Toward Inclusive Design for Visual Law

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Abstract. The explosion in visual representations of legal concepts and processes is a thrilling innovation which can expand open access to law. By and large, however, visual representations of the law have not adequately fulfilled the promise of access. No matter how unintentionally, implementations of visual access to law frequently overlook people with visual disabilities. This neglect is not necessary, and inclusion is not futile. The synthesis, summarization, simplification, and interpretation required to produce visual representations of law have the potential to support understanding for everyone by making legal information more discoverable and reusable. This paper distinguishes between features of visual law that require vision and features of visual law that can be made accessible to all. It argues that inclusive design deserves greater attention in order to avoid increasing inequality in access to law.

Keywords: Visual law, Accessibility, Disability, Semantic Markup

1. Visual Law: The Background

In their seminal 2013 VoxPop blog post, Haapio and Passera made a compelling case that lawyers have much to learn from information designers. They make clear that visual law intends to address users' needs:

> When it comes to other users of our content and documents, we can benefit from starting to think about 1) who these users are, 2) what they want or need to know, 3) what they want to achieve, 4) in which situation, and 5) how we can make our content and documents as clear, engaging and accessible as possible.
> These questions are deeply rooted in the discipline of information design. The work of information designers is about organizing and displaying information in a way that maximizes its clarity and understandability. It focuses on the needs of the users and the context in which they need to find and apply information. When the content is complex, readers need to grasp both the big picture and the details and often switch between these two views[1].

Furthermore, their definition of visualization – "here understood as adding graphs, icons, tables, charts and images to supplement text"[2] – and their reading of the "Vendor Power!" pamphlet (which adds further techniques of using short sentences and offering multi-lingual presentation), all point to building blocks of design that have shown long-standing track records. Possibly the most popular visual law example can be found in the Creative Commons "Commons Deed", which summarizes a Creative Commons copyright license. At least as early as 2003, the Commons Deed presented the key license terms in a clearly-formatted web page, with an icon to represent each key term of the license[3].

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[1] Haapio, H. and Passera, S. (2013).
[2] Haapio, H. and Passera, S. (2013).
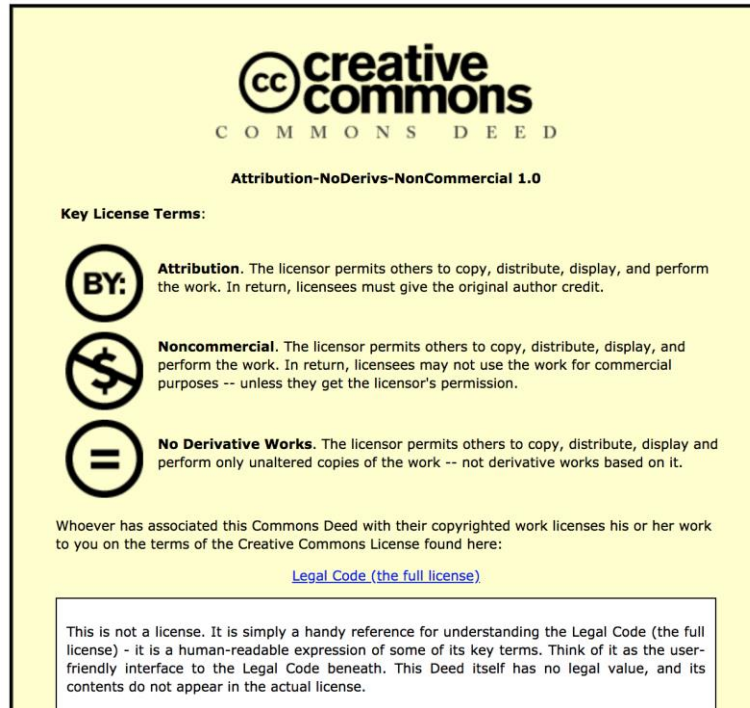[3] Creative Commons, CC BY-NC-ND 4.0.

Figure 1. Creative Commons BY-NC-ND Deed in 2003 (via the Internet Archive).

The Deed format was subsequently updated by substituting an icon depicting a person for the "BY:" and offering a more concise shorthand ("CC BY-NC-ND 4.0")[4].

Figure 2. Screenshot excerpt from Current Creative Commons BY-NC-ND Deed.

Creative Commons now describes its approach as follows:

> … since most creators, educators, and scientists are not in fact lawyers, we also make the licenses available in a format that normal people can read — the Commons Deed (also known as the "human readable" version of the license). The Commons Deed is a handy reference for licensors and licensees, summarizing and expressing some of the most important terms and conditions[5].

The Creative Commons Deed serves as a visual law exemplar in that it presents legal information using an uncluttered layout, makes use of semantic markup to represent document structure, and makes clear the relationship between the representation and the text of the license.

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[4] Creative Commons (2019).
[5] Creative Commons (2019).

Taking inspiration from Creative Commons and many others, during the past ten years, the visual law movement has blossomed, producing clear information graphics and visual law products with a modern aesthetic. Commercial publishers such as Fastcase,[6] Casetext,[7] and Ravel[8], and use visual presentation to help users navigate search results. Projects such as the Caselaw Access Project[9] of the Harvard Library Innovation Lab[10] and GovTrack[11] use innovative visualization techniques to contextualize the information they present. Projects such as the Legal Design Lab[12] at Stanford and Open Law Lab[13], CIRSFID,[14] and the Center for Urban Pedagogy[15] have fostered product development processes and produced beautiful infographics.

The common toolset employed by all of these endeavors: synthesis of information from multiple sources, summarization of text, simplification of complex ideas, interpretation of text by making its structure explicit, and user-friendly presentation should all increase access to law – not only to people but also to machines.

2. Visual Law: Who is Left Behind?

To be blunt: thus far, too many prominent initiatives in visual law have done little to address the needs of people who have vision impairments – or, for that matter, to facilitate machine-consumption of visual representations of the law. Prominent visual law projects have published images with non-descriptive, incomplete, or misleading alternative text[16]. For users of assistive technologies - and for crawlers - this creates a data-impoverished environment in which some users are effectively barred from access to meaningful content.

Among experts, the oversight problem is somewhat unsurprising. In their chapter "Countering Design Exclusion", Keates and Clarkson put it this way:

> Designers instinctively design for able-bodied users and are either unaware of the needs of users with different capabilities, or do not know how to accommodate their needs into the design cycle[17].

Microsoft Inclusive Design leader Kat Holmes is more specific:

> Most designers end up using their own abilities and experience as a baseline for their designs. This problem is even more pronounced for

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[6] https://www.fastcase.com (see https://www.fastcase.com/wp-content/uploads/2016/12/Tellus-User-guide-chapter-9.pdf)

[7] https://www.casetext.com

[8] https://home.ravellaw.com/

[9] See https://case.law/trends/

[10] https://lil.law.harvard.edu/

[11] https://www.govtrack.us

[12] https://www.legaltechdesign.com/

[13] https://www.openlawlab.com/

[14] See, e.g., http://gdprbydesign.cirsfid.unibo.it/

[15] http://welcometocup.org

[16] Even the comparatively accessible Creative Commons Deed website mentioned above does not use the HTML "alt" attribute for all of its icons, leaving screen-reader users with the experience of a blank image.

[17] Keates S., Clarkson J. (2003), p. 439.

the predominantly young and able-bodied designers that work in technology. The result is products that work well for people with similar abilities and resources, but end up largely excluding everyone else. This is especially true for roughly 1 billion people on the planet with disabilities[18].

Particularly on websites, absent attention to providing equivalent alternate text and long descriptions of images[19], to the extent that visual law artifacts increase access to information for those with perfect vision, they will, by default, unfortunately increase inequality for those without. In this way, the phenomenon that Brunschwig has characterized as "ocularcentrism"[20] has ableist consequences.

3.   Universal Design, Inclusive Design and Adaptability

The principles of the Universal Design and Inclusive Design movements provide a framework for thinking about how a visual law for those without vision could be possible.

3.1 Learning from the Universal Design Movement

Architect Ron Mace coined the term "Universal Design" and defined it as: "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design"[21]. The North Carolina State University summarizes Principles of Universal Design as follows:

> PRINCIPLE ONE: EQUITABLE USE * The design is useful and marketable to people with diverse abilities.
> PRINCIPLE TWO: FLEXIBILITY IN USE * The design accommodates a wide range of individual preferences and abilities.
> PRINCIPLE THREE: SIMPLE AND INTUITIVE USE * Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
> PRINCIPLE FOUR: PERCEPTIBLE INFORMATION * The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
> PRINCIPLE FIVE: TOLERANCE FOR ERROR * The design minimizes hazards and the adverse consequences of accidental or unintended actions.
> PRINCIPLE SIX: LOW PHYSICAL EFFORT * The design can be used efficiently and comfortably and with a minimum of fatigue.
> PRINCIPLE SEVEN: SIZE AND SPACE FOR APPROACH AND USE * Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or

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[18] Holmes, K. https://katholmesdesign.com/inclusive-toolkit

[19] E.g., three images on the website visuallaw.com, each of which has the alternate text "Picture". http://visuallaw.com/3d-scanning--photogrammetry.html.

[20] Brunschwig (2013)

[21] North Carolina State University Center for Universal Design. *Universal Design Principles.*

mobility.[22]

3.2 Inclusive Design and Web Content Accessibility Guidelines

Recognizing that Universal Design, which originates in the world of architecture, is constrained to create a single implementation for all to use over a prolonged period of time, "Inclusive Design" has become a more popular approach, particularly for electronic media. The Inclusive Design Research Centre defines Inclusive Design as "design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference"[23]. It eschews segregated solutions but exercises "the freedom to create a design system that can adapt, morph, or stretch to address each design need presented by each individual" [24.].

Although many visual law endeavors envision print artifacts, realistically, these print artifacts, if not "born digital", will live a digital life – whether merely for presentation in a portfolio or for use by those for whom print is not a viable medium, whether because of blindness, illiteracy, or the need to consume information while jogging.

The Web Content Accessibility Guidelines ("WCAG") summarize accessibility requirements with the acronym "POUR":

Anyone who wants to use the Web must have content that is:

1. Perceivable - Information and user interface components must be presentable to users in ways they can perceive.
    -   This means that users must be able to perceive the information being presented (it can't be invisible to all of their senses)
2. Operable - User interface components and navigation must be operable.
    -   This means that users must be able to operate the interface (the interface cannot require interaction that a user cannot perform)
3. Understandable - Information and the operation of user interface must be understandable.
    -   This means that users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding)
4. Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.
    -   This means that users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)[25].

The companion techniques intend to provide a comprehensive roadmap to addressing all barriers to inclusion based on disability. For example, images must accompanied by text alternatives; headings must be marked semantically; videos must be accompanied by captions and descriptions; form elements must be labeled; web sites must be navigable by keyboard,

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[22] Connell, B. R., et al. (2008).

[23] Inclusive Design Research Centre. https://idrc.ocadu.ca/about-the-idrc/49 resources/online-resources/articles-and-papers/443-whatisinclusivedesign .

[24] Ibid.

[25] W3C (2008).

and so forth.[26] These techniques should enable the synthesis, summarization, simplification, and interpretation brought to bear by design approaches to be made apparent to all users.

4. So, What is Irreducibly Visual About Visual Law?

The oft-quoted adage "A picture is worth a thousand words" conveys a characteristic of visual media that cannot be ignored: sighted people process visual information differently from textual information. The efficacy of visual communication is widely trumpeted in the business community on the basis of efficiency of information processing and retention. In the legal community, research on photographic evidence has most succinctly captured the efficiency of emotional processing. Bandes and Salerno note that "As compared to witness testimony, photos convey information differently-or convey different information. The difference between the information value and emotional impact of these two types of evidence is rarely examined."[27] They cite Feigenson and Spiesel regarding the speed of emotional processing of visual artifacts compared to the speed of analysis: "As Feigenson and Speisel observe, both words and pictures promote emotional associations, but pictures do so more rapidly. '[B]ecause visual information acquires emotional valence before that information ever gets to the cortex, the whole picture passes along its emotional colors even as we begin to decode its parts.'"[28]

Examples of visual artifacts whose informational and emotional content are tied to their visual characteristics might therefore include:
- Before/after photographs for victim's impact statements,
- Dashcam video of a police encounter or a car accident, or
- A video exhibit superimposing an animation of impacts to a football player's head on the footage of their collisions during football games they played.[29]

Although descriptive text might convey some of the informational content of a photograph, it would necessarily take longer to read and process than a picture would, and the practically instantaneous emotional impact could not realistically be replicated.[30]

These differences between image and text processing are difficult to address. This difficulty does not, however, imply that significant improvement is impossible.

5. What is Not Irreducibly Visual in Visual Law?

I propose that a great deal of visual information in visual law can be conveyed through semantic markup of information resources,[31] thus

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[26] W3C (2016).

[27] Bandes, S.A. and Salerno, J.M. (2014).

[28] Bandes, S.A. and Salerno, J.M. (2014).

[29] *See* Visual Law Group, *Recent Cases.*

[30] In fact, an attempt to describe a photograph explicitly in a way that would preserve the order in which its emotional impact would be felt, as opposed to its information content conveyed, captures the complexities addressed by Bandes and Salerno.

[31] Here "semantic markup" refers to HTML elements and attributes that describe the structure and characteristics of the document. Examples include leveled headings (H1 through H6), a language attribute to enable assistive technology to read in the correct language, alternate labels and descriptions for images, and so

conveying the benefits of synthesis, summarization, simplification, and interpretation to non-sighted users. Here, I return to the "Vendor Power!" pamphlet examined by Haapio and Passera[32] to help explain the types of visual elements and the comparative lossiness of conveying different types of information via marked-up text.

The "Vendor Power!" brochure is a multi-page, pamphlet organized in two-page spreads devoted to vendor rights, laws, and a section divided between advocacy information and profiles of vendors in each of five vendor categories. The back cover invites the reader to join the Street Vendor Project and shows the credits for the pamphlet.

The front page (when folded) contains many elements that yield to straightforward techniques for accessibility. The English title, the Bengali, Chinese, Arabic, and Spanish titles below,[33] the subtitle, and an explanation of the scope, importance, and content of the pamphlet can all be marked in semantically appropriate HTML elements and attributes to convey the priority and characteristics of the respective chunks of text. The "Making Policy Public" tag at the bottom right can also be marked semantically. Line drawings across the top showing different types of vendors, each smiling, present an accessibility challenge that ordinary semantic markup cannot convey in a completely equivalent alternative, but annotation with alternate text can either provide useful context or allow a screen-reader user to treat the images as decoration. As to the cues and emotional impact that sighted readers will receive from the overall design and specific choices such as color, typeface and layout, those are more subjective and not anticipated in the accessibility guidelines.

The meat of the pamphlet – the sections on vendor rights, laws, and a section divided between advocacy information and profiles of vendors in each of five vendor categories – also contains a great deal of information that can be conveyed through semantic markup. The summary text "If you follow the rules, you have the RIGHT to vend on a public sidewalk. Store owners and security guards can't make you move." And "Police can't make you move unless: There is an emergency. (Fire!) | There is a big event. (Parade!)" summarizes information expressed in the NYC Administrative Code (in part) as follows:

> Where exigent circumstances exist and a police officer or other authorized officer or employee of any city agency gives notice to a general vendor to temporarily move from any location such general vendor shall not vend from such location. For the purposes of this subdivision, exigent circumstances shall include, but not be limited to, unusually heavy pedestrian or vehicular traffic, existence of any obstructions in the public space, an accident, fire or other emergency situation, a parade, demonstration or other such event or occurrence at or near such location[34].

and combines it with background legal and knowledge of common problem

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forth.

[32] Haapio, H. and Passera, S. (2013).

[33] Ostensibly meaning "vendor power", although the Spanish is the famous United Farm Workers organizing slogan 'Sí, se puede'.

[34] New York City Administrative Code § 20-465(k), available at https://www1.nyc.gov/assets/dca/downloads/pdf/about/general_vendor_law_rules.pdf.

interactions experienced by vendors. Although the layout and the illustrations of the vendor-wearing-a-permit-and-police-officer-walking-by, the person-on-fire, and the person-with-signs are likely to make the text more memorable and more appealing, they enhance information that can be conveyed through text rather than constituting the only contribution of value.

When integrated into an inclusive design process, this type of analysis has the potential to improve the inclusivity of legal information products without incurring the scale of additional costs when addressed in a post-hoc remediation process.

6. Not Only Ought We to Do This, Most of Us Have To

Inclusive design supports access to law, which ought to be reason enough to adopt it as an approach. In many contexts, however, ensuring accessibility is not only the right thing to do, it's the legally required thing to do.

The context of the Legal Information Institute (LII) at Cornell Law School is slightly unusual (in that we are part of a federally-funded university), but common enough that we consider our experience to be worth narrating.

LII endeavors to help people find and understand the law and does so, in large part, by publishing primary legal documents and original content. Having completed a comprehensive accessibility remediation in 2008, we subsequently expanded our offerings and ultimately became responsible for remediating hundreds of thousands of government documents.

LII's first encounter with web accessibility mandates came in the context of regulations under Sections 504 and 508 of the Rehabilitation Act, which require federal agencies – and recipients of federal funding – to make all new ICT work product accessible to people with disabilities.[35]

LII next encountered web accessibility mandates in the context of our status as a department of a university, and a publisher of legal information used at universities, after the United States Department of Education issued guidance confirming that Section 504 requires accommodation for emerging technology:

> Requiring use of an emerging technology in a classroom environment when the technology is inaccessible to an entire population of individuals with disabilities - individuals with visual disabilities - is discrimination prohibited by the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) unless those individuals are provided accommodations or modifications that permit them to receive all the educational benefits provided by the technology in an equally effective and

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[35] See, e.g., 49 CFR 571.108, available at https://www.law.cornell.edu/cfr/text/49/571.108. The Section 508 refresh regulations contain a "safe harbor" provision, which we can observe in action by inspection of the granular characteristics of current government publications. Although in theory, only new and previously non-Section-508-compliant content must be made accessible, in practice, many older documents still do not meet the original Section 508 standards.

equally integrated manner[36].

This approach meant that in order to support equal access to education, content on the LII website that is assigned for educational purposes must be comprehensively accessible.

Most recently, LII has encountered accessibility mandates in the context of emerging jurisprudence that treats websites as covered under Americans with Disabilities Act and thus requires them to be accessible within the limits of reasonableness[37]. A case involving this argument is currently pending before the United States Supreme Court.[38]

Although LII's institutional context is unusual, at least in the United States, an inclusive design approach for products intended to be reused by schools, non-profits, or businesses would likely align with their emerging requirements.

7. Yes, We Can!

Inclusive Design can improve visual law product development by leveraging the design thinking that already goes into visual law products. Keats and Clarkson propose:

> To support inclusive design it is necessary to understand the knowledge requirements of designers and design commissioners, both in terms of content and format. The knowledge requirements include information about the end-users and also the tools and techniques for developing more inclusive solutions [39] .

The visual law design community already knows how to make all of this happen – what remains is to reach out to a more diverse population of users, to evangelize to clients, and to incorporate the specific technical knowledge supporting the WCAG standard. Numerous resources provide well-established techniques for translating visual information into descriptive content. The W3C provides hundreds of techniques for meeting the Web Content Accessibility Guidelines success criteria[40]. Benetech's Diagram Center provides detailed guidelines for describing Venn Diagrams, Flow

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[36] US Department of Justice and US Department of Education

[37] 42 U.S.C. § 12182(a), available at https://www.law.cornell.edu/uscode/text/42/12182#a. The statute defines discrimination as including "a failure to make reasonable modifications in policies, practices, or procedures, when such modifications are necessary to afford such goods, services, facilities, privileges, advantages, or accommodations to individuals with disabilities, unless the entity can demonstrate that making such modifications would fundamentally alter the nature of such goods, services, facilities, privileges, advantages, or accommodations".

[38] See, e.g., https://www.scotusblog.com/case-files/cases/dominos-pizza-llc-v-robles/. The litigation involved the website and app of a popular pizza chain, which a blind customer was unable to use via screen-reading software (which is standard assistive technology for the web and mobile applications). The Circuit Court found that the ADA applies to services of a public accommodation, not only those that occur on its physical premises.

[39] Keates S., Clarkson J. (2003), p. 439.

[40] W3C (2016), *Techniques for WCAG 2.0: Techniques and Failures for Web Content Accessibility Guidelines 2.0*, available at https://www.w3.org/TR/WCAG20-TECHS/Overview.html.

Charts, Hierarchical Diagrams, and many other types of diagrams[41].

In LII's experience, the complexity and multi-faceted nature of accessibility concerns does not preclude reaping benefits from attending to basic accessibility needs. From our experience, I would suggest that as a community, we focus on becoming more inclusive, that we build upon the work that has already been done by industry and government[42], and that we treat accessibility as a central matter of design rather than a post-hoc matter of remediation.

When developed in an Inclusive Design process, inclusive products can take full advantage of the insights and achievements of advancements in visual law. Despite sounding contradictory, everyone can then benefit from the innovations of visual law – even people who are non-visual.

Acknowledgements

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[41] Diagram Center. *Specific Guidelines – Diagrams: Relational.* Available at http://diagramcenter.org/specific-guidelines-d.html.

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