

CONTRACT CONTINUUM: FROM TEXT TO IMAGES, COMICS AND CODE

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Abstract: *Contracts are undergoing fundamental changes. New technology and new design are transforming the look and feel of contracts, and entirely new contract genres are being born. Smart, self-enforcing contracts promise to disrupt how contracts are made and executed. This paper illustrates how the world of contracting is embracing the transformation away from purely textual contracts to completely new genres. After exploring the different users of contracts we propose a continuum and categorisation of the emerging genres and conclude with a vision of more functional, useful, and usable contracts.*

1. Introduction

For a long time, contracts did not change much. Cross-border dealings and online commerce brought new content and language, but the look and feel of contracts remained the same. New contract types and clauses evolved in response to new services, technologies, case law, and statutory requirements. These changes were absorbed by old habits, styles and templates as contract crafters followed self-reinforcing historically generated paths. While contracts have grown in size and complexity, contract innovation has remained rare. Until recently little has changed in terms of the formation, substance, design or medium of the contract.

Voices calling for a paradigm shift in contracting have started to surface, noting how current practices needlessly isolate lawyers, business negotiators, and the people in charge of contract implementation from one another.¹ Legislators have already started to promote the writing of, e.g., consumer contracts, in everyday language to protect people from entering into contracts they do not understand and to help them to better understand their rights and duties under those contracts.² In response to the growing complexity of contracts, new approaches such as simplification, visualisation and user-centered design have been introduced, even to the world of commercial contracting.³ New tools and technologies have appeared that promise to disrupt the way contracts are formed, captured and enforced. Scholars and practitioners in various parts of the world have dared to depart from the traditional paths and started to think about better aligning the contract with its purpose.

¹ See, e.g., MALHOTRA 2012, BARTON ET AL. 2016, HAAPIO & BARTON 2017, HAAPIO ET AL. 2016, PLEWE & DE ROOY 2016.

² For the European Union Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts (OJ No L 95/29), New York's Plain English Law (N.Y. Gen. Oblig. Law § 5-702), later US Plain English State Statutes that followed, and other similar legislative efforts, see, e.g., KIMBLE 2012, 54–63. See also HAAPIO 2013(a).

³ See, e.g., HAAPIO 2013(a) and 2013(b), PASSERA & HAAPIO 2013(a) and 2013(b), PASSERA 2015, PASSERA ET AL. 2016, WALLER ET AL. 2016.

For example, in 2012, HARRY SURDEN published his article on *computable contracts*.⁴ Then *smart contracts* and *intelligent contracts* entered the scene.⁵ In 2013, Helena Haapio defended her dissertation on *Next Generation Contracts*.⁶ In 2014, *comic contracts* were developed by Robert de Rooy, and they have recently literally made the news, first in South Africa and later in other countries.⁷ But what exactly do all these newly coined concepts mean? Do practitioners and researchers share the same view? Do lawyers, business people, designers, technologists, and laypeople understand each other when they use these terms?

In our previous work, we have looked into various means to overcome the challenges and explored how next generation deal design and visualisation might be used to enhance communication, align expectations, explore synergies more effectively and bring different views closer to one another.⁸ In this paper we illustrate, with examples, how the world of contracting is embracing the transformation from purely textual contracts to completely new genres that may be coded in computer language or be entirely visual – or even combinations or hybrids of the above. We aim to situate and clarify the communication within the diverse practices and approaches in this emerging field, so as to systemise the rapidly evolving streams of research and practice. Building on Proactive Law⁹ and information design,¹⁰ clarity and user-empowerment are our natural goals.

This paper is structured as follows: We begin by exploring why and for whom contracts are made; by whom they are expected to be implemented, and how they are enforced. The noticeable shift of focus from contracts' legal objectives (including their legal enforcement) and legal audiences to wider objectives and audiences informs our continuum and categorisation of the genres. After identifying the main user groups and their needs, we propose a categorisation of contract genres by introducing three main categories: *text-only contracts*: this is where most conventional contracts fit; they may or may not contain elements of document design adding clarity; *visualised contracts*: contracts with embedded images, i.e., hybrids of text and images; this category also includes *comic contracts*; and *coded contracts*: contracts that are coded in computer language, such as *smart contracts*, for example. As we will show, these categories are not mutually exclusive, they overlap. This paper concludes with a vision of more functional, useful, and usable contracts.

2. Why Contracts? For Whom?

Building on *Proactive Law* and *information design*, we argue that all good planning and design – even when it comes to contracts – must begin with an understanding of what the audience needs and expects. Even the best coding, visualisation or legal writing is misplaced if it does not serve the needs of the audience, the clients or

⁴ SURDEN 2012.

⁵ The idea of smart contracts was introduced by Nick Szabo already in the 1990s (SZABO 1997). It took a while before smart contracts become the hot topic they now are, especially in the financial industry. For intelligent contracts, see GIDNEY 2016. Gidney argues that contracts can be far more intelligent and flexible than smart contracts: «The intelligence comes from the (I) in AI (artificial intelligence), where a system is taught to continually and consistently recognize and extract key information from contracts, with active learning based on users' responses, both positive and negative, to the extractions and predictions made.»

⁶ HAAPIO 2013(a).

⁷ In October 2016 Robert de Rooy won the IACCM Innovation Award (Program of Visionary Change). For comic contracts in the news on South African television, see <http://www.cnbcfrica.com/video/?bctid=5060857923001> (all Internet sources accessed on 3 January 2017); on Finnish television, see <http://yle.fi/uutiset/3-9276177>, for an interview on Australian radio, click on <http://www.abc.net.au/radionational/programs/lawreport/comic-contracts/7898330>. For further press coverage, a Google search with «comic contracts» brings more than 600 results. See also HAAPIO ET AL. 2016, PLEWE & DE ROOY 2016.

⁸ See, e.g., HAAPIO 2013(a) and 2013(b), HAAPIO & BARTON 2017, HAAPIO ET AL. 2016, PLEWE 2013.

⁹ See, generally, SIEDEL & HAAPIO 2010, BERGER-WALLISER 2012, HAAPIO 2013(a) and 2013(b), HAAPIO & BARTON 2017. According to SCHAFER 2016, the proactive law approach, as a way to think about the relation between law and technology, has gained considerable traction, particularly in northern European countries. «While law is often (mis)perceived as the (spoilsport at the party), the incessant raiser of objections, concerns and warnings that get in the way of exciting and beneficial new technologies, proactive law considers law as a beneficial and indeed creative force that increases value and opportunities for companies, individuals and wider societies.» See SCHAFER 2016, viii (discussing how proactive law and transactional design can come together to assist technology-supported smart contracting, the topic of SOLARTE-VASQUEZ ET AL. 2016).

¹⁰ See, e.g., HAAPIO 2013(b), PASSERA 2015, WALLER ET AL. 2016.

users. Moreover, while a contract may be ideal for use by a lawyer in court, it may be a nightmare for use for a manager or an engineer in business.¹¹

Contract usability can be defined as the extent to which a contract can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.¹² Contract usability is thus affected by *contract users*, their *goals*, and the *usage situation* (or «context of use»). But why do people and businesses make contracts in the first place?

It has been noted that «the *main function* of entering into a contract is for both parties to be bound through being exposed to negative consequences if they breach.»¹³ We do not agree with this notion. For us, this is far from being the *main function* of entering into a contract. Instead, following the aims of Proactive Law, we see contracts being made primarily to guide the parties so that they succeed together and reach their goals.

The parties' goals depend on the business, the subject matter, and the situation at hand. They also depend on whom we ask. Goals may relate, for instance, to profit, cash flow, completion of work, uninterrupted service delivery, or access to resources such as funding, information, or talent. For the in-house counsel or transactional lawyers who seek to ensure the reaching of business objectives, legal objectives such as legal predictability and the need to prepare for possible claims and disputes come to the fore. One of the legal objectives of contracts is to create clarity about the binding force of contracts and their terms. The business manager's goal may be to build a good, sustainable business relationship. So the parties' business goals and legal goals are intertwined. Most of the time, as a point of departure, the parties want their contracts to be valid and enforceable. But going to court and seeking negative consequences seldom (if ever) tops their priorities.

Yet conventional contracts do not necessarily reflect this. They are too often **not** designed for *people* who want their collaboration to *succeed*; they are drafted for *lawyers* who seek to protect their clients in case of a dispute. On the other hand, current smart contracts do **not** seem to be designed for people (or lawyers), either; they seem to be coded for technologically savvy audiences who seek to make use of the latest available new technology. Well-meaning lawyers and coders may in fact be doing their clients and audience a disservice by crafting contracts or code that their users (or potential users) find unreadable, meaningless, or useless.

In the foreseeable future, a large number of services and related contracts need to be planned, negotiated, monitored and implemented (performed) by *people*. Where people remain in the picture, they need to understand what is expected from them and what they can expect from the other party. The parties need *truly human-readable* contracts. The development and potential of smart contracts is exciting. We believe that the uptake of smart contracts will be greatly facilitated by leveraging the concurrent progressive developments in text and visual contracting. There is a lot of potential in the dynamic interfacing between visualisation, text and coded contracts to simultaneously achieve the apparent contradictory goals of human and computer readability.

Some contracts may still end up in a dispute and as evidence in court or alternative dispute resolution. While we are strong believers in dispute prevention, we recognize that not all disputes can be prevented. So a need remains for contracts to be capable of being enforced through the legal system. Smart contracts cannot be expected to succeed as contracts in the long run, if they do not respond to their users' legal objectives also.

3. The Contract Continuum

Just as it is important to define the meaning of the terminology used in transdisciplinary work, it is important to situate the contracts. There are several ways in which the development and diversity of contracts can be

¹¹ See, generally, HAAPIO 2013(a) and 2013(b).

¹² This definition is derived from ISO 9241-11:1998 Guidance on Usability. According to this source, usability means «the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.» While the Guidance is about the ergonomics of computer-related products, it has been applied widely in other contexts as well.

¹³ STARK & CHOPLIN 2012. Emphasis added.

represented. For our purposes we prefer the use of a continuum. Contracts can be plotted on various continua based on their type, language, complexity, comprehensibility, development over time, and so on. We have chosen to present and categorize them based on their representation.

After having been drafted mainly by lawyers for lawyers for years, contracts are now starting to seek to communicate in new ways to new audiences. We find the contracting world shifting from *text-only contracts* (which may or may not contain elements of document design adding clarity) to either *visualised* or *coded contracts*. With *visualised contracts* we mean contracts with embedded images seeking to supplement text and enhance contract readability and usability. This category also includes *comic contracts*¹⁴, where the comic is the contract. With *coded contracts* we mean contracts that are coded in computer language, *smart contracts*, for example. For the purposes of this paper, we define smart contracts as agreements whose execution is both *automatable* and *enforceable*. This definition, based on that by CLACK ET AL. (2016), highlights the fact that we not only rely on self-executing code; we argue that it is important to ensure that the smart contract is also a legally enforceable contract, a *smart legal contract*.¹⁵ Yet it needs to be noted at the outset that these categories overlap. In the next few years, code may indeed become the easiest way to generate any contracts, whether text-only contracts, visualized contracts, smart or intelligent contracts, or hybrids of these.

We present these developments along the continuum of the ease of human / machine readability. The abilities of humans and machines to read pictures and code are currently inverse. At the same time, these respective abilities can be exploited as each type of contract can serve as an interface to the other, eliding the apparent dichotomy between the human need to easily create and understand agreements, and the machine's requirement for code to execute contracts.



Figure 1: Ease of Human/Computer Readability: Visual-Text-Code Continuum

We elaborate on the continuum by presenting a categorization of the developments in the table below:

¹⁴ For our definition of comic contracts, see Section 4 below. See also HAAPIO ET AL. 2016 and PLEWE & DE ROOY 2016. KEATING & BAASCH ANDERSEN 2016 explore the idea of what they call a *graphic contract*: a Non-Disclosure Agreement (NDA) comprised of comic strips for a university initiative in innovation and development.

¹⁵ See CLACK ET AL. 2016. The authors define the term «smart contract» to include both *smart legal contracts* and *smart contract code*.

Visualised Contracts	Text-only Contracts	Coded Contracts
Description		
Contracts containing text and images (such as charts, timelines or icons); images embedded in text to clarify, engage, help navigate	Contracts varying from lawyer-crafted legal prose (legalese) to plain or standard (ordinary) language contracts	Contracts written in computer code that may constitute legal contracts or the execution thereof, or both.
Examples		
<ul style="list-style-type: none"> – Comic contracts¹⁶ – Graphic contracts¹⁷ – Creative Commons licenses¹⁸ 	Most of today's contracts	<ul style="list-style-type: none"> – Computable contracts¹⁹ – Smart contracts²⁰ – Intelligent contracts²¹
Appearance / Look and Feel		
<ul style="list-style-type: none"> – Unconventional – Human-readable – Intuitive, enabling, empowering – Human-friendly, engaging, inviting – Inclusive, transparent 	<ul style="list-style-type: none"> – Conventional – «Lawyer-readable» – Text only, may contain document design elements and navigation tools for readability – Intimidating for many 	<ul style="list-style-type: none"> – Look like code – Computer-readable, not human-readable – Without comprehensible interface, only meaningful for experts; inaccessible for many
Preparation; Production Tools and Techniques		
<ul style="list-style-type: none"> – Information design – Communication design – Style sheets – Design patterns – Visual conventions, such as icon-families, visual modalities 	<ul style="list-style-type: none"> – Drafting – Word processors – Document assembly engines – Document generators – Templates, precedent – Clause libraries 	<ul style="list-style-type: none"> – Coding – Templates – Standards – Document sets – Design patterns – Smart contract templates
Characteristics		
User-friendly business tools; empathy with the users; integrative deal-design; reduction of complexity; share and manage risk, more equitable	Legal instruments focusing mainly on legal objectives; allocating risks and obligations; regulating the relationship	Computer code seeking business and financial effectiveness
Core Concerns		
Reaching business objectives through the contract; usability and functionality; ease of use; understandability; readability	Validity, enforceability, precision, legal accuracy, providing for all possible contingencies, watertight text to be used in case of failure	Reaching business objectives through self-enforcing code, without the intervention of humans
Disciplinary Basis		
Information design, communication design, multidisciplinary	Predominantly law	Computer science

Table 1: Contract Continuum

This categorisation is not exhaustive. The categories are also not mutually exclusive and sometimes overlap. The categories are also intertwined, and contract innovation currently occurs inside and across the categories. It also excludes the many other means to create and present contracts: verbal, audio, audio-visual, handshake and even performative approaches.

¹⁶ HAAPIO ET AL. 2016 and PLEWE & DE ROOY 2016.

¹⁷ KEATING & BAASCH ANDERSEN 2016.

¹⁸ CREATIVE COMMONS.

¹⁹ SURDEN 2012.

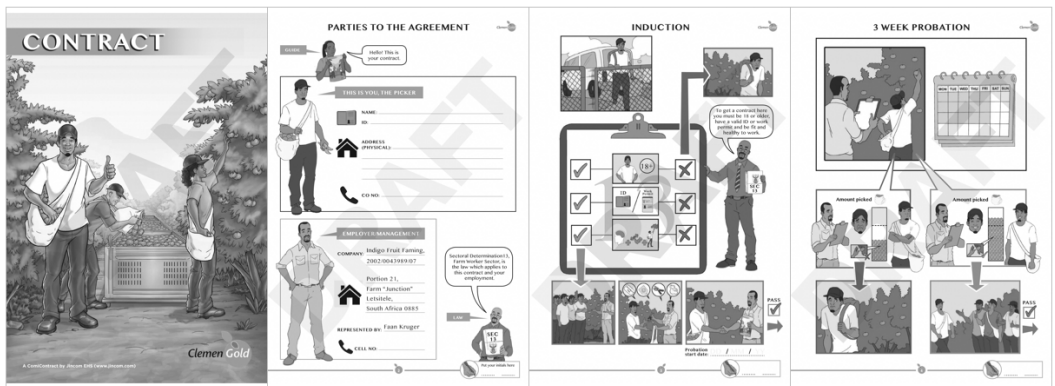
²⁰ CLACK ET AL. 2016.

²¹ GIDNEY 2016.

4. From Text to Images, Code and beyond

While strictly speaking the use of pictures preceded the use of text to capture contracts,²² in our time, text has been the predominant way in which contracts have been formally captured. A relatively recent stream of research and practice known as *contract visualisation* has proposed a visual turn in contract communication: the use of visual representation as a way to enhance contract clarity and ease of use. The pioneers have used images such as timelines, charts, diagrams and icons in actual contracts, contract briefs or guidance, and as planning and thinking tools during negotiations.²³ At IRIS 2016, we categorized these as visualisation *in* contracts and *about* contracts, and added a new category: visualization *as* contracts – *comic contracts*.²⁴

For the purposes of this paper, we define a *comic contract* as a legally binding contract where the parties to the contract are represented by the characters; the content of the agreement is represented by the visual interaction of the parties, and is signed by the parties. The following sample pages are extracted from an actual agreement that has been taken into use in the Spring of 2016 and has been signed by more than 200 fruit pickers in South Africa.²⁵



Comic Contract - Clemengold Fruit Picker Agreement - Copyright: Robert de Rooy

Figure 2: Sample Pages of a Comic Contract

The structural affinity between the rule-character of contracts and the syntax of code has inspired the vision of many sorts of automated contracts. When contracts are reduced to the logic of if-then conditionals, they indeed resemble strongly the syntax of computer languages. *Smart contracts* can rely on computer code to determine when a contract is formed, when certain conditions have been met, and when an exchange is executed. Since computer code lacks the ambiguities of human language, smart contracts can remove many topics of potential dispute and so act as proactive/preventive law tools. Still, they come with a series of limitations and bring along new issues that may cause new problems, legal or otherwise. Even though we see reaching business objectives as the parties' primary goal for contracting, we also expect them to have access to remedies and legal

²² Sumerians used pictures to capture the terms of contracts in the 27th century BC. See, for example, the photo of a bill of sale of a male slave and a building in Shuruppak, Sumerian tablet, circa 2600, Musée du Louvre, available at https://en.wikipedia.org/wiki/Contract#/media/File:Bill_of_sale_Louvre_AO3765.jpg.

²³ Examples can be found in recent publications by Stefania Passera and the Authors and also at <http://www.lexpert.com/our-approach/visualization/> and <https://stefaniapassera.com/portfolio/legal-design/>.

²⁴ HAAPIO ET AL. 2016.

²⁵ <http://www.freshplaza.com/article/160591/Clemengold-pickers-sign-the-worlds-first-Comic-Contracts%AE>.

enforcement, if for some reason the contract is not executed as intended. While computer code may enforce rules more efficiently than legal code, it is not easy to transpose the contents of complex contracts into smart contract code, or craft contracts in a formalized language, which can be interpreted by a machine. Because of their potentially high impact in a connected world, the questions of their transparency and comprehensibility seems important. This is where visualisation can play a valuable role.

The recent contract developments – from text to images, code, and beyond – are each exciting, but their greatest potential is if they can leverage each other towards functional, useful, and usable contracts to inform effective, efficient and satisfying commercial relationships.

5. Vision

This paper has categorised contracts into three categories: *text-only contracts*, *visualised contracts*, and *coded contracts*. The latter group contains contracts that are coded in computer language, such as *smart contracts*. We argue that, whichever the category, contracts must respond to the needs of the people and businesses making and using them. This includes their human and business needs, and also their legal needs. Even though contracts do not necessarily need to look like conventional contracts, it is important that they are recognized as such by the legal system and, if not executed, are capable of being enforced by the legal system. Yet we are believers in proactive rather than curative law, and thus look primarily for ways in which the parties can reach their goals and succeed together, rather than having to look for the legal system for enforcement.

Our vision is merging the best of text-only and visualised contracts, then taking the deal-design and enforcement process and turning it into a both human- and machine-readable/understandable format – an algorithm, protocol, or script – that not only works technically but also complies with the applicable human and legal requirements. We envision a future where contracts can be easily generated in one (natural or formal) language first, and then compiled to other languages – whether English, Finnish, French, or German, for example – along with being capable of being accompanied by icons, timelines, and other images that enhance understanding – or comics, audio files or audio-visual files, depending on the audience needs. All just as easily as we today choose how we print or display our work products. Add to the equation all the opportunities offered by self-executing smart contracts, where appropriate – the benefits will be great for everyone.

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