval	6.16	6.18
New Plans	6.9(a)	6.10(b)(i)
Old Plans	6.9(a)	6.10(b)(i)
Payment Agent	2.9(a)	2.11(a)(i)
Required Permits	3.20(c)	3.21(a)
Restraint	7.1(b)	7.1(c)(iii)
Tail Policy	6.9(b)	6.9(c)
Termination Date	8.1(b)	8.1(c)
Uncertificated Shares	2.9(c)(ii) (does not exist)	2.11(c)(ii)

A common scenario that can wreak havoc on a document is the deletion of an article. It's common to see the body of a such an article replaced with "[Intentionally Deleted]," which eliminates the need to renumber the rest of the document. However, in **Hines Global REIT 550 Terry Francois LP and MB 550 TFB, Inc.** dated January 18, 2019, an article seems to have been deleted completely, resulting in 90 cross-reference errors, including the ones in this provision:

> "Closing Surviving Obligations" means the covenants, rights, liabilities and obligations set forth in Sections 2.4, 3.3, 4.5, 4.7, 5.2(b), 5.3, 5.5, 5.6, 7.3, 8.1 (subject to Section 16.1), 8.2 (subject to the limitations therein), **10.4** (subject to the limitations therein), **10.6, 10.7, 10.9**,

11.1, 12.1, **13.3**, 15.1, 16.1, **17.2, 17.7, 17.8, 17.10, 17.11, 17.14, 17.15, 17.16, 17.17, 17.20, 17.23, 17.24, 17.25, 17.26, 17.27, 17.28, 17.29, 17.30, 17.31, 17.32, 17.33 and 17.34.**

None of the sections referred to by the bolded references exist in the document.

As a final example, the merger agreement between DraftKings, Inc. and Diamond Eagle Acquisition Corp. dated December 22, 2019 defines “Trust Agreement” twice:

In Section 1.8(b)(i):
… the SBT Earnout Shares owned by any Israeli member of the SBT Earnout Group shall be deposited with the 104H Trustee pursuant to a trust agreement to be entered with the 104H Trustee (the “Trust Agreement”)…

In Section 7.10:
… such monies being invested in United States Government securities or money market funds meeting certain conditions under Rule 2a-7 promulgated under the Investment Company Act of 1940, as amended, and held in trust pursuant to that certain Investment Management Trust Agreement, dated as of March 27, 2019, between DEAC and Continental Stock Transfer &
Trust Company (the “Trust Agreement”) …

The term “Trust Agreement” is then used multiple times throughout the document, creating clear-cut ambiguity.

Complexity is increasing

As the business environment becomes more complex (because of pandemics, political unrest, AI, etc.), contracts have grown and will continue to grow in complexity. Based on our research, the average Complexity Score for merger agreements in 2017 was 4,953. In 2022, it was 7,187, a 45-percent increase. (The average has since fallen slightly, but remains well above 6,000.)

Can complexity be managed?

Complexity, and the errors that arise from it, cannot be “cured.” However, some things can help us manage complexity and reduce the associated risks:

- A focus on best practices in drafting. This might include:
    - The adoption of a “manual of style” regarding outlining
    - Avoidance of what D.C. Toedt, a contracts law professor at the University of Houston, calls “barf clauses” — virtually unreadable paragraphs that ramble on for multiple pages and include dozens of subclauses and enumerations
    - A consistent approach to defined terms and defined term indices
- Use of automated tools (such as CrossCheck365) to identify issues
- Perhaps most importantly, acknowledging that the detailed review of complex agreements is not just proofreading; it is a stressful, tedious task that represents time that could be better spent by legal professionals and others.

Companies rely heavily on transactions such as hiring, leasing, financing, and licensing to gain value — whether it's competitive advantage, revenue growth or risk mitigation.

In-house counsel and their law firms play key roles as business lawyers in creating the contracts that enforce these transactions. But the resulting rise in contract complexity makes it more critical than ever to recommit to the best practices and technologies that mitigate complexity issues.

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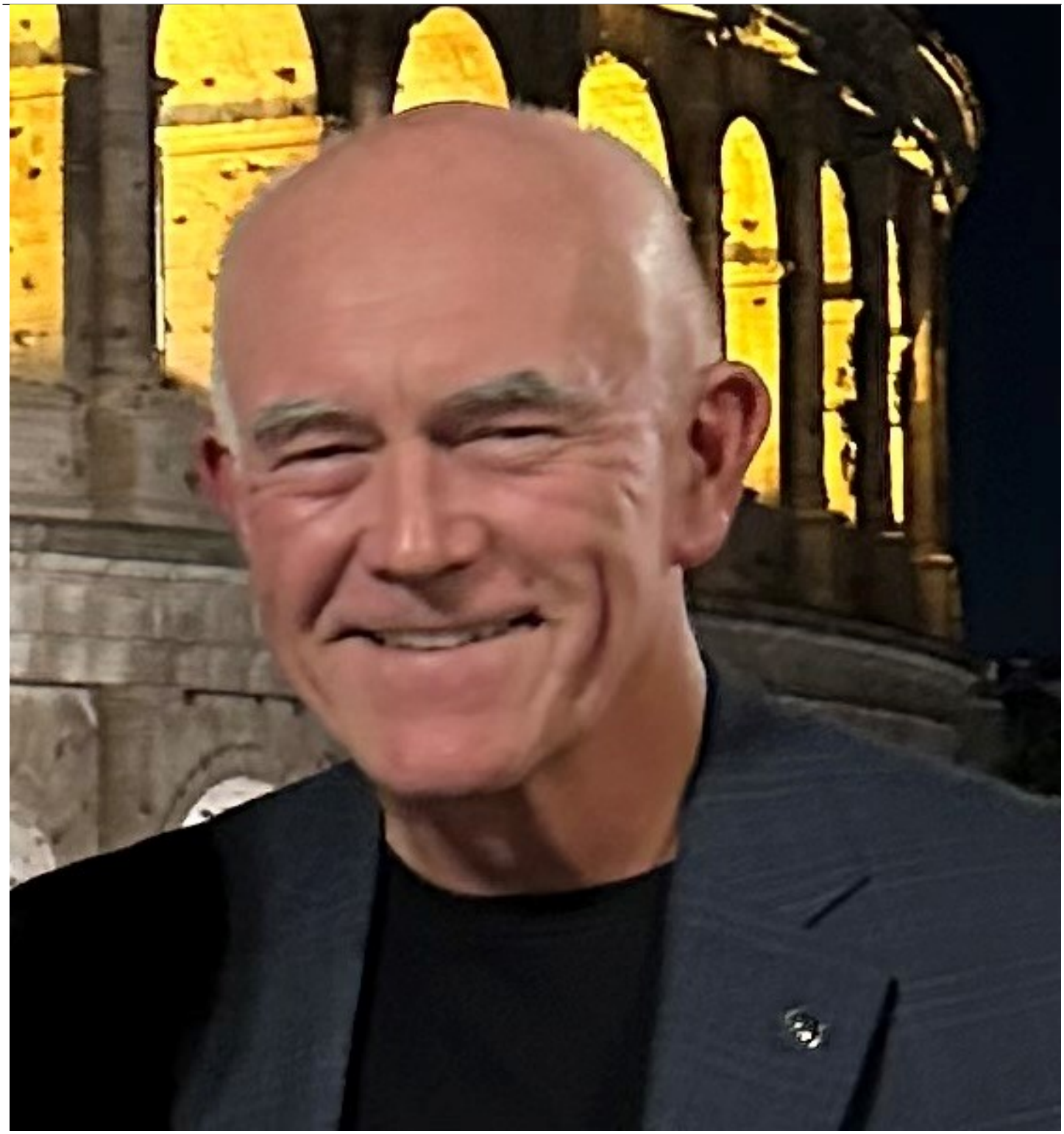
Steven Gullion



Chief Architect

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Steven Gullion is Chief Architect at kReveal, LLC (creators of CrossCheck365.com), where he focuses on the development of tools such as CrossCheck 365 for the automated statistical analysis and review of highly complex contracts.

Before joining kReveal, Steven served as Vice President of Development at Bridgeway Software, Inc., piloting the development of software used by thousands of corporate legal departments to manage contracts, corporate records, regulatory compliance and litigation. Steven also served as a Director of IT at Enron Corporation, leading, among other projects, the development of an application for the trading of weather derivatives.

Steven received his J.D. degree from the University of Virginia School of Law. After nine years of practice at a securities firm in Houston, he returned to his original passion of software development and created WriteSpeed, one of the first PC-based document assembly engines for attorneys. Since joining kReveal in 2014, he has focused on automated text analysis in the context of contracts as well as the development of tools that assist attorneys and other contract professionals in their daily work. Steven lives in Houston with his wife (a securities lawyer) and their two Corgis, Harry and Monty.