

**The Question Concerning Identification:
A Tetradic Analysis of the Alberta Birth Certificate**

by

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Abstract

One little-noticed yet increasingly vital technology is the birth certificate. The existence of any technology transforms the environment, yet many technologies--just as the birth certificate--remain generally unnoticed or disregarded as neutral. Locating my research within a media ecology framework, I use McLuhan and McLuhan's Laws of Media to help us understand that instead of being neutral, technology is an active utterance of the human mind, transforming our entire environment. Following these Laws, I ask the fourfold question of what does the technology of the birth certificate enhance, obsolesce, retrieve and, when pushed to an extreme, reverse in to? To answer this question, I use the Tetrad of Media Effects to apply the Laws of Media to the technology of the birth certificate. In keeping with the complex nature of technologies and their environments, my research reveals that the technology of the birth certificate has a broad genealogy inclusive of documentation challenges for both transgender and cisgender individuals. Through exploring literature related these issues, as well as literature related to surveillance and documentation, records and archiving, and others, I begin to map some of this complexity to allow for closer examination. I uncover the history of birth registration and certification in Alberta, including an overview of the specifications and components used in this technology today, as well as the local, national, and international legal frameworks that comprise some of the literally-invisible aspects of this technology. Incorporating media reports also helps to flesh out the lived experiences of many different types of people and their interactions with birth certificates and related technologies. While my research was initially inspired by my experiences as a transgender person seeking to amend state-issued identification documents, my thesis uncovers the ongoing, universal effects of the technology of the birth certificate which applies to all. The birth certificate's active role in constructing modern citizenship means that identification technologies are a legitimate concern of adult education. Accordingly,

my research demonstrates that identification technologies are an emerging site for adult education praxis.

Dedication

To anyone, anywhere, who has had or will have
problems with identification documents.

Spoiler alert:

(This is most everyone, everywhere.)

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Chapter 1: Introduction

Imagine losing every scrap of identification you have. No birth certificate, no driver's license, no healthcare card, no passport, no student ID or even a credit card. Have you ever considered how dependent you are on different types of identification? Could you legally drive a motor vehicle? Vote in an election? Withdraw funds from your bank account? Obtain healthcare services? Purchase a home? Travel across national borders, whether for a holiday or because you need to travel for work? Without identification, none of these things are available to a modern individual.

We take identification for granted. We expect to be able to access goods and services of every imaginable sort and, when asked, are unsurprised if we are required to produce some sort of identification. The identification we use may be in many different forms: physical artefacts such as driver's licenses and passports have been around for many decades, or more recently we may use non-tangible, virtualised keys, such as a username combined with a password. From birth onwards, our identity is captured on both physical and digital media, ubiquitous throughout the world and yet invisible and thereby exempt from critical inquiry. After all, how often do we really think about our daily engagements with identification?

Rather than comfort us, the invisibility of our identification should rightly concern us. Our identification--whether physical or virtual--is comprised of technologies within technologies, most of which we may interact with regularly but not even perceive of as technology in the first place. This lack of perception may leave us vulnerable to persistent effects of such technologies within our lives, particularly if we additionally conceptualise the technology or technologies of 'identification' as somehow normal and/or neutral. This vulnerability is illustrated by Heidegger's (1977) warning that "we are delivered over to [technology] in the worst possible way when we regard it as something neutral" (p. 4).

In Canada, the history of adult education as a movement has been primarily the history of building citizenship. Welton (1987) argues that "adult learning is more central

to societal reproduction, resistance, and transformation than that of the children” (p. 7). Yet adult education is not limited to a particular ideology or politics. From Fitzpatrick’s literacy work with the railway campmen to the creation of a national narrative among disparate geographical and cultural regions under Grierson’s National Film Board, adult education has served many populations. Adult Education praxis, that is, the combination of action and reflection necessary to transform the world (Freire, 1970/2005), is a necessary pursuit to ensure individuals can engage in critical acts of citizenship, including identity-related claims. As this analysis will show, rather than simply identifying an individual, technologies of identification--such as the birth certificate--play an active role in constructing modern citizenship. Accordingly, concerns of citizenship places identification technologies as a legitimate concern of adult education.

Locating the Researcher

My interest in identification as a technology or collection of technologies--as well as the attendant risks and vulnerabilities identification presents--began when I started to undertake my most recent iteration of a lifetime’s worth of amendments to my own identification. As a person who transitioned from one sex to another in my late thirties, I was surprised to discover how many challenges can arise from a person's identification documents being incongruent from the person themselves. The difference is stark: when I was a cisgender person--that is to say, “a person whose sense of personal identity and gender corresponds to his or her sex at birth” (OED, “cisgender”, 2016)--any minor discrepancies were easily brushed aside by my own word. As a cisgender person, I had the personal agency to explain that “Oh, that item is in my maiden name” or “Oh, that was my married name, now I'm using my maiden name again,” and so forth. These explanations were generally trusted: only rarely was I confronted with a request for further identification, certification, affidavits or other materials to support my assertions. These experiences left me with the impression that my word was generally valued and respected as valid, at least when it came to identifying myself correctly in any given situation.

However, once I began to transition from one sex to another, my experiences regarding asserting my identity and attendant identification transitioned in parallel: I discovered my word no longer meant much to those in authority. I was no longer one of the “legal subjects who [could] apply for a driver’s license, produce identification at the airline ticket counter, and present a resume and references to potential employers that do not potentially expose a differently-gendered history” (Currah, 2009, p. 253). Any explanations I might offer about inconsistencies in my identification artefacts would be refuted with demands of “proof” or “evidence” of my claims. Such proof ran the gamut of demanding a doctor’s letter to having to acquire and submit notarised copies of specific documents. Worse yet, this experience was repeated over and over again. But unlike when such changes were merely the result of the commencement or dissolution of a marriage, I found myself having to provide the same types of proofs to the same agencies or organisations on multiple occasions. In one instance, an organisation agreed that it already had all the required proofs in its possession, but demanded I produce additional sets of notarised documents for separate departments within that same organisation. Conceding that the organisation in question had access to photocopiers, internal mail service and so forth made no difference: I was expected to undertake acquiring these materials regardless of the additional costs and time required.

Such experiences were--and are--disconcerting. These experiences also led me to a surprising insight: that as an individual person, I actually have very little direct control over my “identity.” The state establishes my identity and any deviation from identification used to establish that identity is seen as a personal problem, not a problem of the mechanisms of the state. To a cisgender person--a person who has “already achieved the legal recognition that many transgender people seek” (Currah, 2009, p. 254)--this may seem a trifling matter. After all, adult Albertans are familiar with the process of updating a driver’s license after changing residences: in such cases, these changes are purely procedural.

But until recently, the legislative regimes established by the relevant Alberta

statutes required transgender Albertans to acquire complex medical interventions, then provide proof of such interventions through (at a minimum) multiple legal affidavits. While Alberta has typically included such interventions as approved services covered through provincial healthcare insurance funding, the number of physicians empowered to make such diagnoses and referrals is very small (one to two individuals for the entire province), and the amount of healthcare funding available annually is far smaller than the number of people ready to be referred. Accordingly, transgender Albertans seeking such medical interventions typically sit on a waitlist many months--often more than one to two years--before being able to undertake such actions. Until 2014, individual Albertans who were unable or unwilling to have these complex medical interventions had no alternate means to amend their provincial identification. Such experiences appear to be entirely outside cisgender experience--that is, the experience of those whose assigned sex at birth turns out to match the sex they understand themselves to be. For cisgender individuals, demands for proof of identity through identification artefacts are easily met by merely showing the required identification artefact: additional explanations, documents, certificates, or affidavits are not demanded. If a cisgender person needs to make amendments to identification artefacts, no current or historical Alberta legislation obligates an individual to seek medical intervention or permission from a healthcare professional before such amendments to identification can be made.

A great deal of transgender academic literature discussing identification artefacts comes from legal analyses and primarily focuses on legal frameworks and issues related to identification. This literature clearly establishes identification artefacts as fraught with problems for transgender people, to the point of such experiences being “uniquely common” (Herman, 2015, p. 78). However, for the most part, such literature does not interrogate identification artefacts as part of a technological framework. As a result, this analysis will rely on a broad range of literature including transgender; legal; vital statistics; public health; surveillance and documentation; media ecology; and records and archiving literature. This analysis also relies on other relevant non-literature sources such

as treaties, laws, regulations and policies; as well as media reports.

Other discussions around transgender identity in the academic literature often focus on conceptualising identity or noting the methods used to acquire identification artefacts. Some of these items form part of my literature, as they interrogate the broader legal, rights, or citizenship issues transgender identification is situated within. Interestingly, such analyses arise regardless of the legal jurisdiction in question, whether in North America, the United Kingdom, or Australia. To me, the fact that transgender people collectively experience problems obtaining correct identity documents in so many diverse legal regimes is an excellent indicator that the problem lies not with the people but with the common denominator across such people: their identification documents.

Reflecting on the lack of in-depth look at identity documentation as a technology for transgender people led me to suspect that identification technologies of the state itself are in fact an almost completely-overlooked area of research. In some ways, this is true: as transgender literature on this matter is more typically focused on legal frameworks for identification artefacts. However, as my research progressed, I discovered that the pragmatic issues of both identification artefacts and virtualised data bound together in modern identification technologies increasingly apply to all people, regardless of whether they are transgender or cisgender. Such problems arise from sharing a common problem of what I call *data non-conforming*. As the following study will show, in our hyper-connected world, anyone who has incongruent identification for any reason may well experience problems akin to that of transgender citizens. Such convergences will be explored further in Chapter 5: Conclusions.

Research Objective

If state identification technologies construct identities that may be in opposition to that of actual people, how does this happen? What does identification actually do? If I can determine what identification does, perhaps then I can begin to understand how the technology of identification effects the people so identified. Such analysis may also point to a deeper understanding of what technologies are used to form identification, how an

individual's identity in turn is formed by such technologies, what degree of control an individual may have regarding their own identity, what implications this may have for society, and how might this become a productive site for adult education, empowerment and action. While my experiential locus is that of a transgender person, by studying the technology of identification and what it does, my analysis will also be able to distinguish how cisgender people could also experience problems consistent with those faced by transgender people.

However, the range of contemporary identification artefacts available for study are far more numerous than could be investigated adequately within a single thesis. For example, among the identification artefacts commonly familiar to most Canadians are the birth certificate, driver's license, and passport. Yet many other types of formal identification documents exist. For example, while Canadian-born applicants for a federal Canadian passport would normally use a birth certificate to meet all necessary identification proof, a combination of acceptable alternate documents listed include military identification; certificate of Indian [sic] status; and a federal, provincial or territorial employee identification card, among other possible documents (Citizenship and Immigration Canada, 2017). Canada's national criminal law defines an identity document as including eleven specific types of document that has been "issued or purported to be issued by a department or agency of the federal government or of a provincial or foreign government" (*Criminal Code: Official Documents*, 1985, s.56.1(3)). Accordingly, this study narrows the interrogation of the notion of state-issued identification to the single piece of modern identification that is most commonly a pre-requisite for obtaining other forms of state-issued identification. This particular type of identification is the certified extract of a record of birth, or as it is more commonly known, the birth certificate.

Research Question

If state identification technologies construct identities that stand in opposition to that of actual people, how does this happen? What are the performative dimensions of identification technologies? What does the birth certificate actually *do*? The general

question concerning identification is, what is the relationship of identification to individuals? What types of technologies form identification, and how is an individual's identity, in turn, formed by these technologies? Focusing on the birth certificate as an exemplar of identification does not nullify those questions, for the birth certificate itself is an aggregation of techniques (processes) and technologies (artefacts) gathered together in a particular form peculiar or unique to this artefact.

To investigate a technology and its interaction with humans I situate this study within the theoretical framework of media ecology generally and within the Laws of Media as my specific methodological heuristic. I will discuss how media ecology distinguishes between technology and media in Chapter 3: Method. For the moment, I will note that co-theorist behind the Laws of Media and media ecologist Marshall McLuhan considered media to be comprised of the entirety of things made by humans (McLuhan, 1977/2013) which he elaborated as inclusive "of language, of laws, of ideas and hypotheses, of tools, of clothing and computers" (McLuhan, 1977/2013, p. 451). Accordingly, the technology or medium of the birth certificate is intelligible under the heuristic of the Laws of Media, also known as the Tetrad of Media Effects.

The McLuhan's Laws of Media state that every medium has fourfold effects: every medium enhances, obsolesces, retrieves, and when pressed to an extreme, reverses (McLuhan & McLuhan, 1988/2007.) Following McLuhan and McLuhan's (1988/2007) *Laws of Media: The New Science*, the question concerning identification has four aspects. That is, what does identification enhance, obsolesce, retrieve, and reverse? Narrowing the specific exemplar of identification to the birth certificate changes the question only slightly, as in, what does a birth certificate enhance, obsolesce, retrieve, and reverse?

In its long form, this singular question becomes:

- What does a birth certificate enhance?
- What does a birth certificate obsolesce?
- What does a birth certificate retrieve?
- What does a birth certificate reverse?

Implicit in the question concerning identity is the presence of humans. The Laws of Media are intended to “reveal the totality of individual and socio-cultural effects of a particular media or technology” (Adams & Thompson, 2011, p. 742). Thus the question could also be validly framed as, “For a human, what does a birth certificate enhance, obsolesce, retrieve, and reverse?” I will investigate this question in Chapter 4: Research.

Chapter 2: Literature Review

Introduction

Finding literature regarding birth certificates was surprisingly challenging. Out of 1,869 results searching the string “birth certificate canada” in the University of Alberta’s Discovery Service, a library search engine for materials contained within academic and other subscriber-access databases, the first 200 items contain many duplications. Starting with items mostly focusing on health-related scientific studies, by item 100, the vast majority of results are not academic literature but newspaper headlines (in most cases, with no associated full-text record available). Of these, many are items sourced from newspapers that appear to be identical (as they cite identical bylines, dates and headlines), and differ only in the specific newspaper in which they appeared. Such duplications in the top results of a search suggest to me that much of the 1,869 returns I acquired will be additional duplications from those first 200 returns, indicating a small pool of discrete academic literature regarding birth certificates.

Still, skimming these many Canadian newspaper headlines indicates some degree of drama in real life related to the existence of or desire--or more fundamentally, need--to have a birth certificate. For much of my life, artefacts required to prove identity and citizenship to cross the Canada-U.S. border were minimal. However, in the wake of attacks on the World Trade Centre ‘Twin Towers’ on September 11, 2001 (colloquially known as ‘9/11’), American border controls between Canada and the U.S. were tightened substantially. Changes to cross-border identification requirements to the United States of America can be correlated with many headlines complaining about long wait times for obtaining a birth certificate in some provinces (including one that noted an actual full-term pregnancy was quicker than obtaining a birth certificate for one’s child once born), a provincial government ‘get your birth certificate in x days or its free’ schtick, and even a young boy with a terminal illness nearly being denied his literally once-in-a-lifetime trip to Disneyland in California due to the slow speed of birth certificate issuance in the province of Ontario (Harvey, 2004). As Ontario had and continues to have the largest

population in Canada, most of whom live quite close to the American border, any changes to identification documentation for border crossing disproportionately affects people from Ontario. Thus it is no surprise that heightened border security interests demanding particular specifications for proof of citizenship would rapidly backlog under changing security and identification conditions. Prior to 9/11, mainstream Canadian media stories report the story of a Canadian man who assumed another's identity and started life anew in another country, living as a married family with his daughter and her children (Southam Newspapers/Canadian Press, 1996). Another report played out literally over decades, as an elderly man in Yukon Territory struggled to obtain a birth certificate after his birth having never been registered when he was a child (CBC News, 2014a).

Narrowing the search term slightly to "birth certificate alberta" brought a total of 94 returns with only a handful of duplicates for the 'canada' search. Based on prior search results, I was surprised to see that few of these results involved health-focused materials. Although public health studies were the primary focus of returns from academic journals, mainstream media returns were related to reporting on identity theft or some form of fraud involving birth certificates, or reporting on the then-nascent issue of how to acknowledge same-sex parents on a single birth certificate.

Searching more generally for "birth certificate history," I was pleased to discover that the number of returns had increased substantially from prior searches, now with a total of 2,006 available through the university's Discovery Service, some of which were actually focused on the history of the birth certificate as a practise of certification, rather than 'birth history' or other matters related to the notion of a patient's medical history. Previously, the only substantively relevant return I had received when using this search term was the Brumberg, Dozor and Golombek (2012) article. Reviewing the first 200 of these returns revealed a large number of academic literature focusing on the validity of birth certificate data as compared to other patient data in several jurisdictions. Returns from mainstream media reports included a surprising number of stories referring to 'national birth certificates' in the sense of nation-state founding documents such as

the American Declaration of Independence or the ‘birth’ of the nation of Australia. A small number of academic literature returns were more directly focused on the history of the birth certificate and/or its use in epidemiology or other public-health related interests. None of this literature looked at the structural or technological aspects of the birth certificate itself, with the exception of some articles connecting birth certificates into various types of databases, usually discussed in relation to health surveillance. For discussion of the technologies of birth certificates as a tangible technological artefact, reports in mainstream media remain the primary source of such discussions. Mainstream media reports include even some references to changes in a given iteration of birth certificates’ physical specifications, as well as implementation dates for such technological changes. In many cases, mainstream media returns only provided the byline, headline, and publication data of these newspaper reports: no body content was available.

Confirming legislative references online during the final writing of this thesis led me to the serendipitous discovery of an additional body of literature related to birth certificates, that of civil registration and vital statistics. None of the items found in this body of literature came as returns under previous search strings, despite many of them discussing birth registrations and birth certificates specifically and at length. Most of these items were uncovered through the Google Scholar search engine, though some items were later found through searching articles under the University of Alberta’s Discovery Service for “alberta vital statistics” (378 returns) and “canada vital statistics” (3250 returns). The University of Alberta’s library database search was also used to find the content of some specific items initially identified through Google Scholar but only available behind a paywall. This body of literature was able to substantially flesh out specific social and historical aspects of the Alberta birth certificate and its antecedents.

Literature Classification and Selections

Literature regarding identification artefacts and technologies has a broad genealogy that can be roughly classified as literature related to issues, documents, and interpretation. Literature related to identification issues includes material from transgender and legal sources. Literature related to documents includes material from vital statistics, public health, and surveillance and documentation sources. Literature related to interpretation includes material from media ecology and records and archiving, as well as relevant non-literature sources.

Issues.

Transgender Literature.

Transgender literature included in this analysis comes from four different regions: the United Kingdom, the United States, Australia and Canada. A great deal of transgender literature discussing identification artefacts comes from legal analyses. Many of these are related to changes in identification legislation such as the United Kingdom's *Gender Recognition Act* (2004) and the United States' *Real ID Act* (2005). Legal frameworks are part of the larger identification systems (Lyon, 2009) within which identification artefacts are situated. This literature helps in understanding the "uniquely common" (Herman, 2015, p. 78) challenges of obtaining correct identification artefacts for transgender people.

Transgender Literature: United Kingdom.

Insofar as identification technologies are discussed outside of legal reform, transgender literature often notes full inclusion for transgender people may be impossible for "a society in which discrete conceptions of 'male' and 'female' permeate every aspect of life" (Monro, 2003, p. 447) without "fundamental changes to the current system of sex and gender categorization" (Monro, 2003, p. 449). Recognising that transgender

citizenship is complex and challenging, Monro and Warren (2004) compare different theoretical approaches to citizenship, such as sexual citizenship and others, and their applicability to transgender lives through “commonalities and divergences” (Monro & Warren, 2004, p. 345).

Legislative changes for transgender inclusion “remains tied to a medical perspective of transgender that continues to marginalise practises of gender diversity” (Hines, 2006, p. 1). In “(Trans)Forming gender: Social change and transgender citizenship,” Hines (2007) argues that while the United Kingdom’s *Gender Recognition Act* (2004) has brought some improvements for transgender lives, “those who construct identities outside the gender binary remain on the margins of citizenship: residing as non-citizens” (p. 14). Such individuals “continue to be excluded from the rights and recognition of citizenship” (p. 14).

Hines’s (2009) case study, “A pathway to diversity?: Human rights, citizenship and the politics of transgender” further analyses the United Kingdom’s *Gender Recognition Act* (2004). Under this Act, married transgender people are required to have their marriages annulled before an amendment is made to an individual’s identification documents. This and other practises within the Act result in ongoing imposition of cisgender, heterosexual norms, what Hines (2009) calls “a hetero/homo binary” (p. 93), where law is predicated on assumptions that one is either heterosexual or homosexual, and that those whose relationships cross identification boundaries cannot possibly fit.

The legal determination of sex has varied throughout history, with “a range of people from judges to physicians” (Whittle & Turner, 2007, s. 8.6), rather than the individual in question, making that determination. In “Sex changes? Paradigm shifts in ‘sex’ and ‘gender’ following the Gender Recognition Act,” Whittle and Turner (2007) provide a detailed overview of the contradictory approaches to sex determination in UK history, from Pliny in ancient Rome (c. 23 AD-79 AD), through to the UK’s *Gender Recognition Act* of 2004.

Transgender Literature: United States.

Keller (1999) notes that while legal opinions “may appear to offer coherent and unified explanations of their decisions they also offer a shifting and doubleness of the rhetoric used to justify outcomes” (p. 329). In “Operations of legal rhetoric: Examining transsexual and judicial identity,” Keller (1999) explores American legal decisions involving transgender people. Keller (1999) notes that when authorities “so thoroughly repudiate transsexuals as a group that transsexuals cease to seem even human” (p. 338). Similarly, Lloyd’s analysis, “Defining the human: Are transgender people strangers to the law? (2005) interrogates the way legal “theories of the normal” (p. 153) are used to exclude transgender people from basic civil rights protections in the United States. Lloyd uses theorists such as Freud (1962), Bersani (1986), and Butler (1993) to try to understand why transgender people continue to face “systemic dismissal ... as legal subjects” (Lloyd, 2005, p. 154) in American litigation. Building her analysis on the case study of “Josh” and his lack of means to challenge systemic workplace discrimination, Lloyd (2005) notes that he is placed “in an untenable position based not on a doctrinal legal error but rather on sheer prejudice” (p. 194), a level of animus that has “staggering” (p. 194) implications.

Beauchamp discusses how post-9/11 militarisation in the United States made identification issues for transgender people yet more salient in the wake of a Department of Homeland Security advisory stating that male “bombers may dress as females in order to discourage scrutiny” (Department of Homeland Security, cited by Sandeen, 2015) and the creation of the *Real ID Act* (2005). For a transgender individual to be intelligible as “the safe transgender traveller” (Beauchamp, 2009, p. 364) they must engage in disclosures as to why their bodies do not conform to the white, cisgender, heterosexual figure that the ‘safe citizen’ (as opposed to the dangerous terrorist). Accordingly, “the ability to embody the safe trans traveller is not only limited to particular bodies, but in fact requires the scapegoating of other bodies” (p. 364). Beauchamp (2009) argues that this can be observed through American transgender rights organisations that seek

to help individuals gain “rights and state recognition on the basis of ‘legitimacy’ . . . legal legitimacy is typically used on identity documents, most of which require sex reassignment surgery for a change of gender marker” [emphasis original] (p. 363), a process that is itself one of “correction and normalization” (p. 363). The safe trans traveller, the citizen of a particular national identity, becomes the “figure” (Beauchamp, 2009, p. 364) against the ‘ground’ of the terrorist.

The proliferation of contradictory policies and practises for amending “gender” on identification documents across multiple jurisdictions helps underscore Spade’s (2008) central argument that for a ‘common sense’ issue, there is no concordance as to how to approach these amendments. Spade’s (2008) exhaustive article, “Documenting Gender,” offers a side-by-side look at the way gender classification (as well as gender amending or reclassifying) operates across multiple government-issued identification technologies (including the birth certificate) in each American state. Spade (2008) also notes that the need to produce a birth certificate or other identification documents in the United States historically was “not expected to be used by all in a variety of contexts as a requirement for proving identity” (p. 761). According to Spade (2008), security practises in the United States began to demand that individuals produce extracts from their birth registration records extracts (birth certificates) as identification began only after World War II. More recent developments such as the United States’ *Real ID Act* (2005) have placed substantial burdens on transgender people.

As with other sources, Currah (2009) notes that the legal determination of sex in an American legal context has been similarly contradictory. In “The transgender rights imaginary,” Currah (2009) investigates a variety of approaches used “in challenging the state’s construction of transgender people as outside the legal universe of equal protection” (p. 245). Currah underscores two key problems for transgender people, both centred on the state: “inconsistency between jurisdictions on the question of legal definition of sex for the purposes of sex designation or the applicability of sex discrimination laws” (p. 249) and “inconsistency within jurisdictions in the legal

definition of sex for different social functions (such as driver's licenses, birth certificates, marriages, passports, veterans benefits)" (pp. 249-250).

Why is gender a more important indicator of identity than shoe size? Herman (2015) asks this question in "Tranarchism: transgender embodiment and destabilization of the state." Herman (2015) asserts that "it is important to interrogate the notion of familiar modes of classification as neutral, natural, and incontestable" (p. 82), such as the binary sex markers on formal identification artefacts. The very existence of transgender people, "with their conflicting identity documentation and binary-defying bodies, resist the state-constructed notion that possessing and living a single, static, easily categorisable identity individualise each citizen" (Herman, 2015, p. 88). Because different jurisdictions have highly divergent standards for amending identification artefacts, "the existence of numerous, incompatible histories for the same transgender individual, disrupt[s] the organised, efficient facade of the government" (Herman, 2015, p. 88).

Transgender Literature: Australia.

Aizura (2006) asks, "what are the connections between the borders of gender and those between nations?" (p. 289). In "Of borders and homes: the imaginary community of (trans)sexual citizenship," Aizura (2006) explores the profoundly normative legal strategies used successfully in Australia to gain rights for transgender people, such as the case of *Re Kevin*. In this case, Kevin's ability to perform as a typical family man with typically masculine hobbies and interests was key to gaining a legal proclamation of a valid marriage in a nation that does not offer same-sex marriage. Aizura explicitly positions his analysis as trying to address tendencies in trans/queer theory to focus on Anglo-US theory, "as if this were the only 'theory' worth engaging with" (p. 303).

Couch, Pitts, Croy, Mulcare, and Mitchell (2008) surveyed a number of transgender people in Australia and New Zealand regarding amending identification documents. As in other jurisdictions, many of their respondents faced difficulties accomplishing this. They describe amending identification artefacts as a "practical

matter” (Couch et al, 2008, p. 288). For survey respondents, amending documentation is essential for many reasons, including the role such artefacts have in forming the “basis of human rights” (Couch et al, 2008, p. 288). Amended identification artefacts was experienced as a “recognition of civil belonging” (Couch et al, 2008, p. 288). They note that with the “multiplicity of experiences across agencies and jurisdictions ... and the diversity of, and variability in, participant experiences, there can be no generic prescriptions for change” (Couch et al, 2008, p. 288).

Transgender Literature: Canada.

Focusing on the difficulties of acquiring correct information for a transgender person to obtain a Canadian passport, Mandlis (2011) is one of the few writers to investigate systemic identification issues connected to acquiring a particular identification artefact. In “A Passport to trouble: Bureaucratic Incompetence as Censorship,” Mandlis (2011) offers an ethnographic exploration of his own experiences obtaining a passport. He argues that when a person is denied a passport, they cannot be understood as a non-citizen, but instead are “produced as some other *form* of citizen” [emphasis added] (Mandlis, 2011, p. 89). Mandlis (2011) notes that since “passports can be issued under different circumstances and with different conditions” (p. 90) attached to those passports, there must be both “different ways of being Canadian” (p. 90), and that these differences “equate to different citizenships because the privileges and protections offered to one group ... are not offered to the other” (p. 90).

Transgender people are often not considered competent to affirm their identity for themselves, often being required to provide “expert corroboration” (McGill & Kirkup, 2013, p. 96) regarding their gender identity. McGill and Kirkup’s (2013) article, “Locating the trans legal subject in Canadian law: *XY v Ontario*,” provides a comprehensive aggregation and analysis of known Canadian legal cases involving transgender people. Their analysis notes that “legal discourse, embodied in jurisprudence, legislation and legal rhetoric, produces the subjects it names, creating the categories

of individuals about which it speaks through the act of speaking about them” (p. 101). McGill and Kirkup (2013) contextualise law as having inherent strengths and weaknesses, meaning that law is only one avenue of many for achieving full citizenship for transgender people.

Legal Literature.

While several selections from transgender literature may be rightly considered legal literature, one additional item by Appell (2014), not framed exclusively around transgender issues, needs to be included. Birth certificates have become “a powerful creator, regulator, and arbiter of identity and belonging, including sex, gender, race, age, production, reproduction, and kinship” argues Appell (2014, p. 361), warning that the birth registration and certification system “may assume too much power to construct individual identity and to dictate the legitimacy of identity and relationships of individuals and families” (p. 404). In this exhaustive analysis of the practise of certifying births, Appell (2014) notes that the birth certificate “creates legal truth” (p. 389) due to its status as an official record, affording the state enormous power in identifying its citizens. She also notes that the categories and labels embedded in this artefact are “malleable [as] the registration and certification have changed in form, function, data captured, and procedures for collecting over time” (Appell, 2014, p. 392). Today, as the birth certificate is used in more and more identification contexts, including establishing citizenship and obtaining other identification documents, Appell (2014) states that the “birth certificate may be serving too many masters” (p. 404).

Documents

Vital Statistics Literature.

Key literature regarding birth certificates can be found through online resources such as the United Nations Statistics Division's Civil Registration and Vital Statistics Knowledgebase (n.d.). Documents and citations found here led me to uncover essential research directly related to birth registration in the United Kingdom, Canada, and even a single item about Alberta's historic birth registration practises that had not previously arisen in my research journey.

Civil registration of births was part of a larger movement towards rationalisation through the collection of statistics by governments. In "Ontario's civil registration of vital statistics, 1869-1926: The evolution of an administrative system," Emery (1983) discusses the development of civil birth registrations before and after Canada's Confederation in 1867. Emery (1983) notes that initial developments were "primarily for legal reasons ... civil registrations developed fully through alliance with the public health movement" (p. 471). Emery (1983) also solves what was for me a consistent mystery throughout my research journey: if statistics are a constitutional responsibility of the federal government, why do provinces and territories collect, manage, and legislate vital statistics practises? In his case study, "Incomplete registration of births in civil systems: the example of Ontario, Canada," Emery (1990) analyses inconsistencies of birth registration data in early civil registration practises. In "Counting the dead and regulating the living: early modern statistics and the formation of the sociological imagination (1662-1897)," Bayatrizi (2009) discusses the profound change the development of 'political arithmetic' brought to British and European thinking. He notes that the analysis offered in publications such as Graunt's (1662) *Observations on London Bills of Mortality* showed "life as the foundation of social and political order" (Bayatrizi, 2009, p. 607), leading people to an understanding that observable patterns, rather than fate, governed their lives.

Kaler (2013) is the sole source found to date who writes explicitly about Alberta birth registrations. In, “‘The national gain is nil’: Infant mortality as failed reproduction in early 20th century Alberta,” Kaler (2013) discusses the development of notions such as ‘birth rates’ and ‘infant mortality rates’ as emerging from the traumas of the First World War and the Great Depression. In providing an overview of Alberta’s history and population, she notes that between 1901 to 1911, the province’s “population quintupled ... [from] almost all white immigrants” (p. 314), while at the same time, the relative percentage of Alberta’s Indigenous peoples dropped from 20 to 3 per cent of the population. Kaler’s (2013) use of local media contemporary to her period of study is also notable. Kaler’s study could also be classified as public health literature.

Public Health Literature.

Public health literature contains a great deal of information on birth certificates; however, much of this body of literature is about medical surveillance issues, as well as identifying data deficiencies within birth registration systems that interfere with the sought-after medical surveillance. In the public health context, identification artefacts investigated or forming part of an investigation typically focus on birth registration records and birth certificates, including research related to maternal health (Selvin, 1972), reproductive technologies (Blyth, Frith, Jones & Speirs, 2009), and data reliability (Northam & Knapp, 2006) among many others. Other public health literature includes subjects such as anonymity (Lucock & Black, 2009), adoption records (Butch, 2010) and same-sex parenting (Leckey, 2011).

One item in this body of literature provided a good basic overview of the history of the birth certificate in the United States: Brumberg, Dozor and Golombek’s (2012) “History of the birth certificate: from inception to the future of electronic data.” Technological changes “have allowed for linkages of administrative data to other sources of information, such as Medicaid, death certificates and other publically [sic] funded programs ...” (Brumberg, Dozor & Golombek, 2012, p. 411). Early American

birth records varied widely, but started to gain more standardisation around the First World War years. They also note that many populations have under-reported birth data. Accordingly, wide disparities in data collection and entry practises often meant birth record data was inconsistent. An important point overlooked by many other authors regarding identification generally is that the historical recording of births in church and early British civil registries was “to insure individual rights, primarily for property” (Brumberg, Dozor & Golombek, 2012, p. 407).

Surveillance and Documentation Literature.

Surveillance and documentation literature proved generally the most directly applicable to the technological aspects of my research. This literature looks at the history and development of many types of identification artefacts and practises, along with the role of such artefacts and practises in helping to establish the modern nation-state. For the most part, birth certificates are not mentioned explicitly. However, as researchers across this literature assert, identification is not merely an artefact, but an entire system or, more properly, systems.

In Alberta, the birth certificate is required to obtain a driver’s license (in addition to other qualifications such as meeting minimum age requirements and passing a driver’s test). The birth certificate is also required to obtain a federal Canadian passport. The birth certificate might also be required for other purposes, such as authorising registration in elementary, secondary, or post-secondary educational institutions in Alberta. In other words, many identification systems rely on the birth certificate before other identification artefacts or records can be propagated. Accordingly, in keeping with McLuhan’s (1964/1994) assertion that “the ‘content’ of any medium is always another medium” [emphasis original] (p.8), it is reasonable to apply literature regarding other types of identification or identification systems generally to this study’s context.

The pre-history of identification practises planted seeds still bearing fruit today. In “Describing the person, reading the signs in late medieval and renaissance Europe:

Identity papers, vested figures, and the limits of identification, 1400-1600,” Groebner (2001) notes the “significant and radical change” (p. 16) of an individual’s name moving from the spoken word to the written language, as the individual now becomes “coded into registers” (p. 16). Cultural encoding was also practised: individuals sought by the authorities were sometimes described by a ‘permanent distinguishing mark’ that would be culturally understood to be the “mark of the traitor” (Groebner, 2001, p. 26).

Personal documentation is a “distinctive feature of advanced industrial societies” (Rule, McAdam, Stearns & Uglow (1983, p. 223), that spans both physical artefacts and digital data connected to the identification artefact. In “Documentary identification and mass surveillance in the United States,” Rule, McAdam, Stearns and Uglow (1983) study the birth certificate along with five other common personal identification documents used in the United States. They assert that all personal documents denote an “ongoing relationship between the individual ... and the organization” (p. 223). They describe such relations as *mass surveillance* (“any systematic attention to a person’s life aimed at exerting influence over it” (p. 223)) and *social control* (“efforts to define and bring about ‘correct’ actions or statuses” (p. 223)). Personal documentation practises are intended to assist in discrimination, that is to say, determining who may or may not have access to goods or services.

A “a consistent feature of contemporary body surveillance technologies is their computer-dependence” (Lyon, 2001, p. 298). In “Under my skin: From identification papers to body surveillance” Lyon (2001) discusses both the body and surveillance generally. Lyon (2001) underscores Rule et al.’s (1983) perspective that identification practises are part of surveillance and social control, noting that “by the 1990s it became clear that so-called information societies were from another point of view surveillance societies, such was the pervasive degree of routine monitoring of almost all aspects of daily life” (Lyon, 2001, p. 295). Citing Clarke (1988), Lyon (2001) describes “‘dataveillance’ ... [as] a taken-for-granted aspect of modern life as new configurations of computing with telecommunications capacities became available” (p. 295). Lyon warns

that technology alone was not responsible for this taken-for-granted rise of dataveillance. Instead, particular political ideologies interested in “risk management ... generate the quest for more foolproof, and fraudproof, methods of establishing identity” (Lyon, 2001, p. 296).

Lyon (2009) notes that increased institutional dependence on identification artefacts “along with the corresponding registries and records” (p. 36) is a substantive change from historical practise, wherein identification documents were only rarely demanded from only a small portion of the population in any given place or time. His book, *Identifying Citizens: ID Cards as Surveillance* (2009) is germane to understanding birth certificates, arguing that modern ID systems--that is to say, a physical artefact combined together with its virtualised, always-on database(s)--increasingly afford less discretion for those authenticating and validating an individual’s identification, removing the ability for the individual’s stories about themselves to have any weight in identifying the self. In other words, the state claims the right to identify the individual.

In “Playing the ID card: Understanding the significance of identity card systems,” Lyon and Bennett (2008) review the “complicated series of social and policy choices” (p. 3) necessitated by establishing national identity schemes. They emphasise that such practises are not limited to the identification artefact an individual might carry, but an entire system. Such systems are beholden to “legacies of information system design as well as technical standards [that] sometimes impose significant constraints on the building of the databases necessary to support multipurpose identification card systems” (Lyon & Bennett, 2008, p. 16).

Identification artefacts are key to modern governance, as identification “shore[s]-up the ‘homeland’ from the ‘strangeland’” (Amoore, 2008, p. 23). In “Governing by Identity,” Amoore (2008) notes that modern “modes of identification ... operate primarily via the screen and not via the card” (p. 23). This results in “a projection of a person built from fragments, bits and bytes of data, suspicions and prejudices” (p. 23). Such fragments are then used by contemporary governments for risk-assessment purposes,

with such identification being used as “*pre-emptive identification*” [emphasis original] (p. 24) allowing governing bodies to refuse entry or access in advance of suspected or alleged ill intent on the part of the identified individual. Amoore argues that rather than identification systems per se being unique to contemporary governance, instead it is this pre-emptive identification that is “novel to contemporary security decisions” (p. 24).

Interpretation

Media Ecology Literature.

Other relevant literature that can be broadly interpreted as media ecology literature includes both Eisenstein (1978, 1980), Latour (1992, 2010), Gregory (2013) and Slack (2004). Eisenstein informs us of the profound changes to European culture afforded by the technological changes introduced by the printing press, particularly the “preservative powers of print” (Eisenstein, 1980, p. 101) that allow for a “permanent process of recovery” (Eisenstein, 1980, p. 101). She also notes the proliferation of visual aids and the emergence of “a more uniform pictorial and mathematical vocabulary” (Eisenstein, 1978, p. 184). The physical structuring of data has “epistemological effects which are implied in the use of forms, lists, and tables” (Gregory, 2013, p. 305). In “The tabulation of England: how the social world was brought in rows and columns,” Gregory (2013) demonstrates the influence of the invention and increased use of political arithmetic (later known as statistics) on western culture. Gregory (2013) argues that these practises afford a particular type of knowledge that would not otherwise exist. The physical structuring of data is also discussed by Slack (2004), in “Government and information in seventeenth-century England.” Slack focuses on the rise of political arithmetic and the then-new practises of “deliberately assembling systematically organized knowledge” (p. 35). Latour (1992) discusses how we “delegate to nonhumans” (p. 232) both specific actions as well as our own internal biases and values. Likewise, Latour (2010) notes that such investments in our nonhuman objects can also result in fetishising our artefacts.

Records and Archiving Literature.

Other relevant literature from records and archiving include Scott (1990), Rawson (2009), Marx (2001) and Yeo (2012). In his book, *A Matter of Record: Documentary Sources in Social Research*, Scott (1990) discusses a wide range of documentary sources, including records such as birth registers and certificates, as well as an overview of the systems such documentary sources may be embedded within. Rawson (2009) discusses the challenges of classifying and labelling archival materials, particularly with regards to changes in social norms. In “Accessing transgender // desiring queer(er?) archival logics,” Rawson notes that contemporary usage of “transgender” may not reflect the language of norms of times’ past. Likewise, changes such norms can prove challenging for contemporary researchers to uncover relevant materials. Rawson cites the example of Feinberg’s *Transgender History* (1996), which is classified by the Library of Congress as falling under “Transsexualism--History,” “Transvestism--History,” and “Gender identity--History” (Rawson, 2009, p. 133), rather than reflect the used in the book’s title, meaning Feinberg’s book could not be found topically under the term ‘transgender’. In “Identity and anonymity: Some conceptual distinctions and issues for research,” Marx (2001) asserts that the past is no longer the past, thanks to digital technologies and vastly increased data storage capacity. In “Bringing Things Together: Aggregate Records in a Digital Age,” Yeo (2012) discusses the ease of aggregating data in the digital realm and the difficulties of archivists facing hierarchies that may no longer be as fixed as once thought. In discussing the notion of records, Yeo (2012) notes that some types of records can be considered ““authorized proxies’ ... [as] our society recognizes some representations (such as birth registers) as records even though their creators do not directly participate in or observe the events they represent” (p. 46).

Relevant Non-Literature Sources.

This analysis also incorporates a number of sources beyond academic literature,

including official governance records (such as treaties, statutes, regulations, and policies) as well as reports from various media sources. Governance records establish the ground from which the figure of study--the birth certificate--emerges. Wiezel's (1997) contribution to the *United Nations Handbook on Civil Registration and Vital Statistics Systems* is a particularly helpful governance report regarding the operational aspects of provincial-federal vital statistics collection and reporting in Canada. Media reports are helpful in fleshing out lived experiences of the issues raised through this analysis, though of course it is important to be mindful of the many ways that information may be distorted by the reporting process (Scott, 1990). When possible, I have selected from a variety of journalistic sources reporting on a topic, or have selected items from reputable news organisations that includes more complete coverage of the matter under discussion.

Summary

Literature regarding identification artefacts and technologies spans a wide range of disciplines, including public health, history, medicine, law, and others. This literature--and the experiences of searching for this literature--further underscores the taken-for-granted and unnoticed nature of the technology of the birth certificate.

Chapter 3: Method

Introduction to the Laws of Media

In 1988, the notion of fundamental laws governing media--or technology--was brought forward through the publication of *Laws of Media: The New Science* by Marshall and Eric McLuhan. The McLuhans conceived of the Laws of Media as laws in the sense of scientific laws. Scientific laws are both testable and falsifiable (McLuhan & McLuhan, 1988/2007). For example, the statement, “for every action there is an equal and opposite reaction” is falsifiable. If any action can be found wherein neither an equal nor opposite reaction results, then the statement would be falsified. As of this writing, this statement remains true. In other words, observations or experiments by scientists continue to demonstrate this statement to be valid. If observations or experiments eventually demonstrate this statement to be untrue, then it would cease to be a law in the scientific sense. Because the statement has not yet been shown to be false it continues to form the Laws of Motion, one of three laws of nature articulated by Sir Isaac Newton to describe the physical universe.

Similarly, the Laws of Media are intended to form falsifiable statements about the relationship between media (or technology), its human creators, and its resulting effects. If any of these statements are found to be untrue, they would cease to be laws. McLuhan and McLuhan (1988/2007) developed the Laws of Media by asking, “What general, verifiable (that is, testable) statements can be made about all media?” (p. 7), noting that just as with other scientific laws, such statements “can be asked (and the answers checked) by anyone, anywhere, at any time, about any human artefact” (p. 7). In other words, the McLuhans intend the Laws of Media may stand as laws until such time that they are falsified by observing effects that do not fit the statements articulated by these laws.

The scientific method “is to observe effects and by experimentation and reasoning to determine the causes of the observed effects” (Logan, 2011, p. 3). The McLuhans-

as-scientists likewise observe effects and from those determine causes (McLuhan & McLuhan, 1988/2007). The word ‘effects’ is important to note, as an alternate label or title for the four statements comprising the Laws of Media is the Tetrad of Media Effects (McLuhan & McLuhan, 1988/2007). Logan (2011, citing McLuhan, McLuhan & Stains, 2003) states that the elder “McLuhan suggested that the best way to study media was by ‘making inventories of effects’,” (p. 3).

The elder McLuhan had a broad conceptualisation of media far beyond common usage of print, radio, and television news or entertainment media. He saw media as a totality of human artefacts and ideas, “of language, of laws, of ideas and hypotheses, of tools, of clothing and computers” (McLuhan, 1977/2013, p. 451), what we might also call our technologies. In other words, when the McLuhans speak of media, this usage may also include what others may commonly mean by the term ‘technology’. McLuhan did not see humans as separate from our technologies, whether literally or metaphorically. He said that all media (technologies) “are extensions of the physical human body” (McLuhan, 1977/2013, p. 451). McLuhan’s perspective concurs with Clark (2003), that the “line between biological self and technological world was, in fact, never very firm” (p. 8) and that “human thought and reason is born out of looping interactions between material brains, material bodies, and complex cultural and technological environments” (Clark, 2003, p. 11).

According to McLuhan (1964/1994), human senses are effected by our technologies: our media “configure the awareness and experience of each one of us ...” (p. 21). This means that technologies are an extension of ourselves. Contemplating the relationship between media (or technology), its human creators, and its resulting effects, McLuhan argues that “all of our artifacts [sic] ... are in fact, words. All of these things are outerings and utterings of man” (1977/2013, p. 451). Initially, McLuhan considered naming his fourfold structure describing these effects the Phenomenology of the Media (McLuhan, Hutchon & McLuhan, 1978) because the Tetrads “act phenomenologically” in “focusing awareness of hidden or unobserved qualities in our culture and technology”

(McLuhan & McLuhan, 1988/2007, p. 128). Phenomenology thus may carry antecedents to the McLuhans' work: for example, Adams and Thompson (2011) note that the McLuhans "explicitly describe these laws as encapsulating and simplifying the efforts of phenomenologists like Heidegger" (p. 742).

Others describe the Laws of Media (or Tetrads of Media Effects) differently. Gouzouasis and LaMonde (2005) describe Tetrads "as cognitive models, ... used to refine, focus, or discover entities in cultures and technologies, which are hidden from view in the psyche" (p. 1). Also referred to as a "heuristic device" (McLuhan & McLuhan, 1988/2007, p. 7), Levinson (introducing McLuhan, 1977/2013) describes the Laws of Media as "a new schema that describes the operation, not only of media, but of all human processes, artifacts, and creations" (p. 449). Adams and Thompson (2011) describe the Laws of Media as a heuristic, noting that the tetrads are "framed by phenomenological insights in order to explore different ways of uncovering human-technology interactions" (p. 738). They note also that the McLuhans "propose four *laws of media* as a way to reveal the totality of individual and socio-cultural effects of a particular media or technology" [emphasis original] (p. 742).

How is it that the Laws of Media or the Tetrad of Media Effects are sometimes described as applying to technology? As noted above, the elder McLuhan had a broad conceptualisation of media that included all human artefacts, whether tangible or intangible. The intangible utterings of human language are no less a medium than the tangible artefact of a hammer: all act as extensions of the human body and all *affect* the human body. Even so, media ecologists--including the McLuhans--do recognise distinctions between a technology and a medium. To understand fully the implications of this study, it is important to be aware of these distinctions. In English, the word 'medium' (the singular of the word 'media') refers to a "person or thing which acts as an intermediary" (OED, "medium, n.AII, 4", 2016). An intermediary--something that mediates between--can be useful. The intermediary of a hammer allows our fragile human flesh and bones to build or destroy. In English, the word 'technology' (as it

might apply to a thing which acts as an intermediary) refers to products arising from applied knowledge of the “branch of knowledge dealing with the mechanical arts and applied sciences” (OED, “technology, 4.a”, 2016) as well as “machinery, equipment, etc. developed from the practical application of scientific and technical knowledge” (OED, “technology, 4c.”, 2016). While a hammer might be dismissed by many today as an unremarkable object, the hammer is in fact among the earliest technological artefacts, found even among the most ancient human remains, whether made of stone or bone. The hammer is a technology that directly helped build human settlements and civilisations from prehistory to this very day.

Does this mean a medium can be understood as identical to a technology? Both Postman and the McLuhans distinguish between technology and medium. Postman (1985/2005) tells us that a “technology becomes a medium as it employs a particular symbolic code, as it finds its place in a particular social setting, as it insinuates itself into economic and political contexts” (p. 84) while McLuhan and McLuhan (1988/2007) describe media as “the ground-configurations of effects, the service environments of technologies” (p. 98). Because media is a ‘service environment’ of technology, “media ... is inaccessible to direct examination since their effects are mainly subliminal” (McLuhan & McLuhan, 1988/2007, p. 98).

Here the concept of figure and ground is helpful to elaborate on the interplay of technology and medium. Harman (2009) discusses how the notion of figure/ground from gestalt psychology is conceptually relevant to the Tetrad. “According to the gestalt model, any perception has some explicit focus, a foreground of which it is consciously aware. But this conscious figure is visible only against a tacit background that is also perceived without being overtly present” (Harman, 2009, p. 104). In other words, figure needs a ground to be perceived against. However, with regards to the Tetrad, “the crucial point is that the figure and ground are always in constant interplay” (Harman, 2009, p. 104).

Where I might notice ground, another person might notice figure--and at another moment, we together might both notice figure, then discover figure is subsumed into

ground. Flip-phones in the mid 1990s? Figure. Smartphones in the 2000s? Figure. The ability to carry a portable phone on one's person at all times in 2016? Ground. People choosing to leave a smartphone at home or turn it off for any period of time? This action pushes the smartphone into the role as figure, as such choices render the ground of everyone-has-a-phone-at-all-times into the figure of some-people-do-not-wish-to-be-tethered-or-interrupted-by-their-phone-at-any-possible-time. The more commonly humans interact generally with a particular technology makes any given human's choice to refrain from such an interaction highly visible: ground becomes figure.

Borgmann (1984) points out that "it is instructive ... to see how in the implements that surround us daily the machinery becomes less conspicuous, the function more prominent" (p. 43). For example, the enormous communications infrastructure that must be installed and operationalised to provide 'wireless' data transmission is the backbone of our contemporary ability to carry a powerful computer in our pockets (more commonly referred to as a 'smartphone') is not generally visible to people outside of the telecommunications industry. This industry currently incorporates a number of technologies both on- and off-planet, including radio, underground cables, site-to-site antennae, satellites, and so forth. All of this allows any person with a smartphone and an active subscription with a cellular service provider to place or receive a phone call from anywhere a signal is available.

Yet for my children, this device functions as a way to browse the web, and send and receive text messages. Rarely does it function as a portable phone, despite these devices retaining the capacity to place voice-to-voice calls. When I place a call to one of my children's smartphones, my usage of this technology (as a phone) is notable for its unusualness. For me, placing a voice-to-voice call is ground: a completely normal, unnoticed and unremarkable use of a technology that I tend to conceptualise as a portable version of an old-fashioned wired telephone. From my children's perspective, receiving an actual voice-to-voice call is figure: such usage is entirely remarkable and unusual, as their contemporaries tend to use their smartphones as a way to send and receive text-

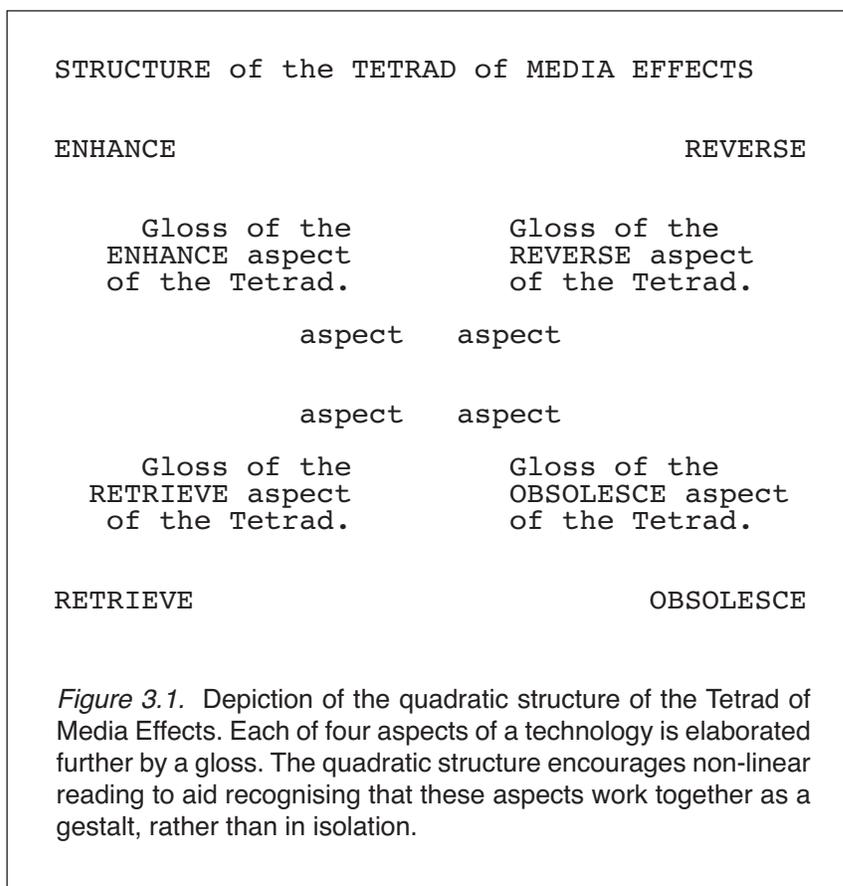
based messages or engage in communication mediated through the various flavours of social media platforms. While my children were gracious when explaining to me that they rarely receive phone calls on their smartphones, they were clear that receiving an actual voice-to-voice call immediately alerts them that this contact is from someone who is not their contemporary. My ground is their figure: in their world, actually calling a person through their smartphone number is hopelessly old-fashioned. Note that I am speaking here of the usage of this device: for the most part, the fact that most of us have a smartphone device in the first place is generally unremarkable. As Borgmann (1984) notes, during “the progress of a technology, the machinery of a device has ... a tendency to become concealed or to shrink” (p. 42). He also notes that this “concealment of the machinery and the disburdening character of the device go hand in hand” (Borgmann, 1984, p. 42). This means that once a technology is in use, whether it is a hammer, the written word, or a piece of identification, it falls into the background, the service environment of technology. From the position of background, the technology has become medium.

In other words, while it may be easy to see a physical object and label it ‘technology’, it may be far more difficult to discern a technology as technology once it is in use (McLuhan & McLuhan, 1988/2007). Even technologies we can ‘see’ (such as the written language, cell phones, cars, and so forth) fade to the background once they are in use. As an example of the former, my visit to the local exhibition of the 800th anniversary of the *Magna Carta* (Magna Carta Canada, 2016, n.p.) was personally instructive. I found myself quite fascinated with the material upon which the recension (copy) of the *Magna Carta* was written upon, as well as the oxidation of the ink which over the centuries had changed the originally black ink to a dark rusty red. I was also deeply impressed by the beautiful, even hand of the scribe who rendered the document’s text. Yet notice that in this list of fascinating technologies I have completely missed what is likely the most fundamental technology that went into writing the document in the first place: the technology of being able to express thoughts into symbolic codes that can be

captured on some type of long-lasting substrate, allowing those thoughts to transcend time and space and be accessible by people nearly a millennium after these thoughts were conceived. What the technology does is for the most part invisible: even if the technology may be overtly, obviously visibly before me as figure, its operations instead are covert, obfuscated and embedded within ground. As medium, this technology exerts effects on people without those same people noticing these same effects. The genius of the Tetrad is that--whether one conceptualises it as a set of laws, a heuristic or a process--it can help us regain the ability to notice the technology, to push ground back to figure so that it may be examined.

As the word 'tetrad' implies, the Laws of Media have four aspects, as "McLuhan believes that every product of human effort manifests itself in the same four dimensions" (Sui & Goodchild, 2003, p. 10). Indeed, structuring a tetradic analysis as four quadrants of a space rather than using a linear progression of one element to another to another also "enables us to reposition ourselves into a holistic perceptive mode--the mode of the dynamically many-centred--and to move away from the monolithic linear visual image" (Sui & Goodchild, 2003, p. 10). In other words, while an analysis using the Laws of Media can be structured in sentences and paragraphs--a structure favoured in Canadian primary, secondary, and post-secondary communication environments--the Tetrad structured as tetradic quadrants allows for a more nuanced analysis, as each quadrant can be seen and interpreted in relation to every other quadrant simultaneously.

These four elements of the Tetrad of Media Effects offer a different media analysis than that of "simplistic utopian and dystopian views" (Sui & Goodchild, 2003, p. 10). The Tetrad is not an enhanced list of 'pros and cons' to determine whether any given technology is somehow 'good' or 'bad' (McLuhan, Hutchon and McLuhan, 1978). Instead, the four statements of the Tetrad comprise an "inclusive and irreducible four-part law" (Sui & Goodchild, 2003, p. 10). Furthermore, McLuhan (1977/2013) asserts that this structure is unintentional: it arises in four parts because these particular four aspects of any technology are present in every technology. Thus, as a law, these four aspects



are universally applicable to all technologies. McLuhan (1977/2013) explains that these aspects are a natural reflection of human utterings, as “they are a testimony to the fact that the mind of man is structurally inherent in all human artifacts [sic] and hypotheses” (p. 452). In other words, humans may be incapable of creating something literally inhuman, as humans think in ways that seem to be peculiar to our species and our thoughts are rendered as utterings in the form of our technologies. If such a premise is true, then the notion that “we shape our tools and thereafter our tools shape us” (Culkin, quoted in McLuhan & Fiore, 1967) is inevitable. Human utterings (technologies) arise from human imaginings, and those utterings influence human imaginings in their turn, an unending, autopoietic system.

As noted earlier, the McLuhans (1988/2007) contemplated whether there could be verifiable statements made about all media. In answering this source question, the McLuhans articulated four statements that they assert meets this criterion, that is to

say, four statements that are scientifically valid as each statement is falsifiable through observation. Over the course of several years, the McLuhans were “unable to find a fifth question that applies to all media or to locate a single instance in which one of the four is clearly absent or irrelevant” (McLuhan & McLuhan, 1988/2007, p. 7). These observations lend support to their framing of these statements as scientific laws. Accordingly, these four statements are known as the Laws of Media, or the Tetrad of Media Effects. The four statements, framed as questions, are:

- What does it enhance or intensify?
- What does it render obsolete or displace?
- What does it retrieve that was previously obsolesced?
- What does it produce or become when pressed to an extreme?

(McLuhan & McLuhan, 1988/2007, p. 7)

How these four statements work will be explored in more detail as follows.

Law 1: What does the medium enhance?

While the tetrad frames a simultaneous effect of media, the statement regarding “What does the medium enhance” seems the most logical place to begin. After all, with news-and-entertainment-media-saturated people exposed hundreds or even thousands of advertising ‘impressions’ daily, I would infer that very few urban people miss the message that they need to acquire products or services x, y, or z post-haste to make their lives better right now, or new and improved, or the latest and greatest, or even the ironically old-fashioned ‘state of the art’.

Harman provides a number of examples of technologies--or media--that “extends or amplifies some organ or capacity of the user” (Harman, 2009, p. 109, citing McLuhan 1964/1994). “Hammers extend the human fist. Their power and durability remove the frailty that prevents us from using clenched hands to pound nails and walls,” says

Harman (2009, p. 109). He describes also email, search engines, and other marvels of the modern networked world. For me, reflecting on media that enhance or extend an ‘organ or capacity of the user’ leaves me with no examples of technology or media that fails to enhance something. Surrounded by books, I see how memory is enhanced so as to allow me no need to learn facts, figures or even great works of fiction by that most poetic of organs, the heart. Comforted by central heating, I can sit at my computer for long hours rather than huddling around a fire or constantly moving about to generate body heat in the chill but seasonal temperatures hereabouts. Preserved by my refrigerator, I can enjoy foods both local and exotic (McLuhan & McLuhan, 1998/2007, p. 139), or perhaps simply enjoy the spare time afforded by not having to compete with wild wolves for that last slice of leftover pizza.

Harman (2009) notes that “enhancement does not create new abilities ex nihilo” [emphasis original], explaining that to use email, one needs to already have the ability to read and write (p. 109). In other words, some possible technologies may be unimaginable for some human beings: email is unlikely to be conceived or invented by people living within a purely oral tradition. But even the imaginable might not be able to be created given humans face some hard limits that may be difficult to get around: the need for a particular blend of atmospheric gases to breathe, the need for a particular range of atmospheric pressure to retain bodily functions, the tendency to stop being alive around less than 100 years. Thus, the human imagination that might colonise a distant planet or the deep ocean needs also to dream of means to circumvent the limits posed by the human body itself. Many of these hard limits have resulted in human creativity conceiving and creating technologies to ameliorate such limits: the development of self-contained breathing apparatus (SCBA), the development of pressure suits for extreme environments (hardsuits for deep sea work, softsuits for outer space work), and attempts to engage in medical and public health measures that may increase both the specific lifespan of a specific person as well as increase the health of the general population within which a specific person lives. All of these together might someday result in humans achieving

their dreams, but of course the Tetrad tells us that for such enhancements, there will inevitably be obsolescences, retrievals, and even reversals.

Harman further notes that the Tetrad's structure also provides some important understanding of the technology studied. "Enhancement and obsolescence concern what the McLuhans call the 'morphology' of a medium, or its basic structure of visibility and invisibility" (Harman, 2009, p. 113). Accordingly, after this brief exploration of enhancement I must turn to obsolescence.

Law 2: What does the medium obsolesce?

The Tetrad frames a simultaneous effect of media. When I think about the enhancements or extensions to which a technology might give rise, I most quickly tend to think also of the obsolescences that will also result. In simple terms, this is much like the notion of listing the pros and cons of something: what are the benefits versus the costs? Harman (2009) states that "the price of ... enhancement is always 'privation of alternative potentials', since every decision cuts off other potential decisions (obsolescence), and overcommits us to whatever step has been taken" (p. 109). When the figure of the car arises, the horse-and-buggy is obsolesced (McLuhan & McLuhan, 1988/2007, p. 148), and at least to the extent that any industry supported the horse-and-buggy technology, such industries are obsolesced along with the horse-and-buggy, including the groom, the farrier, the tack-maker, the animal husbandry experts, the veterinarian, the carriage maker, the blacksmith, the wheelwright, and so forth.

But the McLuhans note that "obsolescence is not the end of anything [it is] the cultural midden-heap of cast-off clichés and obsolescent forms [that] is the matrix of all innovation" (McLuhan & McLuhan, 1988/2007, p. 100). This means that what is obsolesced is now ground and thus no longer 'visible' (either literally or metaphorically) to us, and yet that ground is no less important to us despite its invisibility. McLuhan's description of the obsolesced ground as an essential cultural "midden-heap" reminds me of the old axiom, 'one man's garbage is another man's treasure'. Harman (2009)

notes that “future change does not come from the currently active media, which are already doing all that they can do to shape us; instead, change comes from the junkyard of previously obsolesced forms” (p. 113). McLuhan stated that “ground is always subliminal. Changes occur in the ground before they occur in the figure” (McLuhan, 1987, as cited by Logan, 2011). Thus I would suggest that we ignore the obsolesced at some peril, as it is from the obsolesced that innovation will arise. Indeed, Sui and Goodchild (2003) note that “excessive use of technologies always leads to the opposite of what they were designed for” (p. 13).

Law 3: What does the medium retrieve?

Harman (2009) speaks of the four elements of the Tetrad as two pairs of poles. He describes the poles of enhancement and obsolescence as relating to the technology’s “basic structure of visibility and invisibility”, or ‘morphology’ (Harman, 2009, p. 113). The next two poles, retrieval and reversal, “pertain to what [the McLuhan’s] call ‘metamorphosis’, or the interweaving of each medium into its forerunner and its heir” (Harman, 2009, p. 113).

The McLuhans state that “retrieval is the process by which something long obsolete is pressed back into service” (1988/2007, p. 228). Remembering the McLuhans’ (1988/2007) assertion that “obsolescence is ... the cultural midden-heap of cast-off clichés and obsolescent forms [that] is the matrix of all innovation” (p. 100), it should be unsurprising that retrieval will be influenced or informed by that selfsame midden-heap. To me, this is a particularly interesting point, suggesting that what we imagine is always predicated by what we have already done or already imagined. Harman (2009) discusses the McLuhans’ concept of cliché and archetype, noting that in some cases, the “discarded form ... may never be retrieved” (p. 115) but that for those that are retrieved, they may now undergo “some translation or metamorphosis ... [that] place[s] it into relation to the new ground” (McLuhan & McLuhan, 1988, as cited by Harman, 2009, p. 115).

For the car, the McLuhans’ state that one of its retrievals is the “knight in shining

armour” (1988/2007, p. 148). The knight in shining armour is today itself an archetype: bravery, chivalry, honesty, and many other good and wholesome attributes, including a handsome mien (as opposed to the dark knight who may be handsome but will always be treacherous, unless we reverse again this particular archetype again for the purposes of a series of films related to the popular culture and comic book figure, Batman). Images of knights (or portions of knightly armour such as the shield) are common in corporate logos for security services, insurance services, and other organisations or institutions wishing to express attributes connected with the knight in shining armour archetype.

Law 4: What does the medium reverse into when pushed to an extreme?

According to Logan (2011), “the idea of reversal is a key to cracking the McLuhan Code. He worked backwards from effects to their causes and from the ground or environment of media to the figure of their content. He used this technique to understand the future” (p. 4). McLuhan asks, “What does [the medium] flip into when pushed to the limits of its potential?” (1977/2013, p. 452). For the automobile, the opposite of traffic flowing along a canal (the retrieval) becomes instead the traffic jam (1988/2007, p. 148). When I contemplate the notion of reversing, I think of the soup can. By itself, a single can of soup might not sell so quickly, whether because someone assumes something to be wrong with the final item left alone on the shelf or because a sole item in a well-stocked store might go unnoticed, I cannot say. The supermarket manager wanting to sell a great deal of soup might stack the cans in a way that is both visible and easy to access. But sometimes, supermarkets go to great lengths to stack soup cans in a manner that shows off the product but also forms a sculpture, using cans in to make a three-dimensional statement that might be beyond the mere presence of the foodstuff itself (Walters, 2014). Indeed, the can-as-sculpture reversal can even be an essential ingredient in a television show, so that “rickety, ceiling-high pyramids stacked in precisely the place a runaway shopping trolley is likely to crash into them” or “someone ... taking an item from the bottom level, thus causing the rest of the pyramid to collapse

spectacularly” (TV Tropes, n.d.). For a contemporary television or film viewer, the mere presence of such a pyramid within the camera’s frame is a good clue that some sort of wacky--or dastardly--hijinks may soon ensue. Homemade soup would not lend itself well to this sort of malleable messaging as the morphology of the soup pot (or the tureen, or the bowl) is not particularly amenable to the metamorphosis that arises through stacking cans of factory-processed soup.

Harman (2009) describes reversal as the Tetrad’s “only real engine of change” (p. 115) because “for any given medium at any moment, enhancement, obsolescence and retrieval are always already *faits accomplis*” (p. 115). Using the example of the cell phone, Harman notes that “cellular phones flip into text-message devices” (p. 115), just as I earlier described the manner that my family members use their phones: for my children, cell phones are devices for web browsing and sending and receiving text messages. These devices remain capable of making and receiving phone calls, but the medium of the cell phone has reversed from orality to literacy.

Summary

After having laid the theoretical ground for this study, I need to articulate and define the figure of study, that is to say, begin to answer the question of “what type of technologies form identification?” I suspect that many of us might easily list a number of items that can be used to establish identification. Focusing solely on the realm of government-issued personal identification, a number of items come to mind without need of much thought: driver’s licenses, passports, Social Insurance Numbers, citizenship certificates, health benefits cards and so forth. If we expand such items to include corporate-issued items for establishing identification, we might think of credit cards, security access cards, payroll identification numbers, and so forth. We can even expand yet further to institutional-issued items for establishing identification, such as a student card from a school or post-secondary institution or a baptismal certificate from a faith-based organisation. Yet even these examples are by far a complete list of possible items

that may be used to establish an individual's identity. The most fundamental democratic right enshrined in the Canadian constitution is "the right to vote in an election of members of the House of Commons or of a legislative assembly" (*Charter of Rights and Freedoms*, s. 3). To exercise this right, voters in Canadian federal and provincial elections have a plethora of possibilities for identification, the simplest being a provincial driver's license or ID card. Alternately, a voter in a federal Canadian election may present as identification any two of 48 other enumerated items (Elections Canada, 2015), while a voter in a provincial Albertan election may present as identification any two of 39 other enumerated items (Elections Alberta, 2015). Depending on the context, what might count as identification documentation can be very broad.

However, to obtain most government-issued identification in Alberta or Canada, identification requirements are restricted to "foundational" documents. These documents--such as birth certificates, citizenship certificates, and permanent residency cards (Nikolejsin & Rosciszewski, 2007)--are referred to as foundational documents because they are the singular piece of identification from which all other government-issued identification is built. The birth certificate in particular is also known in some materials as a "breeder document" as it is an identity document connected to an individual's birth (Chepesiuk, Karpinski & Th  roux, 2010). An example of identification built from the foundation of the birth certificate is the driver's license. While people frequently have to produce a driver's license as official photo identification for either government or corporate transactions, an Albertan applying to get their first-ever driver's license must first present identification that proves permanent residency in Canada. For a person born in Alberta, the list of acceptable identification documents to meet this criteria include the birth certificate, a M  tis Nations of Alberta card, or a Secure Certificate of Indian Status [sic], among a few other options such as a Canadian citizenship card or refugee claimant document. (Service Alberta, *Residency and ID requirements: How it works*, 2017, n.p.). While Alberta sees positive net migration annually (Ministry of Jobs, Skills, Training and Labour, 2016, n.p.), the majority of the 4,268,929 people officially estimated to

be resident in Alberta today (Alberta Treasury Board and Finance, 2017, n.p.) will be people born in Alberta. Accordingly, the acceptable identification document most likely to be held by (or available to) an Albertan under the age of 15 will be their Alberta birth certificate (Service Alberta, *Residency and ID requirements: How it works*, 2017, n.p.). Other documents accepted to prove Canadian residency that may be used in lieu of a birth certificate, such as a Métis Nations of Alberta card (Métis Nation of Alberta, 2016) or a Secure Certificate of Indian Status [sic] (Indigenous and Northern Affairs Canada, 2015). Among other documentary evidence, acquiring either of these cards require proof of an individual's birth in the form of a birth certificate, meaning that the birth certificate is foundational even to Métis or Indigenous status.

Because the birth certificate is consistently the most singular foundation document mentioned or required in legislation, regulation, and policy in Alberta and Canada, the figure of study I have chosen to investigate regarding the question concerning identity and what type of technologies form identification must be the birth certificate. The birth certificate is implicated--directly or indirectly--in every other form of Canadian identification that I have reviewed during my research pursuits. For the modern Canadian, this deceptively-humble document is the linchpin of an entire life: without a birth certificate, the many other forms of identification we have come to rely upon almost daily for interactions and transactions with both public and private sectors is well-nigh impossible to obtain through legal means.

The following chapter constitutes the analysis of the Alberta birth certificate. Beginning with a brief preamble about the history of the birth certificate as part of the identification documentation landscape of Alberta and Canada, several key technological components rendered on the Alberta birth certificate is also examined. Finally, the Alberta birth certificate is analysed through the method of the Laws of Media, also known as the Tetrad of Media Effects.

Chapter 4: Research

Introduction to the Alberta Birth Certificate

Although perhaps not obvious to many, the most fundamental identification artefact used in Canada today is the birth certificate. In Alberta, “the [provincial] Government keeps a record of all registered births that take place in Alberta and can only issue documents for these births” (Service Alberta, *Birth Certificates & Documents: How it Works*, 2017), meaning that Alberta cannot issue documents for individuals born outside Alberta’s borders. Since Alberta’s establishment as a province in 1905, maintaining the province’s vital statistics has been the responsibility of a number of different departments or even ministries. Until 1919, vital statistics were the responsibility of Public Health Branch of the Department of Municipal Affairs (Provincial Archives of Alberta, 2005, p. 283). From 1919-1971, and again from 1988-1994, the Department of Public Health administered the Vital Statistics Branch (p. 290). From 1971-1975, vital statistics was the responsibility of the Department of Health and Social Development (p. 563), followed by the Department of Social Services and Community Health from 1975-1986 (p. 566). As of 1999, vital statistics has been the responsibility of the Department of Alberta Government Services (p. 469), commonly known as Service Alberta.

These deceptively simple artefacts are “one of the most important documents people have, since they are needed to obtain other documents such as passports and driver’s licenses” (Canadian Press, 2015, n.p., citing Wynne). This document “also serves as basic proof of citizenship and is often required as identification for government services or applying for other personal documents” (Civil Processing Bureau, n.d.) “as the provincial birth certificate is typically used to confirm identity and rights for ‘most government documents and services, including health cards, drivers’ licences, passports and social benefits’” (Lucock & Black, 2009, p. 467, citing Passport Canada). The private corporate manufacturer of contemporary Canadian birth certificates notes that civil registry documents, which includes registry certificates such as birth, marriage, and death

certificates, “are critical as they are the foundation credentials required for obtaining all other identification or travel documents” (Canadian Bank Note Company, n.d.). In Alberta, birth certificates are also used to establish a student’s legal name, parentage, date of birth, sex, and citizenship when registering for kindergarten, elementary, junior or senior high schools (*Student Record Regulation*, s.2(1) subsections (a)(c)(e)(f)(i)).

According to Brumberg, Dozor and Golombek (2012), early attempts to register vital records in a central government office began in Britain in the early 1800s due to increased mortality resulting from epidemics sweeping through ever-growing urban centres. Nearly 300 years prior, Lord Thomas Cromwell had ordered church parishes to maintain records of births (Appell, 2014; Scott, 1990), stating, “ye shall write the day and yere of every weddyng christenyng and buryeng made wtin [within] yor pische for yowr tyme And shall there inserte euy psons [persons] name that shalbe so weddid christened or buried” (Cromwell, 1538, cited by Etchells, 2005). Cromwell sought “to secure systematic knowledge of the size and distribution of the population” (Scott, 1990), which could produce information useful for policy-making (Scott, 1990). Twenty-one years after Cromwell’s injunction, Queen Elizabeth I’s government added a requirement for registers to be written on parchment, requiring also all prior registers to be recopied onto this more durable material (Scott, 1990; Coster, 1997). The phenomenon of a national system of parish-based registration (Scott, 1990) across many European nations is tied to the Protestant Reformation, wherein various nation-states established a non-Catholic state church (Scott, 1990).

Three centuries later, the *Births and Deaths Registration Act* (1836) in England established the first civil (non-church centred) registration system. A previous attempt to do so in 1758 had failed to be enacted, with contemporaries considering such an undertaking as too expensive (Scott, 1990). Under the 1836 Act, “it was up to the local registrar to find out about births and record the details” (1837.com, n.d.), a problem that plagued early registration systems in Canada, too (Emery, 1983; Emery, 1993). In England, placing the obligation for registration on families to ensure their child was

the mid-1800s, starting with the state of Massachusetts (Brumberg et al, 2012, p. 407). Civil registration (of births, marriages and deaths) was “a general phenomenon” (Emery, 1983, p. 469) undertaken by many governments at the time: in addition to England and Wales in 1837, other jurisdictions establishing such systems included Massachusetts (1842), Scotland (1855), and Ireland (1864) (Emery, 1983). This phenomenon was in turn part of a broad movement of population rationalisation through political arithmetic (now known as statistics (Scott, 1990)), a movement that also had strong ties to the insurance industry (Emery, 1983). Subsequently, civil registration systems were strengthened by ties to the public health movement (Emery, 1983).

Canada is really big: The devolution of vital statistics to the provinces.

In Canada, formal vital records began to be kept in “the late 1800s and early 1900s, [when] provincial and territorial governments introduced the civil registration of births, marriages and deaths” (Library and Archives Canada, 2014). Prior to this time, Canadian vital records were held by churches in parish registers which remain today “an important source for information on births, baptisms, marriages, deaths and burials” (Library and Archives Canada, 2015). Indeed, French Canada had established an effective church-based registration system by 1667, wherein data was collected by priests was then presented to a secular authority each year (Emery, 1983; Scott, 1990).

Canada does not maintain national civil registration records such as those for birth, marriage and death (Library and Archives Canada, 2016) as these records fall under the ambit of provincial responsibility. However, national vital statistics--including data on births, stillbirths and marriages--are collected and databased through Statistics Canada (Wiesel, 1997). In Canada, a birth certificates are issued by both provincial and territorial governments. Birth certificates are also required identification artefacts when applying for many other official identification documents in Canada (Service Canada, 2015). According to Lucock and Black (2009), this practise is embedded in the “Constitution Act [which] divides the powers of citizen knowledge and information collection between

the provincial and federal governments. The power and responsibility for citizenship and census taking rests with the federal government. The provinces have control over other primary registration systems (such as birth registrations), other vital statistics, as well as mandatory personal naming systems” (p. 466).

Even so, birth registration is not explicitly enumerated as a provincial power in the *British North America Act* (1867), nor is it mentioned in the act of parliament that established the province of Alberta (*Alberta Act*, 1905). While “the solemnization of marriage within the province” is explicitly listed as a provincial power in section 92.12 of the *British North America Act* (1867), birth registration is not formally listed in such powers within the text of the Act. Indeed, responsibility for “The Census and Statistics” (*British North America Act*, 1867, s.91.6) is listed as a federal responsibility. Much like the initial 1758 attempt to establish a national birth registry in England (Scott, 1990), Canada as a nation did not pursue its constitutional obligations in this regard. According to Emery (1983), while officials of 1860s recognised that “only a national system could ensure nationally uniform methods of collecting and reporting vital statistics” (p. 477), they “feared the expense involved in a country with Canada’s size and population dispersal” (p. 477). Yet while Emery (1983) notes that vital statistics are a constitutional responsibility of the federal government, “vital statistics were closely related to provincial concerns such as property rights and public health” (p. 478), resulting in the newly-minted province of Ontario establishing its own civil registry to serve these interests. Because of provincial interests in property rights and public health, Ontario’s example was followed by other provinces and territories in Canada (Emery, 1983).

Alberta and the registration of vital events.

Birth registration in what is now the province of Alberta began after four administrative districts within the North-West Territories [sic] were established, including the administrative district of Alberta. In 1888, the Territories’ first system of birth registration was created under *An Ordinance Respecting the Registration of Births*,

Marriages and Deaths (cited by Stotyn, 1995, citing *NWT Gazette*, No. 6, May 1889). In 1897, a second system of birth registration was created by the *Vital Statistics Ordinance*

FORM A.	
No. of 1	
REGISTRATION OF BIRTH.	
Registration Division of	
When Born	
Name	
Sex (male or female.)	
Name and surname of father.	
Name and sur- name of mother.	
Rank or profession of father.	
Description and residence of informant.	
Name of doctor in attendance (if any).	
Remarks.	

I hereby certify the foregoing to be true and correct to the best of my knowledge and belief.

Given under my hand at the day of 1
Informant.

I hereby certify the foregoing to be the true and correct original entry of birth returned to me on the above mentioned date.

Given under my hand at the day of 1
Registrar.

Figure 4.2. The Standardised registration of birth form, NWT, 1897, Registration of Birth. From the North-West Territories' Vital Statistics Ordinance (1897), Form A (p. 134). This form was used in the second system of birth registration throughout the Territories, including the administrative district of Alberta. [Form scaled to fit.]

(1897). Thus, by the time Alberta became a free-standing province in its own right, the district of Alberta had been maintaining birth records for almost two decades.

While Service Alberta is today responsible for issuing birth certificates to Alberta citizens, Albertans do not automatically receive a birth certificate simply by having a child or being born. Albertans must apply for such documents through privately-owned, non-governmental registry agencies on a fee-for-service basis. Registry services were privatised by the Alberta government in 1993, allowing “vehicle registration, driver’s licences and examinations, land title, lien and corporate searches and selected land title and vital statistics services” (Rusnell, 2006) to be available at over 200 private registry corporations throughout the province. By the following year and continuing into 2003, some private registry employees were known to issue false licenses (for a fee), raising concerns that “organized criminals and others have been using registries to get false identification and to gain access to private information” (Rusnell, 2006). Concerns were considered to be sufficiently credible to result in an investigation by the Office of the Information and Privacy Commissioner of Alberta (OIPC) to perform an audit on three areas of risk, “privacy compliance, controls over information systems and monitoring of private registry agents” (OIPC, n.p., 1998). Sometime on or after 2003, Alberta removed the manufacturing of driver’s licenses from privatised registry agencies, but I was unable to find further information regarding the manufacturing of these artefacts. In any case, Alberta driver’s licenses and birth certificates are neither manufactured nor produced in-house by privatised registry agencies. The manufacturer of the master Alberta birth certificate document is the Canadian Bank Note Company, but I was unable to determine who is responsible for placing the differentiating information that connects a single birth certificate to a single individual on Alberta’s current birth certificate design. This lack of clarity may reflect the manufacturer’s institutional knowledge that “Canadian businesses, public and private sector institutions are being targeted by identity fraud criminals for the theft of personal information of employees and clients as well as equipment and blank documents” (Criminal Intelligence [Royal Canadian Mounted Police], 2007), resulting

in reticence regarding public disclosure of manufacturing processes and sites for creating secure identification artefacts.

The role of such artefacts has changed, though, from that of simple affirmation of registration of birth within a given provincial or territorial jurisdiction to something rather broader in scope (Scott, 1990). As stated by Canadian Bank Note Company (*Civil Documents and Certificates*, n.d.), “most civil registry systems were created to manage the statistical aspects of registering and documenting events such as birth, marriage, and death. This role has changed dramatically. Providing the foundation on which identities are established, National ID and Civil Registry systems are now a critical component of a nation’s security infrastructure” (n.p.). Thus, the single artefact--the birth certificate--that notes nothing much more than an individual’s name, parentage, date and place of birth has become not only an identification artefact, but also part of a nation-state’s security regime, a weighty burden for such a supposedly simple document.

Before analysing the birth certificate as a whole through the four aspects of the Tetrad, I believe it is worthwhile to look closely at the numerous elements embedded within or expressed by the birth certificate. For ease of reading, I have grouped these elements roughly into specifications (dimensions, substrate, and so forth) and components (date, place, sex and so forth). For the most part, these are observable technologies, that is that is to say, a person with access to an Alberta birth certificate should be able to see, feel, smell, hear, and even--in the unlikely event that someone so desires--taste some or all of these elements. Each of these elements are themselves technologies, bound together in a particular way for the purposes of forming an Alberta birth certificate.

Specifications of the Alberta Birth Certificate

The physical structure of birth certificates from different periods or jurisdictions vary in many respects. A birth certificate’s dimensions, the material--or substrate--from which it is manufactured, the language(s) used on it, and other elements such as graphics

and colours may be unique to a single jurisdiction or shared among several jurisdictions.

Alberta's birth certificates have undergone a number of physical changes over the



Figure 4.3. Modern birth certificate, Alberta, 2013. Standardised certified extract from an Alberta registration of birth, 2013 edition. The translucent nature of this polymer document causes some writing and design elements from the other face to be visible also on the front of the image. [Actual size.] (Image courtesy Service Alberta, used with permission.)

decades, perhaps most the most obvious being a change from a paper-based substrate to polymer-based (plastic). This section provides a brief definition of a birth certificate as well as an overview of the physical specifications of a contemporary Alberta birth certificate.

A birth certificate is part of the primary registration systems (Lucock & Black, 2009) used by Canadian provincial and territorial jurisdictions to register and identify citizens. The term ‘birth certificate’ is somewhat of a misnomer, as a birth certificate is not certifying the birth itself. Rather, a birth *certificate* is a certified extract from a larger, more detailed birth *registration record* that recognises the individual’s birthplace, parentage, date, and other information. Indeed, the current iteration of the Alberta birth certificate explicitly states that it is a “Certified extract from Registration of Birth ...” in its seal.

A birth record includes a number of details, including public health surveillance data such as an infant’s birth weight. Such information is not included in the certified extract from registration of birth (‘birth certificate’) issued in Alberta. The artefact of the birth certificate catalogues selected personal information in a specific structure, essentially purporting to represent the individual writ small. This structure is developed to be inter-operable with other identification systems in other jurisdictions such the federal Canadian passport system. This interoperability means that birth certificates--along with Canadian citizenship certificates and permanent residency cards--are described as “foundation documents, because they are the foundation of identity in Canada” (Nikolejsin & Rosciszewski, 2007, p. 22).

As of February 1, 2008 (*CBC News*, 2007), Alberta issues a single size of birth certificate, although a birth certificate may display different sets of information, such as including or excluding an individual’s parental names (Service Alberta, *Birth Certificates & Documents: How it works*, 2017, n.p.), 12.5 cm x 17.5 cm (roughly 5x7 inches), slightly smaller than a half-sheet of standard North American multipurpose paper. The Alberta birth certificate is printed on both faces, the front face containing unique

their “work may drive standardization of document security features and authentication in such a way that the future will see common platforms for other key Canadian identity documents such as driver’s licenses and health cards” (Public Safety Canada, 2010, p. 17).

Just as with modern Canadian ‘paper’ money, contemporary Canadian birth certificates are made from a substrate of high security polymer plastic (Service Newfoundland, 2008a), which in addition to being considered more difficult to forge, also makes such documents highly durable and resistant to damage (Marincovic, Pritchard, Binder & da Silva, 2011). However, unlike Canadian ‘paper’ money, the new birth certificate’s dimensions are supposedly intended to “discourage people from carrying [their birth certificate] in their wallet or purse” (Plank, cited by De Guzman, 2007, n.p.) because the artefact can be used by others in committing the crime of identity theft by “fraudulent use of a certificate of citizenship” (*Criminal Code*, s. 402.2(3)(b)). Service Alberta advises all individuals to “carry only the identification ... you will need that day. You rarely need to carry your birth certificate” (2011, p.1). However, I question the assertion that this artefact was designed to discourage carrying, as certain design elements align only when the document is folded a particular way, an alignment which cannot be accidental. Additionally, while the front face is clearly arranged to be read in a single orientation from top to bottom, the back face is laid out in a two-up tent-fold; that is to say, if folded horizontally across the midline of the front face, the back face forms a correctly-oriented tent card, with its own front-and-back faces containing specific information grouped thematically as one might expect of the front and back covers of any formally-produced print artefact such as a book. This folded dimension measures at approximately 5 x 3.5 inches, meaning it is slightly taller yet narrower than a standard Canadian polymer bill, and thus able to be folded small enough to carry easily in a wallet.

The elements on an Alberta birth certificate’s front face are arranged to be read as a complete piece. As is typical in Western language patterns, these elements are arranged for reading from top to bottom, left to right. At the very top, the words

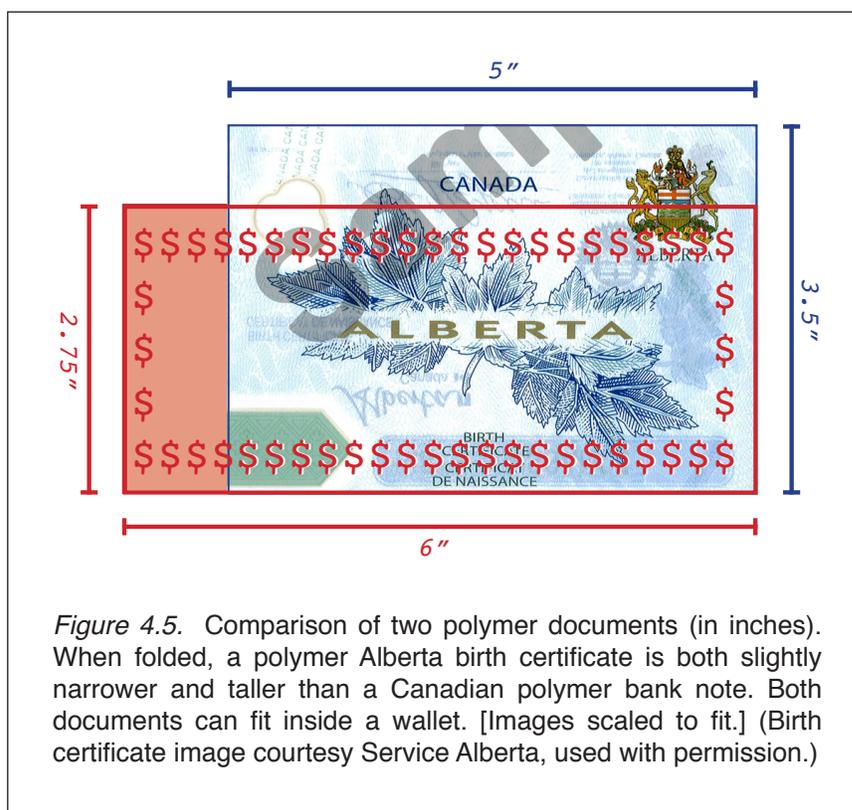
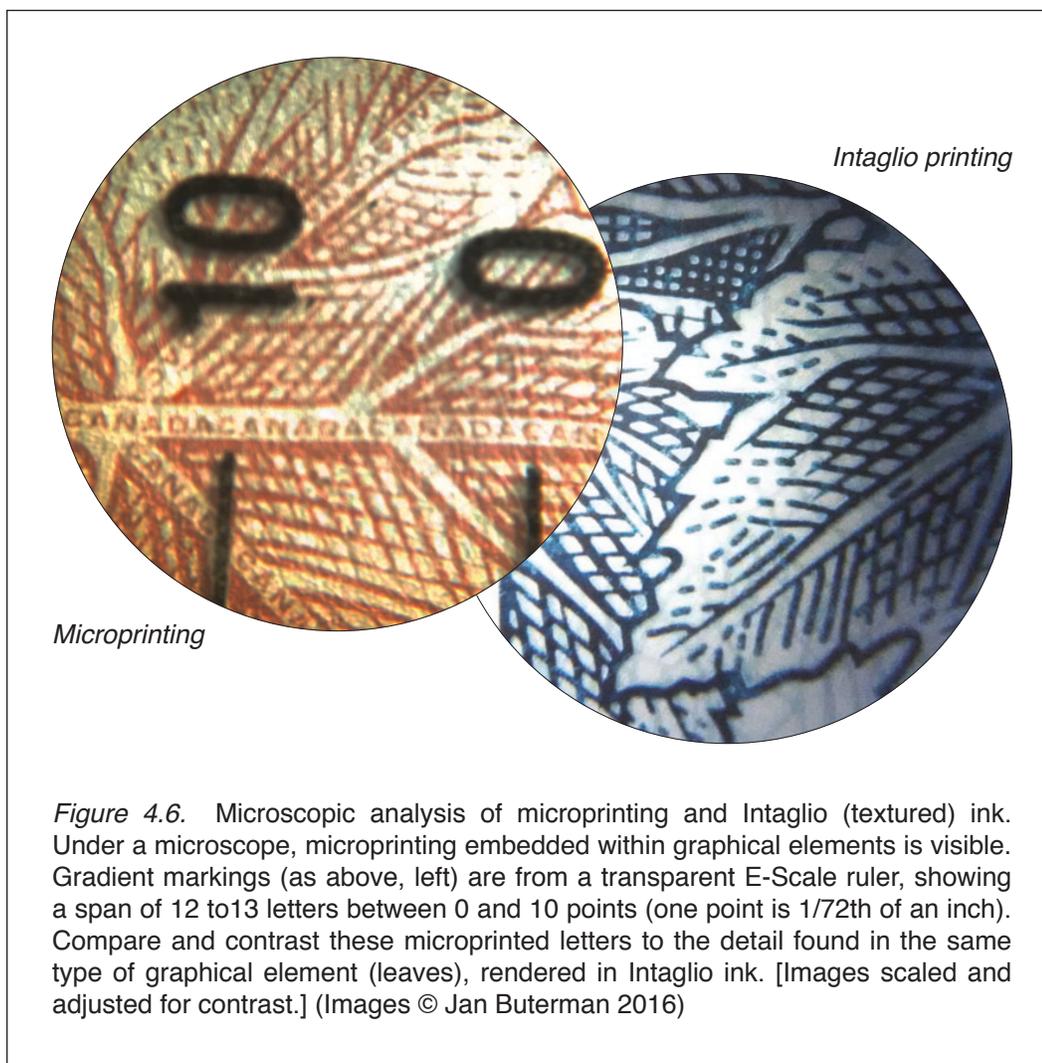


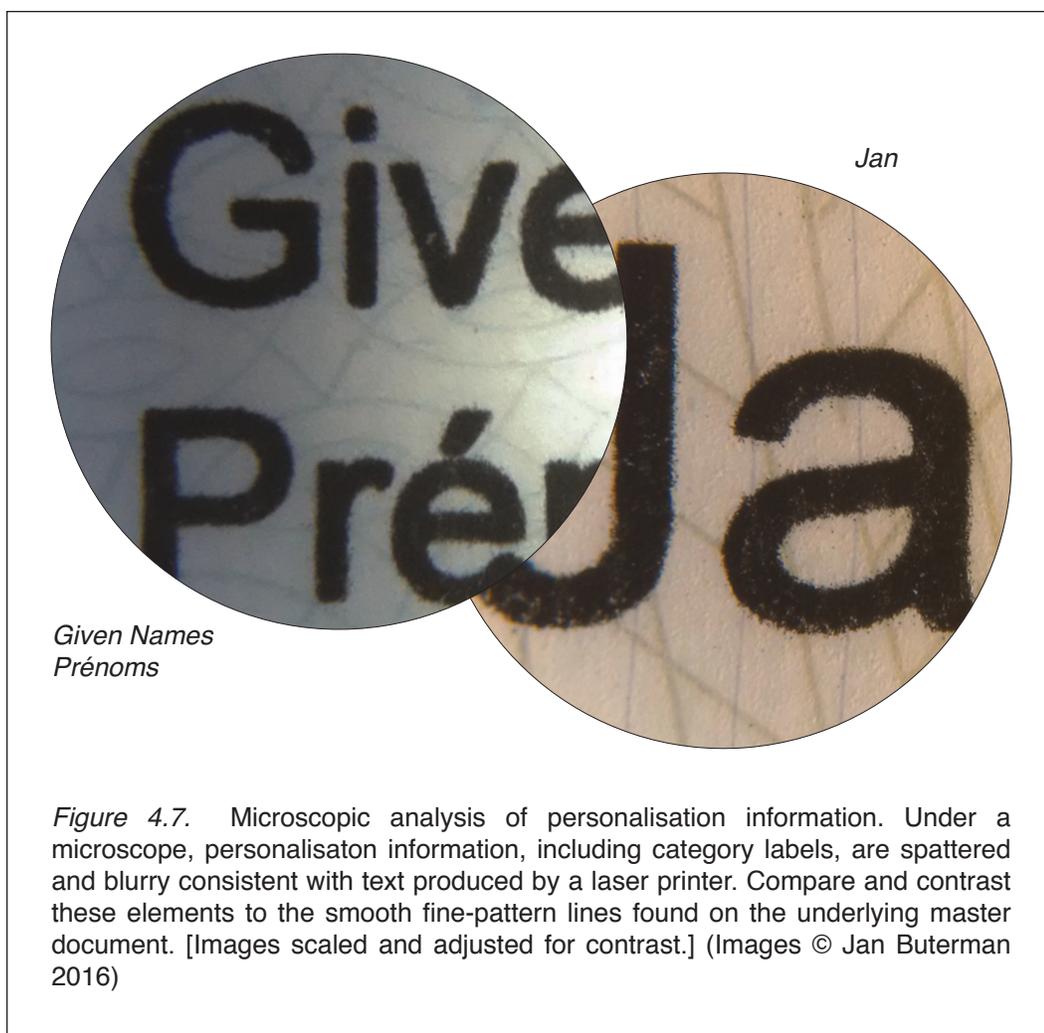
Figure 4.5. Comparison of two polymer documents (in inches). When folded, a polymer Alberta birth certificate is both slightly narrower and taller than a Canadian polymer bank note. Both documents can fit inside a wallet. [Images scaled to fit.] (Birth certificate image courtesy Service Alberta, used with permission.)

“BIRTH • NAISSANCE” are printed against an Intaglio (textured) background. Next comes the Alberta logotype or wordmark (referred to by the government of Alberta as the Alberta Signature (Public Affairs Bureau, 2016, s.1.1)). Directly below the Alberta signature is a smaller, non-standard representation (by using the incorrect typeface) and placement (incorrect location) of the Canadian flag logotype (Treasury Board of Canada Secretariat, 1990, p. 19). Next, aligned to the left side of the document reads “BIRTH CERTIFICATE” followed by “CERTIFICAT DE NAISSANCE” on the line immediately below. After a gap (filled by design elements embedded into the substrate) is a handwritten-style signature of a person’s name, with that same name typed and described as Registrar of Vital Statistics beneath. The handwritten-style signature sits on a line that appears similar to that of any document intended to be signed as part of a validation process. However, when viewed under magnification, the line is revealed as an optical illusion, as it is actually comprised of a repeating string of “ALBERTALBERTALBERTA ...” set at approximately 12 to 13 letters per 10 points. In digital typography, a single



point is 1/72 an inch, meaning each letter of this ‘ALBERTA’ line is slightly smaller than a single point in size. To the right of the registrar’s signature block sits a seal and associated descriptive text in French and English from the Registrar, aligned to the same baseline as the signature block’s descriptor of “Registrar of Vital Statistics.” The final written element in this upper half of the birth certificate is tiny print visible to the naked eye set to the far left, which in the document sampled above is “DVS 3413 (2013/08)”. If one were to have folded the document as indicated above, all the elements described in this paragraph would appear above the fold.

The lower half of the front face contains the personalised information unique to the person named. This information is structured in two columns. The left-most column



contains labels written in Canada’s two official languages, English and French, to describe each of the elements of personal information. These labels are written English-first, with French immediately below, such as “Surname/Nom.” In keeping with most text on both faces of the birth certificate, these labels appear in a gothic typeface that appears to be within the Helvetica family, set at approximately 5.5 to 6 points. The right-most column depicts the contents of the left label, for example, in the sample shown, the Surname/Nom is “Rubble” while one line below the Given Names/Prénoms is “Pebbles,” which would mean the hypothetical individual named in this sample would be known as “Pebbles Rubble.” The labels along the left-most column depict, in order from top to bottom, capitalised as per the sample document:

Surname/Nom

Given Names/Prenoms
 Date of Birth/Date de naissance
 Place of Birth/Lieu de naissance
 Registration No./No d'enregistrement
 Registration Date/Date d'enregistrement
 Name of Parent/Nom de Parent [sic]
 Place of Birth/Lieu de naissance
 Name of Parent/Nom de Parent [sic]
 Place of Birth/Lieu de naissance

Perhaps because of the possibility of a birth certificate becoming lost, or even needing to be replaced due to life-events such as adoption, the Registration No./No d'enregistrement is not the only unique numerical value on the birth certificate. To the right of the line labelled "Registration Date/Date d'enregistrement" is another label that states "Date issued/Délivré le" followed by the date the birth certificate was printed. In this way, a person who might have more than one copy of a birth certificate should be able to distinguish between each of these documents, as the Date issued/Délivré le will be distinct. One final label and information is found above the date of issue, aligned with the "Date of Birth/Date de naissance" line, labelled "Sex/Sexe." In the sample provided, the sex is listed as "F" for female, but an Alberta birth certificate might instead list "M" for male. At the very bottom of the front face are two barcodes rendered in two different styles. Further interrogation of these specific components--the labels and their respective technologies--are explored in the next section of this chapter.

Other elements on the face of the birth certificate include fine-line patterning, faint images of woodcut-style maple leaves, and two bunches of both visible and tactile leaves. A third bunch of leaves is non-tactile, but much like the signature line for the Registrar, when viewed under magnification other elements become visible. In this case, the veins of the upper leaf have "CANADACANADACANADA..." again set at approximately 12

to 13 letters per 10 points. Just as with the Registrar’s signature line, these extremely tiny letterforms are difficult to read with the naked eye. At a normal, non-magnified reading distance, these fine letterforms appear to blend together, appearing to be thin, screened, monochrome lines, not markedly different from other lines within the same design element. Whatever their placement on the artefact, these microscopic letterforms appear to form part of its security features.

The contemporary birth certificate’s physical structure and specifications has been adopted by at least eight provinces in Canada, including Alberta, after “a pan-national security review of [the birth certificate that] began in September 2001” (De Guzman, 2007). This new, nationally-standard birth certificate “contains more than 20 security features” (Service Newfoundland, 2008b), some of which are visible, and some of which

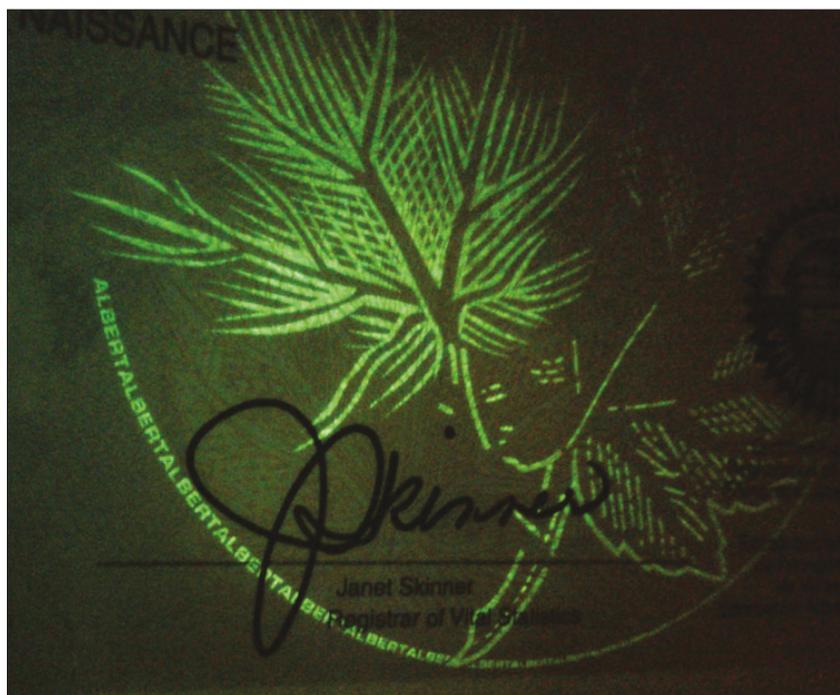


Figure 4.8. Ultraviolet analysis of a birth certificate, Alberta, 2013. In addition to visible and tactile security features, an Alberta birth certificate has some design features only visible with an ultraviolet light. This example shows graphical leaves underscored by a long arc repeating the word “ALBERTA”. [Image scaled and adjusted for contrast.] (Image © Jan Buterman 2017)

are “forensic features that will only be disclosed to immigration and the Canada Border Services Agency” (*Leader-Post*, 2007) to “assist authorities in determining the validity of the document” (De Guzman, 2007). Some of the visible security features embedded in the contemporary birth certificate include “raised print, transparent windows and colour-shifting images” (Canadian Press, 2015). The manufacturer notes that in addition to “traditional security features including Intaglio and prismatic printing, visible and invisible inks,” secure documents of this nature “contains a range of patterns intended to deter scanning, photocopying and commercial reproduction of the document” and that “materials and techniques used [to manufacture these documents] may include different substrates, watermarks, embossments, laser perforations, special security threads and binding” (Canadian Bank Note Company, Document Security Features, n.d.). Alberta implemented these new birth certificates in 2008. Alberta’s prior birth certificate design was from “the early 1970s, [and had] only nine security features” (*CBC News*, 2007). Beyond these sensory-dependent technological wonders, framed as “security features,” what taken-for-granted technologies form this identification?

Components of the Alberta Birth Certificate

In addition to the physical specifications and particular substrate used in a contemporary Alberta birth certificate, the birth certificate also has a several additional elements combined together to form the document. Security-focused elements such as Intaglio and prismatic printing have already been addressed in the section regarding birth certificate specifications. This section focuses on additional components added to the physical substrate of the contemporary birth certificate to make the certificate a unique document in the purest sense of the word: even in the instance of a re-issuance of a birth certificate, each birth certificate contains an issuing date, meaning that no two Alberta birth certificates--even for the selfsame person--will ever be exactly alike. To provide adequate ground to interpret the birth certificate as a figure entire, each of these components is explored at what may appear to be some length, but is in fact a

brief overview of a rich vein of oft-overlooked technologies. These technologies that exemplify the “concealment of the machinery and the disburdening character of the device” (Borgmann, 1984, p. 42), the device being the birth certificate itself.

Date identifiers.

A birth certificate--whether modern or old--is rife with multiple technologies. Dates and dating is one such technology. A birth record, and any birth certificates generated from such a record, will include information regarding an infant’s year, month and day of birth. But human ways of measuring years has varied throughout recorded history. Determining a single year might rely on taking note of when to expect an annual flood, or when certain animal migrations take place, or when there is a greater or lesser degree of daylight in any given day, or when a particular star is in a particular position in the night sky, and so on.

Separating one year from the next raises another problem, how does one determine when to begin dating years from? Up until quite recently, Western nations firmly believed in the notion that the precise age of the Earth was accurately calculable based on deductions made from a culturally-important religious text (Winchester, 2001). Even so, because this same culture believed in the supremacy of both their faith and belief in the fulfilment of a messianic prophecy, modern dating was counted Anno Domini, which in English can be translated as In The Year of Our Lord [Jesus Christ]. In this belief structure, it then makes sense to measure any time prior to Anno Domini as BC, or Before Christ, which then necessitate counting the years backwards from that arbitrary year Anno Domini 1 (rather than zero, as one would when working with negative numbers in modern mathematics).

Yet even the calendars of Christendom are not without conflict. Due to imprecision regarding the exact length of Earth’s orbital period, the Julian calendar--the ‘original’ widely-adopted Christian calendar was found to be increasingly inaccurate over the centuries and was generally but not universally replaced by the Gregorian calendar.

In Alberta, cultural groups such as Ukrainians and Ukrainian-Orthodox churches (among some others) continue to use the Julian calendar, resulting in what is locally referred to as “Ukrainian Christmas” as the Julian Christmas occurs some time after the Gregorian Christmas. Thus for a lucky few Albertans, Christmas really does come twice a year.

Hindu calendars, Mayan calendars, and many other calendars exist to count the passage of years in a manner that is not compatible with the worldviews and beliefs of Christian people or Christian-predicated cultures. Our personal sense of the passage of the years also varies in ways that are not necessarily as regimented as the widely-adopted Gregorian calendar. For example, many people can recall precisely where they were and what they were doing when some momentous event occurred, such as the destruction of the World Trade Centre’s Twin Towers in New York City or the slaying of female engineering students at École Polytechnique in Montréal. On this personal level, we might also count our years in relation to the year we were born, or the year that our children or grandchildren were born, or other significant personal or family anniversaries.

Today, those of us using the Gregorian calendar divide our year into 12 months. The names of these months themselves are also reflective of different cultural beliefs reaching back far into human history. February for a key object (‘februa’) used in Roman fertility rites. March for Mars, the God of War. August for the Roman Emperor Augustus. At some point, January was not the beginning of the new year, as evidenced by the English names for our ninth, tenth, eleventh, and twelfth months that are somewhat more sensible in their etymology when we realise that historically, these were once actually the seventh, eighth, ninth, and tenth months of the year (September, October, November, and December, respectively).

After determining how to measure years and months, the final component of the technology of dating is being able to mark the day itself. A single year on Earth is typically accounted for by concatenating 365 individual days, along with the occasional addition of a ‘leap day’ to account for a slightly longer orbital period Earth requires to travel around the Sun, which in turn helps ensure the calendar overall remains on-

schedule, allowing us to know when winter really is coming. Our days still reflect both prehistorical and historical understandings of the world. Our modern usage of the Gregorian calendar has embedded within it particular assumptions regarding the unit of a week, and by extension, its days. Because the Book of Genesis (found in both the Christian Bible and the Jewish Torah) shares the story of Creation as one that happens over a six-day period, with a final seventh day as a day of rest by the Creator, each of the 52 weeks of the modern 365-day year is structured as seven days. Each of these seven days has its own name, and again, we see here names that hint at belief systems and structures far afield of the Christian framework in which they are now embedded. In English, these names are Monday, for the Moon. Tuesday, for Tyr's Day (a Norse god of war), Wednesday for Woden's Dag (Odin, the supreme god of the Norse), Thursday for Thor's Dag (Thor, the Norse god of thunder), Friday for Frigg's day (an ancient English goddess, possibly of childbirth), Saturday for Saturn (an ancient Roman god of plenty), and Sunday for the Sun, closely linked to the Roman god Apollo.

But as our Gregorian calendar and its irregular months of 31, 30, and 28--sometimes even 29--days marches along, determining the days of the week are less precise than that of simply the number. For example, a person born on a Monday may wait several years before their *birthday* happens to coincide with the same *birthdate*. In modern Canada, we typically note the specific number assigned to the day of a person's birth rather than the name of the weekday. Thus, for those Canadians who celebrate birthdays, such celebrations are for a specific date within a specific month rather than on a specific day of a specific month. In other words, the person born on Monday in the third week of January will likely celebrate that birthday on January 14th rather than on the second Monday of the month.

Although it is easy for a Canadian to consider the modern Gregorian calendar to be universal, in that it has been widely adopted for the purposes of trade and commerce, even today people exist in the world who think little of this calendar in their daily lives. Professor and author Isaac Asimov gives an excellent account of the fluidity and

sometimes pragmatic lack of standardisation to mark time. He states,

The date of my birth is January 2, 1920. For those of you who are interested in casting horoscopes, forget it! I am not only unaware of the exact hour and minute of my birth but even, actually, of the exact day. January 2 is the official day and that's what I celebrate, but at the time of my birth the Soviet Union was on the Julian calendar, which was thirteen days behind our Gregorian, and my parents in those days didn't even pay much attention to the Julian. They dated things according to the holy days of the Jewish calendar.

Under the Tsars, Russia had never indulged in careful statistical accounting of its less important subjects, and during World War I and the hectic years immediately following, things were more slovenly than ever. So when a birth certificate finally had to be drawn up for me, my parents had to rely on memory, and that worked out to January 2.

And that's good enough. Anyway, it's official.

(Asimov, 1974, pp. 17-18)

What does all this mean for us who never question the very notion of being able to account for specific days, months, and years? It means that we put a great deal of faith into the accuracy of an arbitrary system that--while useful for many reasons--may be applied just as arbitrarily: the immigrant who is unsure about a birthdate due to differences in culture and time-reckoning, the undocumented foundling whose newly-minted official documents are established with the best intention and pure guesswork-reckoning, the typographical error that transposes one date--or one data point, such as a number--for another.

Such errors are not uncommon, particularly when the information from old paper-based documents are added into official digital records. Once, when seeking copies of personal records of my own, I discovered errors on my mother's digital birth certificate information. When the registry agent (working for a privatised organisation on behalf of my provincial government's Vital Statistics department) shared historical information with me that I knew to be incorrect, the record was flagged and then re-

checked. Eventually, it was determined that the data in the official digital record had been incorrectly entered from the paper-based records. The digital record was then amended to the correct information contained on the original records. However, had I not happened to stumble across this error, it would not have been discovered as to someone from outside my family the error was non-obvious.

Place identifiers.

Places, or at least, the identification of places, are another type of technology on an Alberta birth certificate. On the surface, the idea of a place might seem simple, yet surveying and mapping places on a large scale did not occur until “a rash of international exploration by Europeans, by rediscovery of the work of Ptolemy, and by the development of surveying techniques” (Scott, 1990, p. 75). Even today, an era wherein the Global Positioning System (GPS) allows us to use easily portable devices that can give us precise measurements of latitude and longitude for any given location, the idea of place is still deceptively simple. Obviously, even the ability to create and use GPS is indicative of standardised technologies of measurement, not to mention the many technologies and resources necessary to place yet more technologies in orbit around our planet wherein the measurements they make can be accessed by anyone carrying suitable equipment.

Yet how we describe a place is itself rife with not only such technologies of measurement, but cultural beliefs and practises that place the notion of ‘place’ in a precarious position. In a world of increasingly globalised technologies, it should come as no surprise that easily-accessible technologies of place can face unanticipated challenges to built-in epistemologies that are not congruent with the people or even authorities connected to the place in question. For example, border disputes between two or more nations are so common that there are almost three dozen countries that Google Maps “won’t draw borders around” (Yanofsky, 2014, n.p.). To accommodate these disputes as well as attempt to obey relevant local mapping and labelling laws, “Google maintains

thirty-two different region-specific versions of its Maps tool for different countries around the world” (Gravois, 2010, n.p.). Of course, neighbouring nation-states disputing their borders may also have conflicting laws regarding map labelling. Accordingly, looking at a ‘place’ using a technology such as Google Maps means that different results will be shown depending upon the geospatial location of the viewer. Yanofsky (2014) illustrates this through the Arunachal Pradesh region. This area is “administered by India but claimed as a section of Tibet by China (which also claims Tibet)” (n.p.). Google Maps renders this area in three different ways: if one is in India, the region is rendered as part of India, if in China, it is rendered as part of China, and if viewed from the United States, Arunachal Pradesh is rendered “as distinct from both countries” (Yanofsky, 2014, n.p.).

An unnamed Google Maps spokesperson (cited by Yanofsky, 2014, n.p.) states, “Google Maps makes every effort to depict disputed regions and features objectively.” But the question arises as to whose objectivity is being met? As stated by Gravois (2010), “no party to a dispute likes an undecided referee” (n.p.). Gravois (2010) also notes that “few parties to these disputes trust Google’s claims of neutrality” (n.p.). Yet the technology of the map has never been neutral: “the late modern era--the age that brought us industrialization, high colonialism, and mechanized warfare--was a good time for mapmakers. ... Exuding an industrial-age clear-sightedness ..., cartographers consecrated their profession to the ideals of scientific objectivity and rational standardization--even as their work advanced the narrow mercantile and strategic aims of their state employers” (Gravois, 2010, n.p.).

Border disputes are not merely the realm of far-off nations with alien languages and customs. Canada too is currently engaged in at least one border dispute, Hans Island. This 1.3 square kilometre island is “the smallest of several islands in the Kennedy Channel--part of the Nares Strait, which separates Greenland [a territory of Denmark] from Canada--but it’s almost exactly in the middle” (McLendon, 2015). Because conventions for territorial waters result in Hans Island being placed within the territorial waters of both Denmark and Canada, this island remains in dispute. The battle over this

tiny barren rock may seem foolish or even merely symbolic, but as noted in a report cited by McLendon (2015), changes to Arctic sea ice cover means that access to new oceanic trade routes and resources is increasingly possible. This change in accessibility to a previously remote region means that increasing, conflicting claims regarding northern sovereignty among circumpolar nations may not be merely hypothetical assertions over territories generally perceived as unused, but places that allow for new lines of commercial transport, as well as access to possible resource reserves not previously able to be identified or extracted.

Historically, Canada has previously ceded territory to other national interests, albeit temporarily. During World War II, members of the Dutch royal family stayed in Canada while their nation was occupied by the Nazis. During that stay, the Ottawa Civic Hospital was “temporarily declared extraterritorial by the Government of Canada, to ensure [a newborn] princess would hold exclusively Dutch, rather than dual nationality. (The latter would have affected her status in the line of succession for the Dutch throne)” (Canadian Tulip Festival, n.d., n.p.). Another attempt to declare a part of Canada as extraterritorial was made for Canada’s 1967 Centenary celebrations, when the town of St. Paul, Alberta, established a formal UFO (Unidentified Flying Object) landing pad. While not formally recognised by the Canadian government, the town of St. Paul has declared the area underneath the landing pad to be “international ... as a sign of our faith that mankind will maintain the outer universe free from national wars and strife” (plaque, cited by Gerson, 2012).

Indeed, the ‘place’ of Canada as a nation-state with its own citizenship separate from that of Great Britain did not emerge until sometime in the 20th Century. Canadian citizenship is historically complex, owing to a number of factors including beginning (as a nation-state) as the full colony of Great Britain, as well as colonial beliefs and practises that de-citizenised the indigenous peoples of Canada from their own lands. Colonialism brings its own set of issues into the concept of ‘place’. Am I studying in the city of Edmonton, or in the place of Amiskwaciwâskahikan? In the treaties between

the indigenous peoples of Alberta and Canada, are those treaty obligations being upheld by these place names, or other elements connected to this place? Are the places we now jointly live in and with mutually respected, or does the imaginarium of one place supercede that of another? The broader conceptualisation of place is somewhat outside the scope of this thesis, yet not entirely: the relevance of these concepts is made manifest by the Alberta birth certificate that notes the place name ‘Edmonton’ rather than that of ‘Amiskwaciwâskahikan’. Would the provincial vital statistics Registrar accept the latter as a ‘place’ in Alberta?

Place is both conceptually and physically demarcatable. One is treated differently depending on one’s station in life; “knowing one’s place” reminds us subtly of the importance both of knowing our station in life and remaining firmly within that station, not crossing any boundaries that demarcate one place from another. Being from “the wrong side of the tracks” is not merely a geographical statement, but a social judgement. According to Frye’s (1983) discussion of the Great Chain of Being, the mediæval mindset established one’s place in the world through both earthly and heavenly powers and principalities, meaning that one’s place is divinely ordained and not something that can be trespassed against. Remembering too that at one time, the majority of people in any given ‘western’ place (Europe, the British Isles, and so forth) were owned by the land (rather than owning the land) positions the notion of place as above personage. Indeed, personhood itself is subsumed in such cases into being the chattels of another, with none of the rights or privileges attending someone who is recognised as a person.

Sex identifier.

Another type of technology found on an Alberta birth certificate is the sex marker. At the time of writing, two possible options are available for this marker, M (for ‘male’) and F (for ‘female’). In this instance, the technology involved is limited entirely to the cultural practise of assigning one of two possible labels on an infant, as determining an infant’s sex marker does not involve rigorous medical expertise or practises. Instead,

assigning an infant as an M or F is based on an assumption drawn from a brief visual examination of a newborn's external genitals. Genitals that appear to be female will result in an infant being labelled as female on their birth record and later, as F on their birth certificate. No exhaustive analysis is performed on a child's genetics and thus the sex marker makes no determination as to a child's chromosomal makeup. Alberta does not routinely test the genetics of newborn babies, nor does an Alberta birth certificate contain any information whatsoever regarding an individual's chromosomes.

The lack of an infant's genetic information informing the choice made to assign the newborn as M or F is particularly important when one considers that many intersex conditions are not visible at birth (Free & Equal United Nations for LGBT Equality, n.d.). Human sex differentiation is formed by chromosomes. In simple terms, most humans that appear to be 'female' will have XX chromosomes and most humans that appear to be 'male' will have XY chromosomes (NSW Health Centre for Genetics Education, 2016). However, some people are born with different chromosomal makeup, including XXX, XYY, XXY, XXXXY and other chromosomal variations (World Health Organization, 2015a). Other chromosomal information such as whether or not a person was born with Down Syndrome (NSW Health Centre for Genetics Education, 2015; World Health Organization, 2015b) or with other chromosome-linked conditions such as sickle cell anaemia or haemophilia (World Health Organization, 2015c) is likewise not included on an Alberta birth certificate.

Personal identifiers.

Identifying a person through some sort of unique identifier such as a name is also a technology. The earliest method of such identification is providing individuals with a name. Even today, the importance of names is underscored by the right to have a name and an identity enshrined in an international treaty, the United Nations *Convention on the Rights of the Child* (1989, Article 8(1), (2)). Names and naming practises--such as accounting for years, months and days--is bound up in cultural practises and beliefs. For

example, some cultures do not believe in naming a child until the child attains a particular age. In others, children may have a name used in childhood, but that name changes later in life due to important cultural milestones such as successfully completing a first hunt of a particular prey animal. In others, names may follow strict cultural codes for each generation within a particular familial line.

Depending on the culture, names can be bestowed upon people or taken by people. In Canada's legal and cultural practise, names are "given" to a child, usually by the parents or adoptive parents. We sometimes refer to these names as the "given name," but they are also sometimes simply known as a person's "first name." By convention, people in Alberta today have at least a first name and a last name. First names are relatively unlimited in Alberta, meaning that families have broad options to choose--or even invent--a name for their child, with restrictions regarding some components, such as barring inclusion of most punctuation marks; or names that might prove embarrassing, such as a swear word; or inappropriate, such as a legal designation such as 'Doctor'. In some nations, however, a child's first name may be limited to a selection from an approved list, a common requirement in Scandinavian countries. For the purposes of disallowing a name that might be explicitly crass, such as a swear, such rules seem appropriate. But some jurisdictional naming laws serve deeper purposes such as eradicating cultural knowledge and practises. At least one Middle East nation disallows children to be named with traditional names from a minority culture that their national government does not wish to recognise.

Last names in Alberta are typically conferred based on parentage, whether one is born into or adopted into a family. Parents in Alberta have the option to register an infant's last name as that of either the mother or the father of the child, or for the child to use a hyphenated name comprising the names of both parents. Just as with first names, last names may convey cultural practises and beliefs, as well as historical occupations or geospatial origins. Last names also often confer parentage and familial lineage. Canada's tradition of settler immigration raises an interesting complication with names.

Immigration officials historically have not always translated or transliterated a name consistently, meaning that depending upon when someone emigrated into Canada, their name may have been spelled differently than that of other family members. For example, I once knew an elderly married couple in Alberta who were assigned different English transliterations of their married name when they arrived in Canada. As a result, instead of sharing the same last name, their married name was now rendered along the lines of renaming the Smiths as Mr. Smyth and Mrs. Smith.

Canada's Indigenous peoples have likewise faced challenges with their names, from policies of deliberate eradication of indigenous languages and culture to the dehumanising practise of assigning numbers to our northernmost inhabitants. Even today, while Canada's Northwest Territories recognises 11 official languages, it has not been possible for Indigenous people to register their infants' names with correct transliteration as the vital statistics registry system only accepts two of those languages (English and French), and does not recognise Dene orthography, despite the Dene characters being available in unicode (Brohman & Hinchey, 2015). However, thanks to a challenge by Catholique Valpy (*CBC News*, 2015), this restriction will be lifted, with amendments to the territorial vital statistics act expected also to allow for the option of using a single name, in accordance with a recommendation made by Canada's Truth and Reconciliation Commission (Bird, 2016).

Personal identifiers not included.

One additional identifier that does not actually appear on an Alberta birth certificate needs to be addressed. The absence of this particular identifier is important to recognise because many public comments are routinely offered on this point, particularly with regards to the legitimacy of the existence of transgender people. Many commenters among the public at large suggest somehow that genetic information is contained in a birth certificate, and thus any changes to a birth certificate would result in making false genetic claims. This misinformation appears to be predicated on the inclusion of 'sex' as

a category label on the birth certificate. However, as noted previously in the overview of ‘sex’ as a component of the birth certificate, an infant’s sex assignment is not based on any assessment of the newborn’s genetics. Statements claiming birth certificates record or report information regarding an infant’s genetics are absolutely false.

Genetic information is private, perhaps even exceptionally so, as “individuals have no control over their genetic makeup” (Canadian Coalition for Genetic Fairness, 2015, n.p.). Excepting identical siblings, a person’s genetic makeup is always unique solely to that person. Detailed information regarding human genetics is fairly recent: in the 1990s, the Human Genome Project, “a large-scale international scientific research effort, mapped the full sequence of human genes” (Walker, 2014, p. 2). Subsequent to the inception of the Human Genome Project, the United Nations Educational, Scientific and Cultural Organization (UNESCO) established two separate declarations on genetics, the *Universal Declaration on the Human Genome and Human Rights* in 2003, and the *International Declaration on Human Genetic Data* in 2012 (Walker, 2014, p. 2).

For the purposes of investigating authorities determining whether a specific person did or did not perpetuate a criminal act such as murder, genetic information can be very helpful. But for a person who may be discriminated against because of information revealed through genetic testing, such information may not be helpful. Genetic discrimination “occurs when people are treated unfairly because of actual or perceived differences in their genetic information that may cause or increase the risk to develop a disorder or disease” (Canadian Coalition for Genetic Fairness, 2015, n.p.). The Canadian Senate has put forward a national bill that would amend the *Canada Labour Code*, the *Canadian Human Rights Act*, the *Privacy Act*, and the *Personal Information Protection and Electronic Documents Act* to protect some personal genetic information at a federal level. If enacted, *Bill S-201, An Act to prohibit and prevent genetic discrimination* (Senate of Canada, 2015) would add the phrase “genetic characteristics” (Senate of Canada, 2015, p. 6) to the list of prohibited grounds of discrimination in the *Canadian Human Rights Act*. As of late 2016, this bill remains under procedural discussion

(Aiello, 2016), meaning that Canada currently has no laws that “explicitly address genetic discrimination, and no court cases have directly examined the scope of any legal protection Canadians might have from genetic discrimination” (Walker, 2014, p. 5). Thus there is nothing in Canadian law currently preventing a third party from gaining, knowing and using genetic information about an individual.

In Alberta, standard medical practise establishing the routine collection and notation of information that may be related to an individual’s genetics is the Newborn Metabolic Screening (NMS) Program. The NMS program “is carried out on a blood sample collected from the baby’s heel on filter paper between 24 hours and 72 hours of age [and] identifies babies who have a high risk of having [one of a list of several] of metabolic disorders” (Alberta Health and Wellness, Community and Population Health Division, 2010, p.1). This process will “screen [a newborn] for 17 treatable conditions (14 metabolic conditions, 2 [sic] endocrine conditions and cystic fibrosis [and] have an initial screen reported on or before the 10th day of age” (Alberta Health Services, 2014, n.p.). With the exception of congenital adrenal hyperplasia (CAH), none of the NMS Program tests relate to disorders of sex development. Unlike any other of “the many causes of intersex, only CAH represents a real medical emergency in the newborn period” (Intersex Society of North America, 2008, n.p.). However, the information collected for the purposes of registering a birth in Alberta with regards to the individual being registered is limited to “(a) full name; (b) date and place of birth; (c) sex” (*Vital Statistics Information Regulation*, 2012, s. 3(1)(a)-(c)) in addition to some details regarding multiple births and birth order, demographic information about the birth mother, and--if the father is known--parallel demographic information about the birth father. None of the information noted on an Alberta birth certificate under this regulation refers to any sort of known genetic information regarding the person identified.

Analysis of the Alberta Birth Certificate

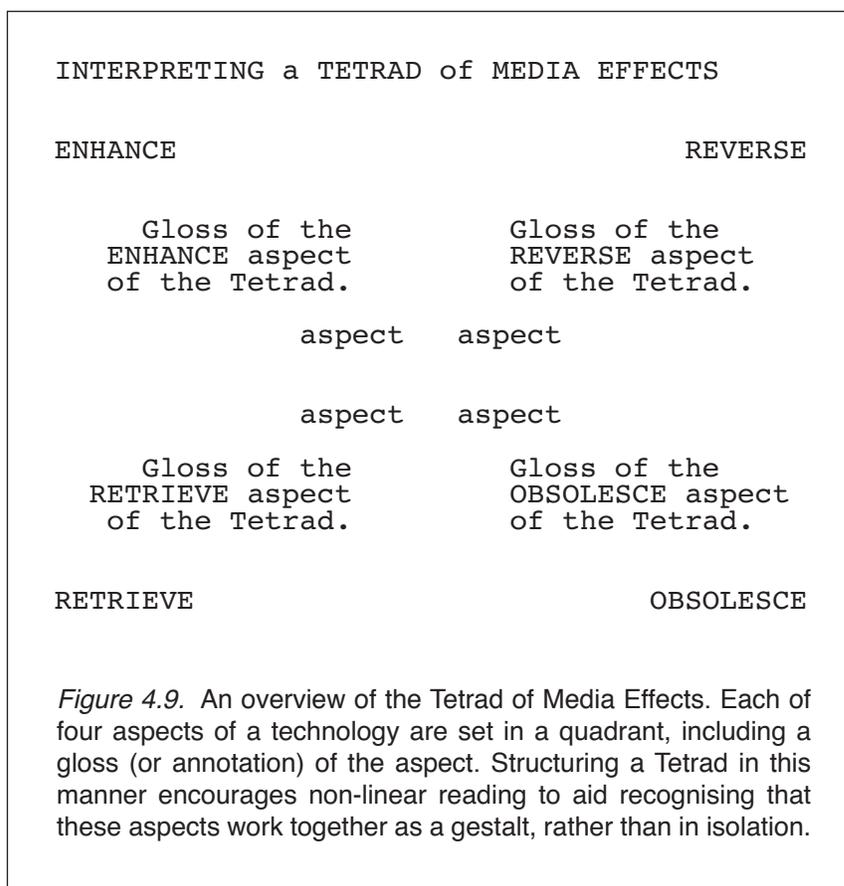
Introduction to Applying the Laws of Media Through the Tetrad.

While I speak of the birth certificate as a thing, it is more correctly an artefact composed of an aggregation of a number of specific technologies, each of which may have greater or lesser salience in any given context. I have already provided a brief overview of these technologies, which include the technologies of timekeeping, naming, mapping, and others. Such technologies exist on Alberta birth certificates regardless of the artefact's current or historical physical substrate or security features (which may also be rightly understood as technologies, but do not form a substantive part of this analysis).

For example, narratives about individuals who have trouble establishing their date of birth, or whose official date of birth conflicts with their actual date of birth, is an example of a technology (timekeeping) that can raise concerns when the artefact needs to be produced for some official purpose. Another example arises from own experiences as a person transitioning from one sex to another with my legal sex (or gender) listed on my identification artefact conflicts with my gender identity and gender expression: that is to say, my male appearance did not match the F (female) marker on my birth certificate, a conflict that routinely revealed to me how a specific technology within an identification artefact can achieved greater salience than its companion technologies. Unfortunately, because the technological artefact of the birth certificate is usually only accepted as a whole, any problems with any one of the companion technologies of the artefact will likely result in a problem with the birth certificate as a whole. This is one reason why the *Laws of Media* or the *Tetrad of Media Effects* is a suitable choice for analysis: the birth certificate artefact creates a particular type of environment that would not exist in its absence.

The Tetrad is an elegant tool for mapping and better understanding some of the complexities involved with technological changes that comprise any given medium. Importantly, the Tetrad helps us understand that “the artefact is ... not neutral or passive,

but an active logos or utterance of the human mind or body that transforms the user and his ground” (McLuhan & McLuhan, 1988/2007, p. 99). The Tetrad is comprised of four parts, one for each effect. In this paradigm, every medium has fourfold effects: every medium enhances, obsolesces, retrieves, and reverses.



Framed as questions, the long form of the Laws of Media are:

- What does it enhance or intensify?
- What does it render obsolete or displace?
- What does it retrieve that was previously obsolesced?
- What does it produce or become when pressed to an extreme?

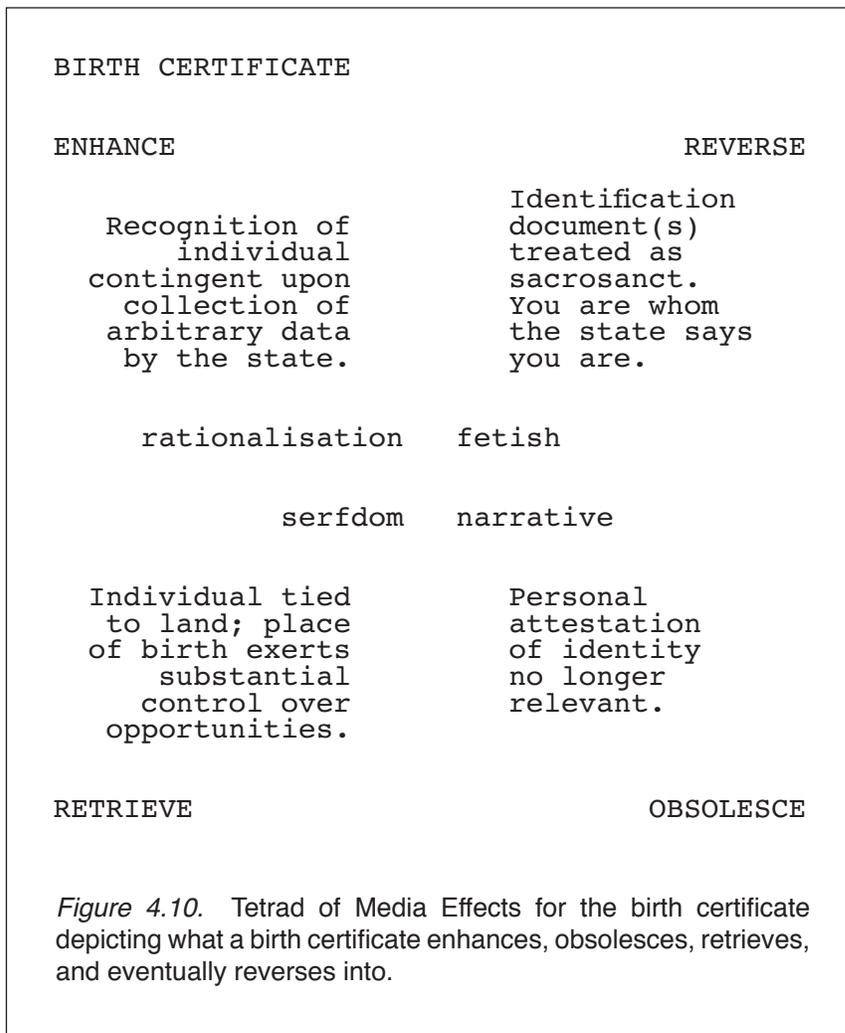
(McLuhan & McLuhan, 1988/2007, p. 7)

Often arranged in a quadrant-based manner, these four parts thus depict the simultaneous, binary tension of two opposites. Thus, we have the tension between ‘enhance’ and ‘obsolesce,’ what does the new media improve or make possible versus what is now pushed aside or obsolesced. We also have the tension between ‘retrieve’ and ‘reverse,’ what earlier action or service is brought back into play or what is the potential reversal of the new form? (McLuhan & McLuhan, 1988/2007).

Following McLuhan and McLuhan’s (1988/2007) *Laws of Media: The New Science*, the question concerning identification as a technology has four aspects. That is, what does identification enhance, obsolesce, retrieve, and reverse? Narrowing the specific exemplar of identification to the artefact of the birth certificate changes the question only slightly, becoming the question of what does a birth certificate enhance, obsolesce, retrieve, and reverse? Implicit in the question concerning identity is the presence of humans. The Laws of Media are intended to “reveal the totality of individual and socio-cultural effects of a particular media or technology” (Adams & Thompson, 2011, p. 742). Thus, the tetradic analysis of this question (*What does a birth certificate enhance, obsolesce, retrieve, and reverse?*) may help answer the broader question of “What is the totality of individual and socio-cultural effects of the birth certificate?”

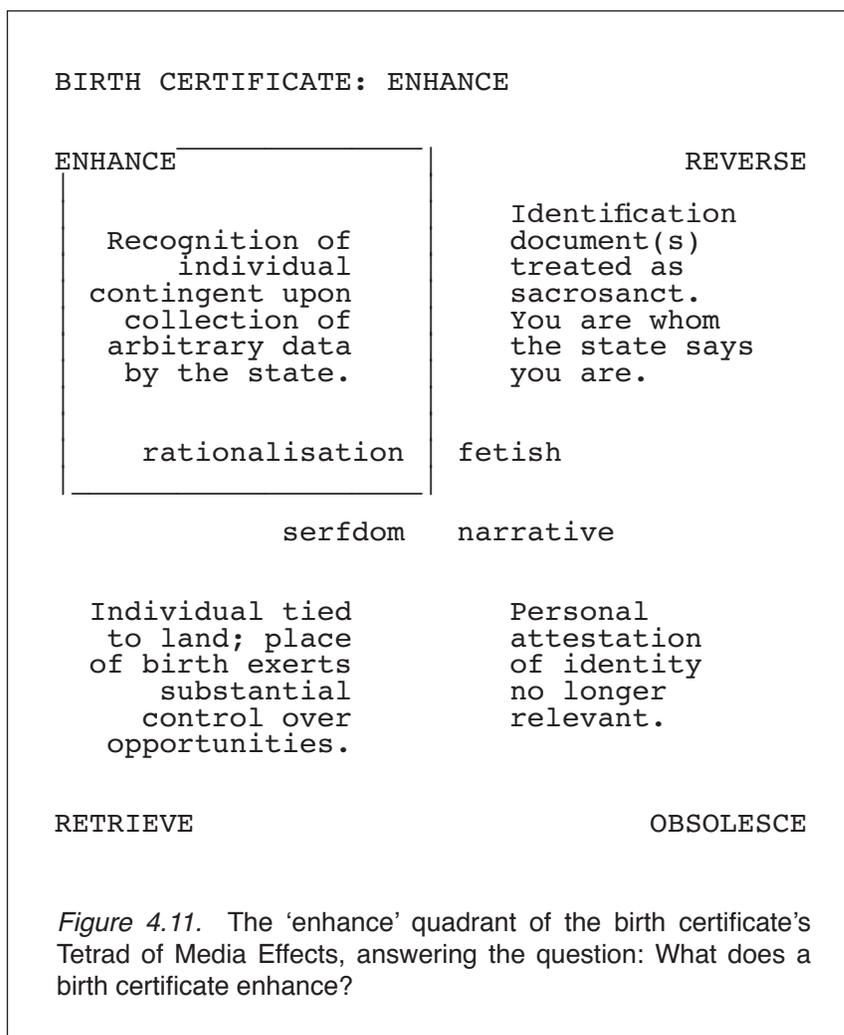
Tetrad of Media Effects for the Birth Certificate

The Tetrad of Media Effects on the four questions arising from the effects of the birth certificate as a medium is presented in graphical form below. Textual analysis of each quadrant of the Tetrad follows thereafter.



What does the birth certificate enhance?

Every technology has fourfold effects: enhance, obsolesce, retrieve and reverse. What does a birth certificate enhance? The birth certificate enhances rationalisation, which provides supposedly authenticated certainty as to an individual's identity, allows an individual access to goods and services, and even aims to establish interoperability of the birth certificate artefact with the systems of other jurisdictions.



States have undergone increasing rationalisation of resources, including their respective human resources. These increases are commensurate with the ability to gather and manage large-scale data. Historically, such rationalisation regarding individuals

began through the development of population measures such as statistics (Slack, 2004). Identification systems are part of such rationalisation. Lyon (2009) connects both the rise of modern nation-states and the concept of citizenship to identification, as they “are in part constituted by their capacity to name, count and classify citizens” (p. 46) achieved through technologies such as birth certificates. At the same time, this concept of citizenship became increasingly entwined with particular rights and responsibilities (Lyon, 2009).

To accomplish such rationalisation for individual citizens, the nation-state relies on extensive data-collection infrastructures. Eisenstein (1978) argues that modern Western culture “owes as much, if not more, to the duplicative powers of print as it does to the harnessing of new powers” (p. 196), noting that “the capacity to scan accumulated records also confers certain modest advantages” (p. 196). Unlike identification artefacts that can be physically handled by an individual, the data infrastructures such artefacts are embedded within are not readily discernible. Lyon (2009) compares this structure to a natural environmental phenomenon, wherein “each [identification] element represents a much fuller techno-organizational apparatus which, like the iceberg, lies out of sight, below the surface” (Lyon, 2009, pp. 42-43). Accordingly, Lyon (2009) emphasises that terms such as *ID cards* is a misnomer, because artefacts are only a tiny piece of much larger *ID systems* that include the ability to link and search complex records. An identification card is “just the overt manifestation of complex system of identity control and management” (Lyon & Bennett, 2008, p. 4). The ubiquitousness of these ID systems does not necessarily render them visible or intelligible to the individual.

State identification practises begin at birth, providing “legal proof of the fact of the child’s birth” (Powell, 1970, p. 3). Yet for the infant, and indeed throughout much of that individual’s life, such practises remain unregarded. These practises are “more remote, involving people, organizations and systems that the baby will never know. It is formal, abstract and may even be in tension with ‘identity’”(Lyon, 2009, p. 9). Such tensions were anticipated by McLuhan, as conflict at the margins of systems can be understood as

a “quest for identity” (McLuhan, 1977, p. 266, cited by Gibson, 2008).

State-issued and recognised identification is believed to provide certainty. Service Alberta, the provincial ministry governing both Vital Statistics and Motor Vehicles in Alberta notes three key aspects used to identify an individual:

1. Who you are (such as photo ID with your date of birth and legal name)
2. What you have (such as supporting documents, perhaps a utility statement or income tax receipt), and
3. What you know (such as being able to verify information on the Motor Vehicles System such as phone number, a prior home address, etc.)

(Service Alberta, n.d., *Identification and residency requirements*).

These aspects enhance the state’s certainty that you are who you claim to be, and in turn, are used to establish access to restricted services and goods such as provincial socialised healthcare services. Such certainty is key to modern state governance, as “most forms of personal documentation exist at least partly to help organizations discriminate in their treatments of individuals” (Rule, McAdam, Stearns, & Uglow, 1983, p. 223). Any deviation in such certainty can thus prove disastrous. A good example of how the abstraction of ID systems and beliefs in the certainty such abstraction supposedly confers is found in the experiences of a young woman identified as “C.F.” who took the Alberta government to court over her inability to amend her birth certificate to show her sex as female. Describing her experiences with government agents as “insensitive at best,” Justice Burrows noted that such interactions affirmed that government agencies interpreted the sex stated on the birth certificate artefact “as the exclusive authority ... and will not deviate from it” (*C.F. v Alberta*, 2014, at ¶48). Despite such agents interacting directly with a woman, their certainty in the abstract identification provided by her birth certificate resulted in them denying C.F. her identity. Agents of the state understood the collection of arbitrary data about an individual as certainty about that individual, resulting in this belief running roughshod over the individual’s certainty of their actual, non-

abstracted life.

Along with international treaties, states today also seek to have state-issued and recognised identification artefacts be “interoperable” with other jurisdictions. Accordingly, identification artefacts “require continuous bureaucratic cooperation over the sharing and processing of existing personal information systems” (Lyon & Bennett, 2008, p. 15). For example, a provincially-issued birth certificate or other foundation artefact (such as a citizenship card) is typically needed to acquire a federal Canadian passport. As a passport is used for the express purpose of authorising an individual to travel from and return to their nation-state, data included on a passport is expected to be supported by data included on a foundation document (such as a birth certificate). As multinational borders are crossed by people of many different origins and citizenships, the notion of establishing common identification expectations for border crossing is unsurprising. Accordingly, international standards such as the International Civil Aviation Organisation’s (2015) *Machine Readable Travel Documents* establishes baseline expectations for passports, supposedly ensuring that your state-of-origin’s ‘certainty’ regarding your identity can be relied upon by a foreign authority.

The practises established by non-governmental bodies such as ICAO thus extend broadly across many jurisdictions, without necessarily subjecting such practises to the scrutiny afforded by the legislative process of tabling and debating bills, something dubbed “policy laundering” (Lyon & Bennett, 2008, p. 18). If an individual cannot produce the proper artefact required to obtain a national passport, the individual will not be able to cross a national border legally, regardless of one’s constitutional right to do so. Likewise, if the individual cannot produce the proper artefact with the expected data requirements as enumerated by ICAO’s standards, the individual may not be capable of obtaining a passport. This has far reaching consequences. For example, the Northwest Territories’ child whose mother won the right to register her name with the correct orthography of the Dene language runs the risk of being unable to obtain federal documentary artefacts such as a Social Insurance Number (SIN) or passport (Bird, 2016).

While the infant may not need to travel in its immediate future, SINS are required both for legal employment in Canada (once the infant is somewhat older) and also for certain financial instruments such as establishing a Registered Education Savings Plan (RESP) on behalf of an infant.

The role of the birth certificate as a key artefact in state-based identification practises is revealed in the description of this artefact as a *foundation document*, so called because it is used as the foundation for many other types of formal identification, including driver's licenses and passports. Birth certificates are also sometimes known as *breeder documents*, which are "identity documents confirming birth, such as birth, baptismal, and adoption certificates" (Chepesiuk, Karpinski & Th  roux, 2010, p. 19). Interestingly, this important document does not contain any biometric information, such as fingerprints or a photograph, while other foundation documents do. For example, another artefact also accepted in Canada as a foundation document is the Certificate of Canadian Citizenship. Yet looking at a friend's laminated, wallet-size Certificate, the presence of a photograph--albeit one terribly out of date, as my adult friend immigrated to Canada as a child--jumps out as an obvious structural difference from that of a birth certificate. In the case of this particular foundation document, the information abstracted as essential for identifying an individual does not match that of the Albertan birth certificate. The Certificate of Canadian Citizenship lists only the bearer's name rather than also that of their parents'; a birthdate but not a birthplace, and a sex. Unlike an Alberta birth certificate, this citizenship certificate also lists the bearer's eye colour and height upon becoming a citizen, the latter being radically different than the height of my friend as a now-adult citizen (and likely even more radically different than my friend's 'height' at birth). As both documents are used as foundation documents, I find it interesting that they each abstract different information about the bearer and yet apparently each are sufficient to allow the bearer to obtain secondary identification documents such as a federal passport.

Following Rule et al. (1983), Lyon frames personal documentation as both

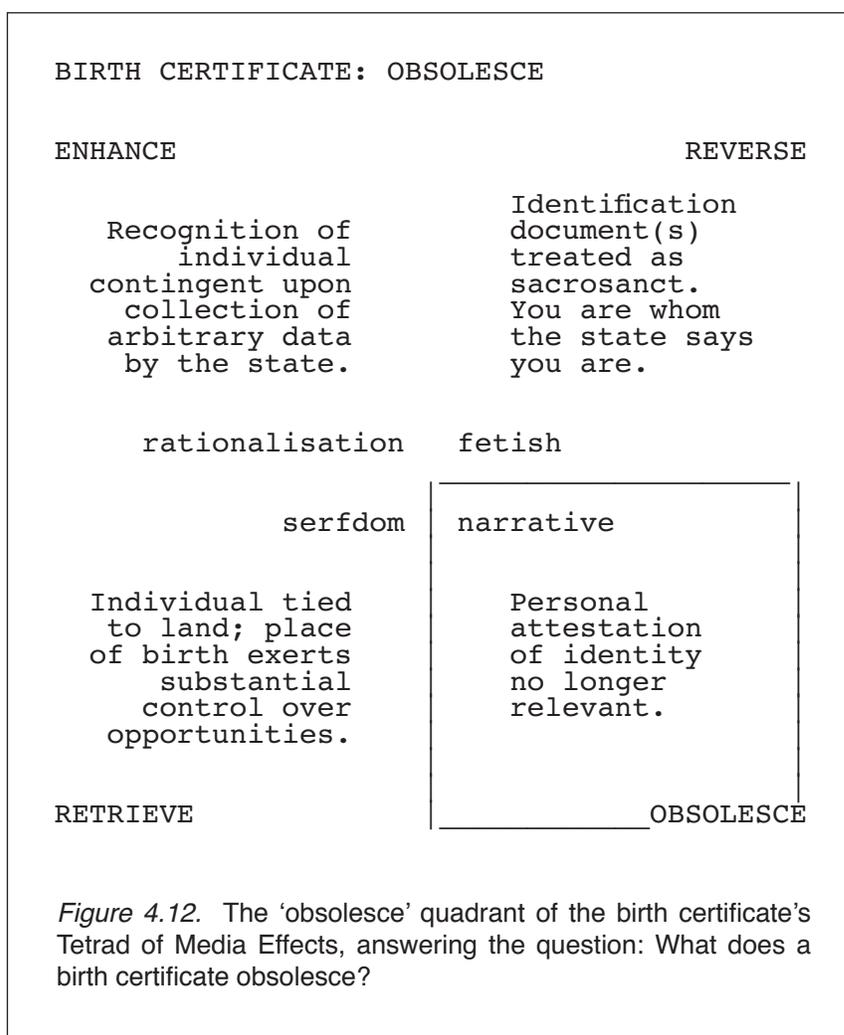
artefacts and databases. He notes that direct checking “of data produced from within bodies [tissues, fluids, and so forth] ... requires no access to the speech or the memory of the person. It is, once again, abstracted from the person” (Lyon, 2001, 297). This means that the individual is effectively “stripped of consciousness and the capacity to answer for herself, all in the paradoxical interests of accurate identification” (p. 309). Accordingly, the ability for an individual to engage with others in deliberate, conscious communication is no longer necessary as “newer regimes of risk, surveillance, and security require less and less that the subject be--literally--response-able” (Lyon, 2001, p. 309). This lack of response-ability is reflected in changes to birth registration practises in Canada over the years. The 1931 Ontario regulations governing the delayed-registration of a child (someone born more than one year prior to registration) required a statutory declaration from either the individual’s parent(s), an older sibling (who, if very young at the time of the individual’s birth, “could remember the mother ‘sick in bed with a young infant with whom I grew up and always recognized’”, an aunt or uncle who met the infant shortly after birth, and finally, or a physician or nurse (Emery, 1990; Emery, 1983). Yet by post-World War II, these instructions had been revised, wherein “the key innovation is an insistence upon documentary evidence [of birth]” (Emery, 1990, p. 10), starting with baptismal records, followed by hospital or physician records, newspaper announcements, and so forth (Emery, 1990). Attestation by people who actually know the individual was no longer given priority.

Lyon (2001) also ties dataveillance practises to our society’s increasing mobility, noting that “we tend to interact more and more with strangers, people with whom we have no real relationship, who do not know who we are or if they can trust us” (p. 305). Such a “society of strangers requires tokens of trust” (Lyon, 2001, p. 305), tokens found in the form of various personal identification documents. Yet these very tokens’ connectivity “with others in a web of identification and credential surveillance systems ensure that only authorized bodies enter certain rooms, cross certain borders, claim certain benefits, or travel on certain highways or airlines” (Lyon, 2001, p. 305).

Accordingly, personal documentation and the authorised body it produces “are a means of social control, social orchestration, and social influence” (Lyon, 2001, p. 305). He warns that the authorised body “is bound to sit uneasily with views of identity that go beyond what can be learned from a bodily ordeal or the testing of tissue and fluid” (Lyon, 2001, p. 307), meaning that “autobiography and the social web of identities are diminished if not discounted in such body surveillance identification regimes” (p. 307).

What does the birth certificate obsolesce?

What does a birth certificate obsolesce? By relying on an arbitrary set of technologies purportedly describing the body of the individual identified, the birth certificate obsolesces narrative. Lyon (2009) notes that modern ID systems--that is to say, a physical artefact combined together with its virtualised, always-on database(s)--increasingly afford less discretion for those authenticating and validating an individual's identification, removing the ability for the individual's stories about themselves to have any weight in identifying the self. Clarke (1994) argues that organisations increasingly "depend very little on the judgement of employees local to the individual concerned and very heavily on the information that they store in their files" (p. 122).



Accordingly, what one knows about oneself has little bearing on what the state claims to know about one. An individual's personal agency in determining their own identity is hampered or even eliminated (Monro, 2003) in the face of birth certificate technology. Amending this document is thus "not a personal matter, but one that involves the state" (Appell, 2014, p. 387). For a transgender person, this involvement typically spans many different agencies and even levels of government, even if the individual is not actively crossing into a different jurisdiction (Koenig, 2009). Although identity is social and relational, "the difficulty is that ID systems are built on a bureaucratic base that already distances itself from the ordinary lives of real people, and this distancing process is compounded by electronic networks that are invisible and little understood by those ordinary people" (Lyon, 2009, p. 13). The case of *C.F. v Alberta* (2014) is a good example of this. Unable to update her birth certificate to match her female identity, C.F. chose to address the root issue of her problematic identification artefact by successfully taking the government to court.

The ability to tell stories, to share personal narratives that construct one's life and identity is also occluded by the birth certificate. Postman (1985/2006) notes that "definitions of truth are derived, at least in part, from the character of the media of communication through which information is conveyed" (p. 17). The three elements for identification required by Service Alberta are already predicated on the question, "Who you are" being substantiated by a piece of state-issued photo identification that includes at minimum both your photo and your date of birth, an excellent example of a circular regulation. Again, that photo identification is first obtained by having a birth certificate: your own word regarding your existence is insufficient proof of such existence.

For example, a Canadian man who was not registered at birth waited over six decades before he was able to acquire a birth certificate artefact, as well as any subsequent documentation spawned from that artefact (*CBC News*, 2014a; Canadian Press, 2015). In another example, a Mexican woman died hours after receiving her birth certificate affirming that she was 117 years old: without this artefact, she was unable to

receive benefits for the elderly (Associated Press, 2016). Her personal attestation, or even possibly her appearance as an elderly person, was insufficient evidence of her age in the absence of an official identification artefact. Even the ability to distinguish the young from the old now requires a birth certificate (Appell, 2014).

One's personal agency to assert an identity to the state, knowledge of oneself as a human person, even one's kinship and friends are subsumed to the 'certainty' of that state-recognised identification artefact, the birth certificate. This type of phenomenon is dubbed the *effect of accuracy* (Poovey, 1998, cited by Gregory, 2013), wherein "the formal precision of the books [records] made the records function as if they were not only precise but accurate as well" (Poovey, 1998, cited by Gregory, 2013, p. 317). The collection of data into tables (and now, databases) imposes categories and hierarchies presented as neutral or natural. Indeed, Eisenstein (1978) notes that thanks to the invention of moveable type and the printing press, the proliferation of easily duplicated visual aids helps "make nature ... seem more uniform" (p. 196). McLuhan describes uniformity and repeatability as a principle that emerged from the development of printing presses. He states that this principle "was to find ever fuller expression as print raised visual quantification to eminence" (McLuhan, 1962/2010, p. 208). Becoming quantified by the state in a uniform and repeated manner obsolesces the capacity to make personal attestation as to one's place in the world, particularly when one is not necessarily capable of being uniform or repetitive in a manner that aligns well with the classification regimes of the state.

The collection of data into categories and hierarchies are presented as neutral or natural, yet instead these categories and hierarchies are subject to the whim of politics, culture, and the fashion of the time (Rawson, 2009). But because the artefact appears to be nonhuman, its effects and the behaviours it affords are not necessarily recognised for what they are. Latour (1992) describes this phenomenon as the "nonhumans [artefacts] tak[ing] over the selective attitudes of those who engineered them" (p. 233). In other words, an artefact such as a birth certificate is not so much an extension of the person

supposedly identified by it, but an extension of the thoughts, attitudes, and beliefs of its creator(s). These creators are, of course, not the infant themselves: instead, they are “authorised proxies” (Yeo, 2012, p. 46) creating a record on behalf of the infant (Scott, 1990).

Categories and hierarchies in collected data are demarcated by lines (sometimes literally, as in the visual presentation of tabular data; sometimes virtually, as in the separate cells of spreadsheets or tables whose data is used to generate particular constellations of information in reports, forms, and so forth). Lines between categories “constitutes a medium for the removal of ambivalence” (Gregory, 2013, p. 321), meaning that instances of ambivalence must result in conflict with artefacts predicated on such distinctions. The ongoing practices of sex assignment at birth are a good example of this desire to remove ambivalence. As Gregory (2013) states, this approach evidences a worldview where it is “better to make a wrong assignment than to leave the world in its vagueness” (p. 321).

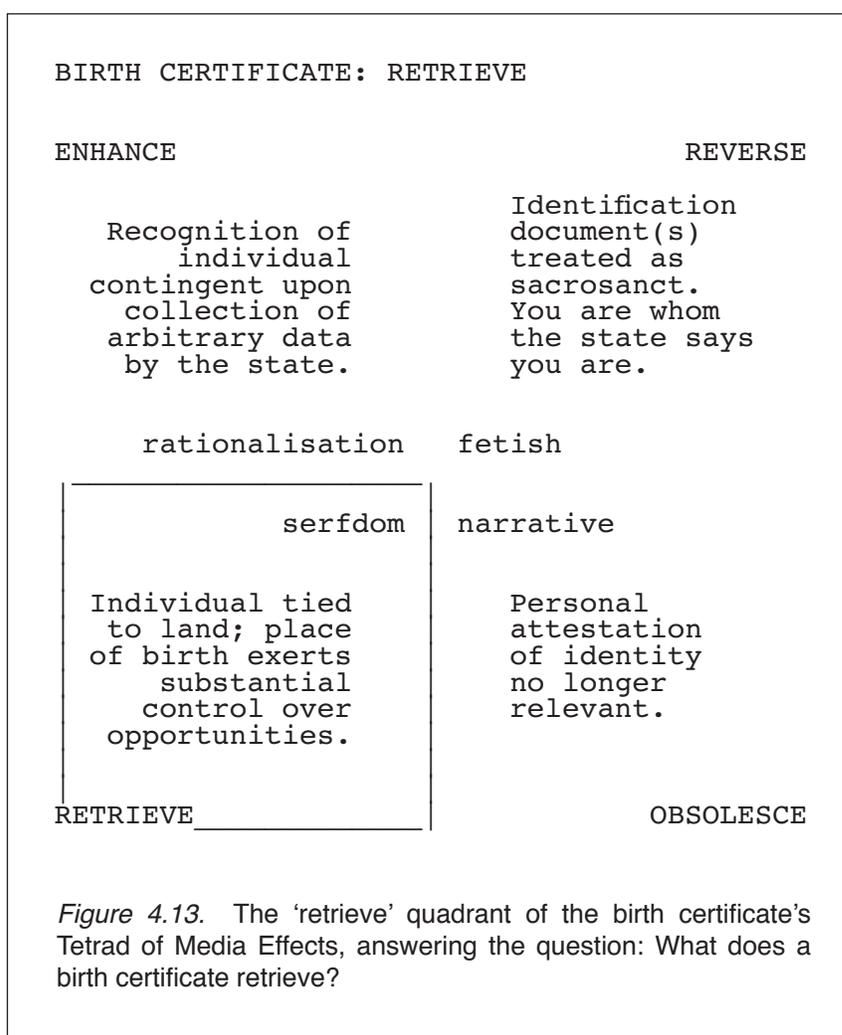
In contemplating the obsolescence of personal attestation in favour of state-issued artefacts, I am reminded of the novel *Charlotte's Web* (White, 1952/1980), wherein Charlotte the spider correctly asserts to her friend Wilbur the pig that humans will believe anything as long as it is in writing. Her dedication to the craft of writing saves Wilbur from the fate of becoming breakfast bacon and roast ham dinner. Wilbur's ability to remain alive relies on the written word of a third party to save the day: he could personally perform no actions that would accomplish the same ends. The film *Jupiter Ascending* (2015) similarly depicts this tension. Despite genetic evidence of the main character Jupiter's entitlements, a multitude of written materials from divergent third-party sources are required before her claims will be recognised. Neither Jupiter's word nor her genetics are enough: only the artefacts are sufficient proofs to confirm or deny her identity.

An intriguing real-world troubling of the obsolescence of personal attestation is found in the case of Timothy and Alexander Vavilov (né Foley). While the brothers can

provide proof of their Canadian birth and residence as children, the Canadian government has decided to strip them of their Canadian citizenship on the basis of their parents' fraudulent assumption of the identities of deceased Canadians (Walker, 2016). American authorities determined that the Vavilov's parents were Russian spies, resulting in the family's expulsion from the USA. Normally, Canadians can only end citizenship by undertaking an application process to do so (Citizenship and Immigration Canada, 2015). However, the Canadian government is claiming that as the elder Vavilovs (then Foleys) were employed by a foreign state at the time of their children's births, their Canadian-born children do not qualify as Canadian citizens (Keung, 2015a). The younger Vavilov's attestation that they did not know of their parents' affiliations or activities is disregarded by a specific interpretation of the larger--usually invisible--identification system managed by the Canadian government.

What does the birth certificate retrieve?

What does a birth certificate retrieve? The birth certificate retrieves serfdom, or villeinage, wherein one is tied to the land in ways that transcend individual agency and personal decisions. While not ‘owned’ in the sense of chattel property, the contemporary citizen’s relationship to the nation-state is increasingly one of serfship-lordship, wherein the lord (the bureaucratic, administrative realm of government) has the ability to exert substantial control over one’s movement. For example, crossing borders in contemporary society depends on proof of one’s origins in a particular nation-state sufficient to allow one to obtain identification artefacts such as a passport. There is also a concurrent demand from the land one intends to travel to that the individual will carry identification



the foreign nation-state recognises as valid (*B.N. v Canada*, 1999). While the passport might be seen as a means of travelling to other places, it is also a key artefact to return to one's place of origin. The privilege of return depends upon classification as belonging to a particular jurisdiction, a figurative tie to a literal land revealed through the birth certificate artefact.

Within the medium of the birth certificate, classification is retrieved as paramount. Gone are any romantic notions of being the 'master of your own fate' or to 'be all that you can be'. What one can be is tightly controlled by the state. For example, transgender people in many jurisdictions are inconsistently able or unable to amend their sex as male, female, or unspecified on identification artefacts such as birth certificate, meaning that one literally is expected to be the man--or woman--the state has assigned one to be (Monro, 2003; Spade, 2008; Currah, 2009; Amnesty International, 2014). Historically, this sex determination was important for inheritance and property rights, both of which were usually "premised on male succession" (Whittle & Turner, 2007, s.3.2), meaning classification into one category or another had profound consequences. Yet as discussed previously, the determination (or classification) of one's sex is done without one's consent. Nor does that determination include any analysis or investigation into the actual genetics of the infant which might further inform any classification made thereof. That practises demanding a singular moment of sex classification are now changing in some jurisdictions (including, to some extent, Alberta) is a testament to the perseverance of transgender individuals challenging a fundamentally inadequate identification system.

Another example of state classification and control over individuals through a birth certificate is found in the documentary film, *City 40* (Goetschel, 2016). According to this documentary, residents of this long-secret Russian city have only recently gained the ability to receive birth certificates. However, these documents identify each person's birthplace as somewhere other than City 40. One of the consequences of this deliberate misidentification of place is that any issues related to this specific geolocation become easy for authorities to dismiss, as no documentary evidence linking the individual

to this city exists. For example, as City 40 is asserted to be heavily contaminated by radioactivity, the inability to prove residency therein poses additional hurdles for anyone seeking redress for legal or human rights issues arising from these conditions.

As Canadian citizenship is functionally dependent upon the existence of the individual's birth certificate, failure within any aspect of obtaining or maintaining a birth certificate results in a failure of citizenship. If I am no longer fully a citizen--unable to present artefacts that adequately identify me as a fully-functional Canadian citizen--where do I belong? As Lyon and Bennett (2008) note, while individuals may make claims as to who they are, such claims are not proof. Instead, proof is expected to be substantiated by authentication of that identity by formal identification artefacts.

The medium of the birth certificate also retrieves the notion of belonging in the sense of chattel, an owned individual. The individual may not make claims to the culture of citizenship without the recognition of that citizenship ... and without the expected artefacts--underlaid by the "foundation" document of the birth certificate, citizenship claims are deeply troubled. Indeed, Rule, McAdam, Stearns and Uglow (1983) argue that the proliferation of formal, state-issued identification documents in the 20th century and onwards points towards "an important new category of *relationships* between ordinary people and large, centralized organizations" [emphasis original] (p. 230). Such relationships include the relationship of the individual to the land, harkening back to the original purpose of civil birth registries in England, which were "to insure individual rights, primarily for property" (Brumberg, Dozor & Golombek, 2012, p. 407).

An example of the retrieval of a person being tied to the land is found in the story of Joan Stirling, a 99-year old woman of British birth who had been living and working in Canada since her teen years in the 1930s. Despite abundant evidence of her history in Canada, Citizenship and Immigration refused to recognise Stirling's citizenship without a copy of her UK birth certificate (Marchitelli, 2015). While prior citizenship law automatically conferred Canadian citizenship to any British citizens residing in Canada before 1947, the 2015 government would not recognise her without a British

birth certificate. No information is given as to why the British government was unable to provide Sterling with a birth certificate upon request, yet the respective actions of both nations meant this woman had lived for decades without consistent access to support services, including medical care or care as a senior citizen (Marchitelli, 2015). Her place of birth--the UK--exerted control on her in another jurisdiction by not providing currently-required documentation. Whether such an oversight is by accident or malice does not matter: individuals' ability to move to or from specific land, and their respective ability to enjoy fully the same rights as those born to that land, becomes entirely contingent upon state actions.

Amoore (2008) argues that the modern practise of what she terms *governing by identity* "has become the principal means of reconciling mobility--or more specifically the feigned picture of a world in which people, objects and money move smoothly--with the idea of securability" (p. 23). This approach means that identification is used to 'pre-empt' movement by making "a risk decision long in advance of a border or boundary being reached" (Amoore, 2008, p. 25). An example of this is found in the events of January 2017, wherein the American president issued Executive Order No. 13769 (2017) preventing any citizen of any one of seven nations from entering the USA. International chaos resulted as travellers were turned away from boarding airplanes or detained upon arrival in American airports without legal representation. Even people with the correct papers to be able to work or study in the United States were turned away on the basis of both ties to being born on a particular land--a particular geolocation--and utterances by authorities to the effect that any and all from such places were likely to be terrorists.

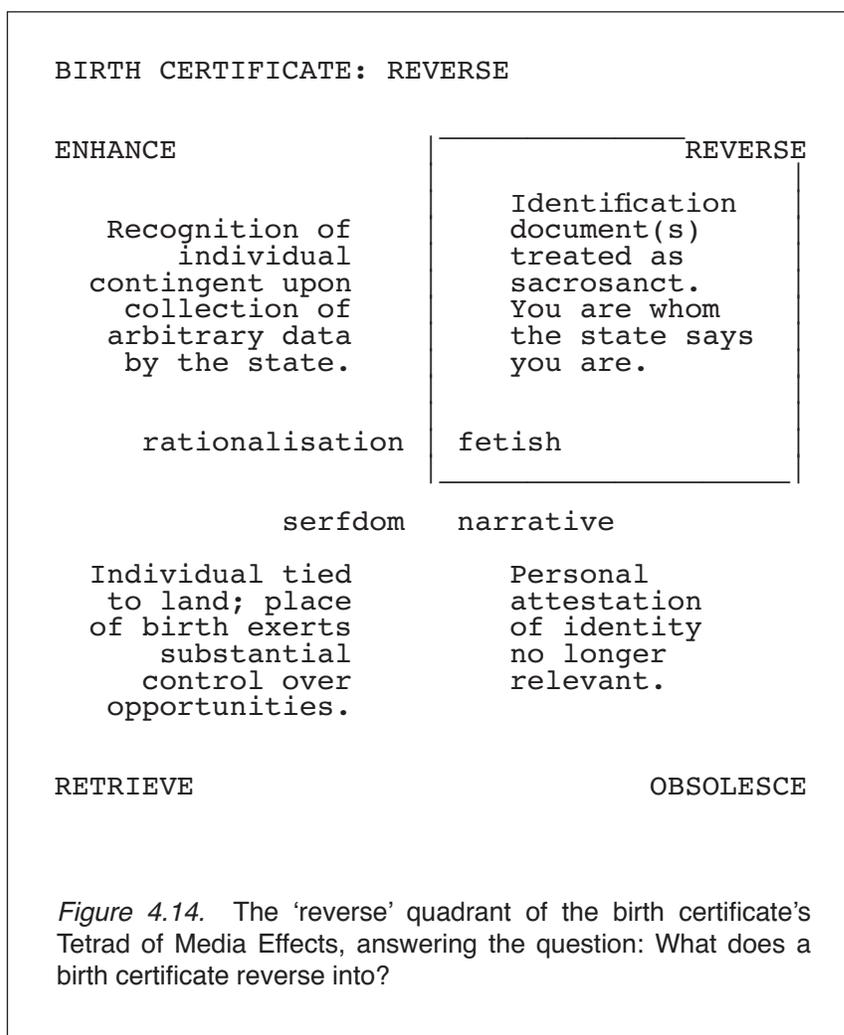
According to Rule et al. (1983), the relationships between states and individuals is increasingly data-driven (rather than through personal interactions with the state), resulting in "increasing demands on personal privacy, as organizations consume more and more personal data and use these data to shape their treatment of persons with whom they deal" (Rule et al., 1983, p. 230). Policy practises framing all people born in a particular place to be terrorists is thus further propped up by demands from border security to

access individual's personal social media account passwords and related data, wherein those reviewing such data are not necessarily equipped to make a fulsome analysis of their findings. For example, when Canadian citizen Fadwa Alaoui and her family went to visit family living in America, border agents reviewing data on her phone showed significant concern over her receiving prayer messages in Arabic. She says she receives these because family and friends are concerned for her young son, who was being treated for cancer. Despite previously facing no issues crossing the border, this time the family was denied entrance (Mann, 2017).

The breakdowns and accidents (Adams & Thompson, 2016) that arise from conflicts between the birth certificate artefact and the individual using the artefact provide good opportunities to both notice and observe some of the power exerted by this artefact, or at least “catch glimpses of other actors (e.g. data plans, security concerns, and screens)” (Adams & Thompson, 2016, p. 52). In January 2017, the sudden and intense state-level interest in one's place of birth--combined also with utterances regarding alleged risks adhering to anyone from such a birthplace--further underscored the birth certificate's retrieval of nearly-unbreakable ties to the land.

What does the birth certificate reverse into?

When pushed to an extreme, what does a birth certificate reverse into? Reversal is where the artefact of the birth certificate comes in to its own as a medium, for a medium “directs us to organize our minds and integrate our experience of the world, it imposes itself on our consciousness and social institutions in myriad forms” (Postman, 1985/2006, p. 18). As a medium, something ever-present and taken-for-granted, the birth certificate reverses into an over-reliance on an apparently unassailable fact matrix established by the nation-state in the particular aggregation of technologies included in the artefact. This means that whatever data the artefact depicts is interpreted to be truth, even if an individual’s narrative might provably contradict the artefact. As “bureaucratic claims of



our own official registers to know us to be ourselves alone, and no one else” (Groebner, 2001, p. 27) establishes the individual as incompetent to attest to their own identity, the artefact becomes a fetish, invested with beliefs far outstripping any facts adhering to it.

Latour (2010) directs us to the history, development and deployment of the notion of a *fetish*. He describes how Portuguese traders dismissed the beliefs of the people of Guinea who worshipped the religious idols they made with their own hands. Figuratively, the term fetish may be used to refer to “something irrationally revered” (OED, “fetish, n. 1.c”, 2016), which is the sense that applies here to the artefact of the birth certificate. Despite the many components that form a birth certificate having some degree of fluidity and instability, once fixed in the artefact’s structure, the birth certificate is itself irrationally revered as a source of pure, unalterable truth. Latour (2010) notes that “the word ‘fact’ seems to point to an external reality, and the word ‘fetish’ seems to designate the foolish beliefs of the subject” [emphasis original] (p. 21). The socio-cultural conditions in which the birth certificate exists insist that the artefact is objectively factual. The beliefs of the subject about their own identity and its attendant identification are thus brushed aside in favour of the *factishness* (Latour, 2010) of the fetish object.

According to Eisenstein (1980), “the effects of printing seem to have been exerted always unevenly but always continuously and cumulatively” (p. 106) since the development of printing presses. Accordingly, it is unsurprising that the birth certificate would become a fetish object. Situated as it is within a culture that invests ever-increasing trust into “man-made maps” (Eisenstein, 1980, p. 105) that promote a uniform structure and purport to communicate objective information, an artefact such as the birth certificate would be readily preferable to bureaucrats and their ilk, whose own procedural systems require them to rely on the abstract, cumulative data about an individual rather than the individual’s attestation of self. The effect of accuracy described by Poovey (cited by Gregory, 2013) is also an important part of investing the birth certificate artefact with the powers of a fetish object.

Yet the history of the birth certificate does not reflect an entrenched, unchangeable

form. As Appell (2014) notes, the birth certificate is “a negotiated and evolving document ... often comprised of fictions” (p. 376). A simple example is the birth certificate of an adopted child, which will depict the names of the child’s adoptive parents, rather than the names of the birth parents (Appell, 2014).

Retrieval of the human person as chattel or property of the state (serf) reverses smoothly into suspicion of that same human person. For an individual unable to present artefacts indicative of a coherent culture of citizenship, the state may suspect that the individual is not, after all, a proper citizen. Such suspicion may have dire consequences, including denial of the benefits of state-recognition of the individual’s citizenship. As Appell (2014) notes, the birth certificate “connects the person certified to a whole regime of rights, entitlements, social scripts, and obligations” (p. 362). Without a birth certificate that reflects the assumed norms of a Canadian jurisdiction--including a name and binary-identified sex (McGill & Kirkup, 2013)--the ability to obtain additional artefacts of citizenship (such as a Canadian passport) is significantly impeded. The fetishisation of identification artefacts predicated on supposed facts about the individual’s body means that “autobiography and the social web of identities are diminished if not discounted” (Lyon, 2001, p. 307), leaving the individual with little to no means to self-attest to their own identity (Government of Alberta, 2016).

Reversal also opens the possibility of incompetence: as various regimes of identification have widely divergent requirements for transgender, transsexual and gender non-conforming people to obtain congruent identification artefacts such as a birth certificate, the possibility arises that different jurisdictions will not rely on the certainty afforded by documents provided by another. That is to say, different jurisdictions may develop non-reciprocal recognition of the validity of foundation documents and its respective jurisdictional artefacts spawned thereof (Spade, 2008; Appell, 2014; Amnesty International 2014). Such practises leave the individual with no means of identifying themselves, as personal attestation remains effectively meaningless.

An example of this happened recently in Canada when Avery Edison, a

transgender woman arriving at Canada by air, was found to be travelling beyond the terms of a prior visa. Although her UK passport correctly identified her as the woman she is, Canadian officials instead placed her in a male detention facility (*CBC News*, 2014b). While the structural elements of modern passports are required to meet minimum interoperability standards among multiple jurisdictions, one of the ingredients of the medium of identification is that of personal decisions: in this instance, the personal decisions of border officials resulted in some aspects of the visitor's identification being disregarded. (To be clear: while her sex was disregarded, her classification as being "not-Canadian" was respected and enforced, and she was not allowed to remain in Canada.)

Another example comes from lack of mutual recognition between smaller states. In Texas, Nikki Araguz, a firefighter's widow, was denied death benefits because it was learned that her California birth certificate originally read 'male'. While she had amended her birth certificate in her home state, she learned that Texas will not recognise an amended birth certificate, meaning that Texas would also not recognise her marriage in Texas as valid, as the state refused to contemplate allowing its citizens same-sex marriage. She was a woman married to a Texan man, but Texan authorities made decisions that disregarded the regimes of identification of her birth jurisdiction, resulting in court actions to be accorded her rights as widow of the deceased (Wright, 2015).

But perhaps the strangest example of the reversal of a birth certificate into a fetish object is the case of Kim Walmsley. Born in Britain, Walmsley and her family decided to immigrate to Australia, a process that requires extensive documentation, including birth information. The mother of five children was shocked to learn that Australia would not accept their application, as Australia does not recognise or allow same-sex marriages (Corocan, 2014). Yet Walmsley is not married to a woman, and she has borne five children together with her husband over the course of their marriage. The trouble arises from Walmsley's birth record: while the birth certificate she received as a child correctly identifies her as female, the official birth record incorrectly identifies her as 'boy' and any new certificates issued would indicate she is male (Walmsley, 2014; Tacey, 2015;

Tweedy, 2015). While officials have agreed the birth record is in error, British law does not allow for any corrections or amendments to the record itself (Vankin, 2014). To top it all off, as British law of the day did not allow the formalisation of same-sex relationships, the Walmsley's longtime marriage was ruled invalid by an ecclesiastical authority (Duffy, 2014; Payton, 2014). Again, there is no question that the personal attestation of Mrs. Walmsley having been born female and having remained a female her entire life is true: the problem sits entirely with a system predicated on the perceived impossibility of error in that system, and no legal way to address any errors that somehow manage to arise. In this example, the reversal of the birth certificate into a fetish-object held to be sacrosanct is complete. Even when all and sundry can agree the document itself is obviously in error, none will find a way to remedy the error.

The Walmsley situation is a particularly good example of the inherent conflict that arises from what Appell (2014) describes as “service to two masters: the person whose identity is certified and the state that both creates legal identity and ties identity to certain rights and disabilities arising out of that certificate” (p. 400). Likewise, the Walmsley situation points to the problem of incorrect or acontextual data being interpreted as factual, one of several risks listed by Clarke (1994) inherent to dataveillance practises. Indeed, Groebner's (2001) study on the genesis of the apparatuses of identification warns that ambiguities found in the Middle Ages identification practises tying a physical description to a particular name “offer good reasons why we should never fully trust the bureaucratic claims of our own official registers to know us to be ourselves alone, and no one else” (p. 27).

Summary

The Alberta birth certificate is a deceptively humble aggregation of a number of technologies, including identifiers for date, place, sex, and names. The birth certificate is required identification for many purposes mandated by law, including obtaining a provincial driver's license; registering for elementary, secondary or post-secondary

school; obtaining a passport, and so forth. The birth certificate is thus the linchpin of an entire life: without this artefact, there would be no legal means to obtain other types of identification artefacts, nor engage in activities such as education or benefit from social programs. Analysing the birth certificate through the Tetrad of Media Effects reveals that the birth certificate enhances state rationalisation of the individual; obsolesces personal narrative and kinship, along with obsolescing the personal discretion of any given official in recognising an individual requiring identification; retrieves a state of being tied to the land by those in authority; and when pushed to an extreme, reverses into a fetish object that leaves the human individual as incompetent to attest to their own identity.

Chapter 5: Conclusions

Introduction

Philosopher of technology, Albert Borgmann (1984) warns of the “[widening gap] between the function accessible to everyone and the machinery known by nearly no one” (p. 47). With regards to the birth certificate, a near-universal document in our contemporary security-obsessed culture, the increasing lack of function afforded by birth certificates expose, for transgender people, this machinery. Yet convincing others that such machinery exists and is problematic is no easy task, despite increasing numbers of incidents reported in media regarding identification and birth certificate problems for cisgender people generally. As I write this, discussion of issues such as those created by the American president’s Executive Order No. 13769 (2017) *Protecting the nation from foreign terrorist entry into the United States* implies that the population of any of seven nations are likely to be terrorists. Generally referred to as a “Muslim Ban,” Executive Order No. 13769 appears to be focused on the assumed faith and politics of these populations (which may be mutable), and conflating such mutable factors together with an individual’s birthplace (which is not).

Long before demonstrations against this order were held in multiple airports across the United States, birth certificate data has proved problematic for many. For example, when Canadian jurisdictions became willing to perform same-sex marriages, many American citizens came to Canada to be married. While America generally recognises the validity of Canadian marriages, jurisdictions that do not formalise such marriages themselves are also unable to dissolve them, meaning there was no legal way for a same-sex couple to obtain a divorce in their state of residence. Until recently, obtaining a Canadian divorce required residency within Canada for a full year, meaning that foreign people who travelled to Canada to marry were not able to travel to Canada to divorce. married in Canada were incapable of getting a divorce in Canada (Lang, 2013). The machinery known to no one, such as the birth certificate artefact and its role in establishing citizenship and identification, becomes highly salient in such situations.

Borgmann's (1984) concerns regarding the promises of technology, and the question of "who issues the promise to whom is a question of political responsibility; and who the beneficiaries of the promise are is a question of social justice" (p. 41) are germane to the problem of identification. As shown in this study, birth certificates as a technology have been problematic for transgender, transsexual and gender non-conforming people for a long time. The demands placed upon the birth certificate to function as an instrument of national security pose yet more substantial problems for transgender people, as well as increasingly for non-transgender people as well. However, while issues regarding obtaining identification documents for transgender people is widely understood in transgender communities, reported in media, and even occasionally remarked upon in research literature, little seems to be said on this issue for cisgender people. As this study shows, the issues faced by transgender people specifically are becoming more generally issues faced by all people owing to the particular effects of the medium of the birth certificate.

Conflicts between identity and identification

The curious case of Sir Maurice Micklewhite.

An illustration of the ways identity and identification are bound up together in conflicting, challenging ways is the story of Maurice Micklewhite, who recently underwent the process to change his legal name. Mr. Micklewhite undertook this process because of increasing difficulties crossing borders with his British passport (Blair, 2016; Powell, 2016; Davies, 2016; Dunn, 2016). Born in England in the 1930s, Micklewhite was knighted in 2000, becoming Sir Maurice Micklewhite (Milmo, 2000). By 2015, Sir Maurice Micklewhite was estimated to have a net worth of \$75 million (Field, 2015). In short, Sir Maurice Micklewhite is a rich, white, elderly, knighted British man, the very essence of a privileged person in modern times.

So why would Sir Maurice Micklewhite have trouble crossing borders?

Interestingly, Sir Maurice Micklewhite does have an extensive and well-documented

history with espionage and criminal activity, yet despite this, he is not known to be on any national no-fly lists nor other sorts of watchlists, nor is he known to have had any troubles crossing borders on the basis of this particular history. No, Sir Maurice Micklewhite has trouble crossing borders because his identity does not match his identification. Everyone already knows who Sir Maurice Micklewhite is, so when he presents his formal identification (such as his passport), authorities are troubled that this identification does not match his identity. For Sir Maurice Micklewhite is known to the world at large as actor Michael Caine, and in these identification-obsessed times the notion that someone is famous under a *stage name* (Haynes, 2016), a name that has no bearing on the actor's legal name, is anathema. One can imagine a befuddled airport security official exclaiming, "But you're Michael Caine!" before calling over a supervisor or three to determine how to process this man's valid, verified, secure, and authentic state-issued identification. Outside of reports claiming Michael Caine changed his name to Michael Caine because of the terror organisation known as ISIS (Blair, 2016; Powell, 2016; Davies, 2016; Dunn, 2016), we can still infer that the increased border surveillance post 9/11 influenced his decision to make a legal change of name, as Michael Caine has previously spoken as to the importance of retaining his family name when he was knighted under that selfsame family name (Milmo, 2000).

When a rich, white, elderly, knighted British man proud of his family heritage and the name that goes with it decides that maintaining legal identification that does not match his famous identity is no longer worth the hassle, we should pay careful attention. Transgender people have long needed to navigate the complex processes involved in amending identification artefacts. The universality of this experience has been described as "uniquely common to trans lives" (Herman, 2015, p. 78), yet as the Sir Maurice Micklewhite example shows, this experience is now expanding to ever more types of data non-conformance. In other words, while transgender people might have represented the canary in the data mine, the types of challenges transgender people have faced historically are indeed now more overtly and obviously effecting all people using this

technology.

For this reason, I assert that even had Canada chosen not to decriminalise homosexuality in the late 1960s, social movements for transgender equality would exist at the present. While many alternative models of citizenship exist, such as ‘sexual citizenship’ or ‘intimate citizenship’, such models are “of limited use to transgender people” (Monro & Warren, 2004, p. 350). Individuals exploring such models can rely upon their resistance to particular categorisations of citizenship not being reflected in any data gathered about them by the state. For example, from the 1960s to now, identification artefacts issued in Canada do not make note of one’s sexual orientation. If a gay person chose to hide their sexual orientation from their family, friends, or colleagues, they would not and could not be outed by formal identification artefacts. For transgender people this has been an entirely different matter. Indeed, the problem of data non-conformity in government-issued identification documents for transgender people was recognised by the provincial government of Alberta as early as 1973, not even five years after homosexuality was decriminalised by Canada’s federal government.

Historical amendment of the Alberta birth certificate.

For over 40 years, transgender people born in Alberta have been able to amend their birth certificates to reflect their correct sex. Introduced to the Legislative Assembly of Alberta on October 11, 1973 by the Honourable Minister of Health and Social Development Neil S. Crawford, *Bill No 65 The Vital Statistics Amendment Act* (1973) “would introduce the necessary change to make it possible for registration of sex changes” (Crawford, 1973a, p. 3169). Debate on this item was almost non-existent, at least as it relates to transgender people. Minor comments were made by Member of the Legislative Assembly (MLA) Gordon Taylor, who suggested Alberta should share the text of the bill with the government of the province of British Columbia as he knew a lawyer there trying to help two people seeking the same amendments (Taylor, 1973a, pp. 3372-3373). Granted royal assent at the end of that same month, Alberta became one of the first

jurisdictions in Canada to recognise that birth certificates may need amendments beyond a legal change of name (Manitoba Law Reform Commission, 1976).

Far more discussion arose from several MLAs around what Bill 65 did not do. The bill did not make provision for obtaining a birth certificate for people experiencing other problems, including those related to inter-jurisdictional matters. For example, MLA Benoit raised concerns regarding name changes for “our foreign adoptees” (Benoit, 1973, p. 3788). MLA Dixon noted that those who cannot easily prove their place of birth are not granted a birth certificate from Alberta Vital Statistics, and to obtain such proof, these constituents were then “told by the departments to ... apply for Canadian citizenship” (p. 3788). MLA Dixon also noted that an Indigenous Albertan “had to apply for Canadian citizenship to try to establish the fact that she was born in Canada” (Dixon, 1973, p. 3788). MLA Drain also enumerated problems Albertans were facing in proving their age and even their existence (Drain, 1973, p. 3789). MLA Taylor warned that if it were too easy to make changes, “the birth certificate would mean nothing” (Taylor, 1973b, p. 3789), but pointed out also that many people are known by first names that do not match what was written on their birth certificate, and thus encouraged the Legislature to make it easier to change legal first names, when “everything else jibes [on the individual’s identification]” (Taylor, 1973b, p. 3789).

This particular debate was in 1973, when the proliferation of computer-based databases was limited to large organisations and governments. Few people beyond science fiction authors were envisioning a future wherein dataveillance-levels of connectivity and storage might be possible. At that time, the idea of social networking was not even a bit in the eye of a byte. Yet even in 1973, the Honourable Minister Crawford could foresee the potential of inter-jurisdictional issues when he mentioned the possibility of “a person showing his sex in more than one jurisdiction--a birth certificate in one jurisdiction, a marriage certificate in another” (Crawford, 1973b, p. 3372). As discussed previously in my analysis, this type of problem with birth certificates has arisen related to both transgender and cisgender people.

I return to the birth certificate and its connection to the ability to assert citizenship rights, if not human rights (Wiesel, 1997). As Spade (2008) and Amnesty International (2014) illustrate so clearly, different jurisdictions each approach the issue of amending identification documents for transgender people in different, oftentimes conflicting ways. This type of conflict also extends to the way laws dealing generally with discrimination have been interpreted. For example, historically, some American states have protected homosexual people from employment discrimination. Yet transgender complainants were not successful in defending their right to retain employment: in states with protection for sexual orientation, transgender people were determined to be excluded from protection because transgender is not the same as sexual orientation. In states without such protection, transgender people were determined to be excluded from protection because transgender is exactly the same as sexual orientation (Currah, 2009). When recognition as a person requires an individual to be defined solely as female or male, and such definitions may depend on widely divergent socio-legal constructs within or even across jurisdictions, an individual is “effectively exclude[d] ... from the category of human as well” (Currah & Minter 2000-2001, p. 42). Or, as summarised by Lloyd (2005), “no matter how a transgender plaintiff articulates his injury, he is likely to encounter a court that draws a line in a way that makes him a stranger to all of the laws that could protect him” (p. 154). Such practises continue even to the present day, as I will discuss later.

The functional dependency of citizenship on identification technology.

The relationship between the technology of state-issued identification artefacts and systems, such as the birth certificate, clearly shows that one cannot be a citizen without being able to provide proofs thereof. Such a condition is intolerable for many reasons, including pragmatic issues of access to resources and services, as well as fundamental issues of citizenship. Grant (1969) describes humankind as “by nature a political animal and to know that citizenship is an impossibility is to be cut off from one of the highest forms of life” (Grant, 1969, p. 77). If one has a right to citizenship (UN

Convention on the Rights of the Child, 1989, Article 7(1)), then bureaucratic processes that prevent one from enjoying such a right cannot be defended by any government. Unsurprisingly, this means that “the demand for identification has become the sovereign demand, even the condition of citizenship” [emphasis original] (Amoore, 2008).

Korzybski’s “fallacy of additivity” (1921, p. 267) describes the tendency for humans to assume that new products arise by adding items together, when instead new products arise from combining elements together. Thus, the early use of birth certificates for purposes such as public health surveillance have combined together into something that operates quite differently in the contemporary environment of the rationalised minutia of the datasets of the state and its ideologies of national security. The birth certificate affords a particular environment that would not exist in its absence. Studying the birth certificate reveals “situations that are still in process, situations that are structuring new perception and shaping new environments, even while they are restructuring old ones” (McLuhan & McLuhan, 1988/2007). Postman (1988/1992) positions technologies as the apparatus of the medium, meaning that we cannot separate technologies such as the birth certificate as merely additive elements in a calculation, but as part of the permutations and combinations comprising, and even creating, the medium.

The many contemporary instances of citizenship compromised or even erased by the birth certificate increasingly reveals itself to those individuals so affected. Like other disruptive technologies, the environment created by the birth certificate results in “the technological environment bec[oming] visible ... because it began to cause problems that could not be ignored” (Nystrom, 1973, p. 110). As transgender people have long experienced, breakdowns between the technology of identification and the person supposedly identified simultaneously result in both the person and the technology becoming highly visible as inadequate or even fraudulent. Accordingly, “the spectrums *in-between* male and female ... remain outside current frameworks of citizenship” [emphasis original] (Hines, 2007, n.p.). Yet as this analysis has shown, increasingly any discrepancy between the person and the identification artefact--that is to say, any instance

of data non-conformance--runs the risk of the person being placed outside the current framework of citizenship. Being placed beyond citizenship also means not being able to be understood as part of a national identity within which an individual can be situated. Those who are not citizens, who are of the 'strangeland' rather than the 'homeland' (Amoore, 2008) may even be identified as dangerous to the national identity. Indeed, Beauchamp (2009), citing Volpp (2002), notes that "American identity and citizenship are in fact constructed against the figure of the terrorist. The terrorist thus *makes possible* the construction of a national identity, providing a contract that the citizen is formed in opposition to" [emphasis original] (p. 364). In our present society, an individual without citizenship is significantly compromised in their ability to access goods and services, not to mention their right to participate in activities such as democratic elections. Accordingly, it must be understood that citizenship itself is a human rights issue (Hines, 2009; Powell, 1980; Wiezel, 1997).

Present day amendment of the Alberta birth certificate.

If the birth certificate artefact is an essential part of confirming and expressing citizenship, then one would expect that laws pertaining to the birth certificate would serve to enable rather than hinder accessibility. Yet in 2016, the Alberta government made amendments regarding updating birth certificate information for transgender Albertans. In an omnibus bill that updated or amended many sections of the province's vital statistics statute, *Bill 29, Vital Statistics and Life Events Modernization Act* (2016) removed a section of the Act retaining wording previously struck down as unconstitutional (C.F. v Alberta, 2014), as well as enshrined existing regulation regarding transgender birth certificate amendments into law.

Announced as a positive step for transgender people (Government of Alberta, 2016; Graney, 2016), the actual text of the bill continues the practise of demanding transgender people provide third-party support to 'prove' their sex. While the list of healthcare professionals allowed to provide such attestation was expanded significantly

from the regulations that previously elaborated upon the Act, the fundamental right for a person to declare their gender identity for themselves (McGill & Kirkup, 2013) was not recognised by this move, a surprising approach given that only a year prior the same government had enumerated “gender identity” and “gender expression” (*Alberta Human Rights Act*, 2000) as protected from discrimination (Government of Alberta, 2015). Given the protection now enumerated with the *Alberta Human Rights Act*, it should be axiomatic that the government does indeed recognise transgender Albertans as humans in law. Yet the requirement for a third-party endorsement of an individual’s attestation of their correct sex continues to support notions that the individual is either incompetent to make such an attestation of their own accord (Romeo, 2005), or engaging in fraudulent activity. Transgender people are frequently constructed as fraudulent in many legal settings (Lloyd, 2005; Spade, 2008; Currah, 2009; McGill & Kirkup, 2013). The disconnect between the enumerated rights of Albertans in provincial human rights legislation versus the unequal practises enshrined in subsequent amendments made to Alberta laws is an excellent example of the ongoing need for Adult Education praxis regarding identification technologies such as the birth certificate.

From Artefacts to Utterfacts

Reflecting on the peculiar problem of databases and their role in establishing or authenticating an individual’s identification, I considered including these under the conceptual classification of an artefact. After all, in addition to the data held within them, databases are constructed using both hardware and software technologies. The software itself may in turn be copyrighted as is done with other types of written artefacts. Some software is even proprietary, meaning corporations are asserting additional intellectual property (IP) rights that may also include specific processes such as algorithms or protocols unique to their software. Any and all of this (hardware, software, processes and protocols) is generally opaque to the individual. Even the clerk interacting with the individual is similarly unaware of the many complexities bound up together in what their

screen displays.

Herein lies a key point, though: the screen is rarely accessible to the individual. An individual has no idea as to what types of data about themselves are contained within any given database. Does it contain only a name, or also last known place of residence? Does it contain parentage or employment history? Does it contain records of prior interactions with this organisation? Whatever the database actually contains is a black box, its full contours unknown to the individual. Information regarding the database is instead mediated by the utterances of the clerk, who may or may not accurately convey such information to the individual. The clerk may misinterpret or infer wholesale from data available, resulting in correct data in the database yet incorrect information shared with the individual. The clerk may make a data entry error that is not recognised at the time of entry and thus the error propagates to future clerks dealing with this individual. The upshot is that regardless of what data might actually be contained within any given database, the individual is captive to the utterances the clerk makes about the data.

Such utterances are ephemeral. They hold no defined shape, nor are they bound to a particular time. Because the computer enhances the speed of information retrieval (McLuhan & McLuhan, 1988/2007), the data contained therein becomes “projections of present as future, of future as present: retrieval of now as alltime” (McLuhan & McLuhan, 1988/2007, p. 188). Any data accessed from a database acquires an immediacy that has no connection with time as experienced by humans. To the database, a traffic ticket from many years’ ago is just as relevant and present as today’s traffic collision.

In keeping with McLuhan’s notion of our technologies being literal utterances of humans, the experience of the database as an artefact may be more rightly understood as an utterfact. The utterfact emerges at the moment of utterance. Whether or not the information disclosed in such an utterance has any factual basis or even represents a correct interpretation of such facts is not able to be determined by the individual. If a clerk were so inclined, they could simply make up information wholesale whilst

interacting with the individual: the individual has no means of knowing whether the information uttered by the clerk is (a) actually present in the database, (b) accurately conveyed by the clerk, and (c) relevant to the situation at hand. The utterfact is a symptom of the fetish-object created by identification artefacts such as the birth certificate, wherein the individual identified actually has little to no voice regarding the veracity or applicability of such identification.

Utterfacts may also emerge from the ongoing accumulation of data over the course of a person's life. Marx (2001) notes that thanks to contemporary data storage technology, "elements of the past that tended to be forgotten are now preserved. For both better and worse elements of the individual's past cease to be past and instead are passed on" (p. 323). He describes "parallel or shadow selves or identities" (p. 324) that emerge from data not under our own control and also potentially data that we are not even aware has been captured in the first place. Amoore (2008) argues that this accumulation is "a projection of a person built from fragments, bits and bytes of data, suspicions and prejudices" (p. 23) which results in individuals having negative experiences about their identity despite their possession of formal identification documents.

The rise of SEO (Search Engine Optimisation) consultants may be a good example of trying to navigate the utterfact in practise: in a world wherein it may be impossible to expunge incorrect or negative data about an organisation or individual, is there a way to make that data seem less relevant to heuristic-based search engines? In this way, organisations or individuals seek to have utterfacts made less available to others searching for information about them. Similarly, the sudden rendering of people from seven nations as ineligible to enter the United States in early 2017 relies on utterfact, constructing 100 per cent of citizens from these places as terrorists, as evidenced by the title, *Protecting the nation from foreign terrorist entry into the United States* (Diamond, 2017). Applying also to people who concurrently held valid American work and study visas, along with people who had lawful permanent resident status, this utterfact not only implicitly fetishises the birth certificate artefact, but also fetishises a single

element depicted on that artefact: the individual's place of birth. As per contemporary international travel documentation standards, anyone travelling on an aircraft across nation-state borders must have an identification document that lists one's place of birth. Beauchamp (2009) notes that "documents always contain traces of the past" (p. 359) which are often troubling for transgender people. In the case of the American utterfact of January 2017 regarding citizens from seven nations, the accident or design a mother's geolocation when giving birth simultaneously confers citizenship connected to that place as well as confers the status of terrorist in the United States. In this utterfact, the identification artefact's listed place of birth becomes a proxy for the word terrorist.

On the surface, the utterfact might be seen as a repudiation of my entire analysis; however, this is not the case. Utterfacts are enhancements of the fetishisation of data. This raises an apparent paradox: the birth certificate artefact is fetishised as sacrosanct, yet I have shared examples where a person's birth certificate is not apparently treated in this manner. Michael Caine could present his travel documents in his correct legal identity of Maurice Micklewhite and simply not be believed: scrutineers *know* he is Michael Caine. Avery Edison's travel documents identify her as female, yet Canada Border Services Agency detained her instead in a male facility (CBC News, 2014b; Keung, 2015b) because the CBSA *know* she is male. Every citizen from any one of the seven countries currently banned from entering the United States is now *known* to be a terrorist. The commonality among these three examples is that the relevant utterfacts are uttered by those in power, preempting anything the individual might have to say about their own identity (Amoore, 2008). A further implication is that because those in power know who you 'really' are, any data-nonconformance between the particular identification artefact held and the individual themselves must be a fraudulent artefact.

The latter two examples result in (at best) detention and barrier to travel; the first results in an opportunity to make changes to align the individual's identity with their identification. I would argue also that changing names (as Maurice Micklewhite did) is something familiar and comfortable to our society. But changing sex (as Avery Edison

did), or being born in a place wherein everyone must be a terrorist (as anyone born in any one of seven nations is now claimed to be) are less familiar and comfortable. The sheer nonsense such utterfacts can engender are clearly seen by the Walmsley case, wherein everyone agrees Walmsley is female and always has been, but some authority wrote ‘boy’ and so ‘boy’ she is, as well as the case of the now-adult Foley-Vavilov boys, who had no reason to question their parents’ claimed place of birth, which now places their own Canadian citizenship into jeopardy. And worse yet, this type of data is being routinely shared among different jurisdictions with wildly variant approaches to dealing with identification data (Spade, 2008; Currah, 2009; Amnesty International, 2014). Likewise, assumptions of inherent fraudulence are not entirely novel. As early as 1551, authorities in what is now Germany would “confiscate and destroy any identity papers tendered to [the Roma], on the grounds that they were bound to be forgeries: people of illegitimate status could not, by definition, be in possession of legitimate documents” (Groebner, 2001, p. 19). Claims against these people more than 500 years ago are every bit as utterfactual as labelling all people of one origin ‘terrorist’.

These are subtle dangers. Anyone can utter anything, but those with the power to bind utterfacts into the database are by definition not the individual. I argue that this is a fundamental shift in our society: at the end of the day, only those in authority (the nation-state, the insurer, the employer, etc.) have the ability to engender artefacts and utterfacts. The individual’s identity is left entirely to the whim of others. What, if anything, can be done about this?

Adult Education and Identification Practises

As Grant (1953) states, adult education is “for no limited social ends, but for the highest end, the self-liberation of the human soul by the systematic examination of its own activities” (Grant, 1953, cited by Selman, 2001, p. 52). The development, deployment and effects of identification systems and their artefacts such as the birth certificate are a rich site for the systematic examination of human activities. Identification

artefacts per se have not been addressed historically in Canadian adult education literature. Literature focusing on transgender issues often makes mention of difficulties obtaining government-issued identification artefacts (Couch, Pitts, Croy, Mulcare, & Mitchell, 2008; Beauchamp, 2009; Mandlis, 2011) but tends to focus on the difficulties of the experience or the structural issues that prevent transgender people from obtaining such artefacts rather than troubling the existence of the artefacts themselves. Spade (2008) and Appell (2014) are two notable exceptions, though both of these analyses are through a legal rather than technological framework. The broader security and identification literature, as well as more commonplace non-academic sources such as mainstream media, reveal that identification technologies present a great deal to be concerned about regardless of whether an individual is transgender or cisgender.

In Canada, the vibrant history of the adult education movement has the potential to inform and transform contemporary issues of citizenship and technology, including technologies of identification. In keeping with the disparate geographical and cultural regions contained within Canada, adult education's relational praxis--that of relating "itself to the interests of others" (Selman, Selman, Cooke & Dampier, 1997, p. 33)--remains foundational to addressing such issues. Particularly in light of policy trends towards framing and viewing issues through an economic lense, it is essential to recognise that neither human capital nor the knowledge economy (Bouchard, 2006) can be served by de-legitimising the humanity in human capital, nor disregarding the knowledge of such humans. Indeed, as Freire (1970/2005) notes, "Human existence cannot be silent, nor can it be nourished by false words, but only by true words, with which men and women transform the world. To exist, humanly, is to *name* the world, to change it" (p. 88). As a fetish object, an identification technology such as the birth certificate silences and starves the true words of the individual.

Transgender people and others facing troubled citizenship due to their identification documents raises opportunities for adult education praxis, "a focus on those acts when, regardless of status and substance, subjects constitute themselves as

citizens or, better still, as those to whom the right to have rights is due” (Isin & Nielsen, 2008, p. 2). Learning about particular issues is one of three categories of adult education and citizenship: “education about how the political system works and how it can be influenced,” (Selman, 1991, p. 14) as well as becoming willing to participate in this system, are also important (Selman, 1991). Historically, transgender people in Canada (McGill & Kirkup, 2013), the UK (Whittle & Turner, 2007), the USA (Spade, 2008; Currah, 2009) and Australia (Aizura, 2006) have accessed full citizenship rights in law by conforming tightly to one of two privileged identity classifications, male or female. Unfortunately, the inter-jurisdictional nature of contemporary work and leisure needs mean that the “incoherence” (Aizura, 2006, p. 303; Spade, 2008, p. 749) of disparate laws, regulations, policies and practises place transgender people in constant conflict (Currah, 2009) with the securitised environment afforded by the birth certificate.

Yet as stories such as that of Sir Michael Caine illustrate, troubled citizenship is not solely the purview of marginalised transgender people: even the privileged can now run afoul of official identification practises. Indeed, Appell (2014) underscores the importance of public policy “in light of [the] merging of vital statistics and identity” (p. 396). Such problems increasingly point towards the need for people to engage in critical acts of citizenship, “acts that transform forms (orientations, strategies, technologies) and modes (citizens, strangers, outsiders, aliens) of being political by bringing into being new actors as activist citizens (claimants of rights and responsibilities) through creating new sites and scales of struggle” (Isin, 2008, p. 39). The events of early 2017 in America and abroad confirm the ongoing need for people to engage in ongoing acts of citizenship for all: anyone at any time can be rendered vulnerable to a suspension of or outright exclusion from civil and human rights on the basis of a priori decisions related to one’s state-issued identification artefacts and related identification systems. Public demonstrations on this point are a good example of Clarke’s (1994) assertion that “intrinsic [dataveillance] controls are inadequate, [thus] extrinsic measures are vital” (p. 127). Public engagement with policy and law are important elements in maintaining

extrinsic dataveillance controls.

Recommendations

As shown in this analysis, the birth certificate is an artefact deeply embedded within larger systems of identification maintained by nation-states. These artefacts and their systems are also increasingly shared across jurisdictions, including interprovincial and international borders. Accordingly, the goal to develop interoperable identification artefacts makes sense from a bureaucratic perspective, even if such a goal makes less sense for the individual. After all, while identification systems regulate movement across jurisdictions and movements, the identification artefact regulates identification itself (Lyon & Bennett, 2008).

Yet while the state may desire interoperability to better support broad policy initiatives such as supporting strong international trade, real risks also arise from seeking such technological compatibility and sharing the data stored within such technology. Ultimately, our concerns should be centred on the Reverse shown by the Tetrad for birth certificates. When the identification document is treated as sacrosanct, then no human is capable of challenging errors in the document. The problem that emerges thereafter is that seeking compatibility among jurisdictions with fundamentally different conceptions of personhood, human rights and civil rights also results in a pragmatic need to follow the lesser common policy of any two jurisdictions. For example, if a nation-state obligates all males to enter military service, it will require identification artefacts and their systems to maintain data as to who is male and who is not. Likewise, if a nation-state obligates every person ever born in a particular jurisdiction to be treated as though they are terrorists, it will require identification artefacts and companion technological systems to maintain data as to who was born where. A contemporary real-life example of the extension of the lesser common policy of any two jurisdictions is found in *Bill C-23, An Act respecting the preclearance of persons and goods in Canada and the United States* (2016), which would substantially expand the powers of American border agents physically located within

airports on Canadian soil. In addition to provisions that trouble Canadian sovereignty, passage of this bill would include the ability for American border agents to deny individuals with Canadian permanent residence status to return to Canada, effectively overriding Canada's own determination of such individuals' legal status within its own borders (Dyer, 2017). Accordingly, international concerns become deeply personal concerns, as foundation documents such as the birth certificate are used as an instrument to enforce such cross-jurisdictional obligations.

But solutions to problems emerging from technology are not always addressed through technology. Identification artefacts such as the birth certificate are not going to go away. This analysis points to the need for individuals to develop critical competencies regarding their own identity and any attendant identification artefacts. We need to question the things we take for granted in our institutions and society: what biases have we allowed to become hard-wired into our bureaucracy? Who do these biases serve? Who do they harm? Are there alternative means to achieve the stated purposes of identification artefacts? Are such artefacts actually functioning as labelled, for example, is the birth certificate more accurately conceptualised as a citizenship certificate?

As a long-time advocate for transgender civil and human rights, I suggest that many of these questions have been wrestled with by people within our communities for many years, with some successes and failures. I note also that it is easy to become overwhelmed by issues that are enormous and widespread, such as those raised by the practises bound up with identification artefacts. Yet the personal nature of identity means that identification of a person is an issue that effects all persons. The UN *Convention on the Rights of the Child* affirms every child's right to "be registered immediately after birth and shall have the right from birth to a name, the right to acquire a nationality ..." (UN, 1989, Article 7). Accordingly, the potential personal challenges arising from the technology of the birth certificate artefact begin literally at the time of a child's birth.

As a public health measure, birth certificates appear to have served populations well (Brumberg, Dozor, & Golombek, 2012), but as the foundation for securitised,

inter-jurisdictional identification artefacts, they appear to be increasingly inadequate. I would argue this inadequacy does not arise from the limited amount of data on such artefacts, but from too much. If an individual is eligible to obtain a Canadian passport, what possible ends does it serve for a different legal jurisdiction to know in which community and nation that individual was born? As in the example set by the American policy decision of early 2017, something as happenstance as simply being born can easily become criminalised. Indeed, these actions have clearly exemplified the dangers of allowing technology to be seen as neutral (Heidegger, 1977). Now more than ever, we need to re-think the relationship between individual and state, and the rights inherent to an individual to be identified, recognised, and respected on their own terms and how this relationship is mediated and shaped by our everyday technologies.

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Appendices

Appendix A: Brief History of the Vital Statistics Department in Alberta

In Alberta, “the [provincial] Government keeps a record of all registered births that take place in Alberta and can only issue documents for these births” (Service Alberta, *Birth Certificates & Documents: How it Works*, 2017). Since Alberta’s establishment as a province in 1905, maintaining the province’s vital statistics has been the responsibility of a number of different departments or even ministries. According to the Provincial Archives of Alberta’s (2005) *An Administrative History of the Government of Alberta, 1905-2005*, vital statistics has been the responsibility of:

1905 - 1919	Department of Municipal Affairs, Public Health Branch
1919 - 1971	Department of Public Health, Vital Statistics Branch
1971 - 1975	Department of Health and Social Development
1975 - 1986	Department of Social Services and Community Health
1988 - 1994	Department of Public Health, Vital Statistics Branch
1999 - to present	Department of Alberta Government Services (commonly known as Service Alberta)

Appendix B: Partial Timeline of Developments in the Alberta Birth Certificate

During my research journey, many mentions of specific identification practises and innovations were made. However, none of these were collated into a coherent timeline of identification practises in western nations. The following selections include innovations and practises from the United Kingdom and Canada, leading up to the modern Alberta birth certificate, arranged in order from oldest to newest.

1200s Europe -- single names

Last names rare, and if used were temporary, only related to occupation or characteristic. Such names did not outlast the lifespan of the individual (Spade, 2008).

1538 England -- Parish Registers

Lord Thomas Cromwell orders all parishes to create and maintain registers of births, marriages, and deaths, including the date and name of each (Coster, 1997; Etchells, 2005; Appell, 2014; Scott, 1990).

1662 England -- Natural and Political Observations on the Bills of Mortality

John Graunt collects mortality information for London, publishing it together in a tabular format, complete with detailed statistical analysis. Graunt's analysis shows quantifiable patterns in life events, rather than Fate (Bayatrizi, 2009).

1700s Europe -- surveillance systems

Life (rather than 'Fate') becomes generally understood as the foundation of social and political order: life becomes quantified through 'objective', 'rational' statistics (Bayatrizi, 2009). European nations establish bureaucratic systems to administer and govern their territories, including surveillance over populations through censuses and other practises (Scott, 1990).

1836 England -- Births and Deaths Registration Act

A cholera epidemic that swept England and Wales results in changes to vital record maintenance, including establishing a single office in charge of such records (Brumberg, Dozor & Golombek, 2012; Emery, 1983)

1838 England -- Public Records Office

England establishes a centralised Public Records Office that archives all government documents, including maintaining birth records (Scott, 1990).

- 1852 England -- Greenwich Mean Time (GMT) displayed**
The beginning of standardised, universal timekeeping begins with displaying Greenwich Mean Time on the Royal Observatory "Gate Clock" (Higgitt, 2016).
- 1867 United Kingdom -- British North America Act**
The United Kingdom Parliament establishes the Dominion of Canada. (Parliament of the United Kingdom, 1867).
- 1871 United Kingdom -- British North America Act [Enactment 5]**
The United Kingdom Parliament affirms the right for the Parliament of Canada to establish provinces or territories as part of the Dominion of Canada. These provinces and territories then have the right to make certain laws pertaining to their respective jurisdictions (Parliament of the United Kingdom, 1871).
- 1880 England -- Greenwich Mean Time (GMT) adopted as standard time**
The British government adopts GMT as its standardised, universal time (Higgitt, 2016).
- 1884 International -- Universal Longitude and Universal Day established**
To assist with navigation and other matters, the International Meridian Conference discusses and establishes both a time and longitude reference for the world. The Prime Meridian was decided to be through the Royal Observatory in Greenwich, England (Higgitt, 2016). A universal beginning of the day was also established as beginning at mean midnight at the Prime Meridian, with the hours of the civil day counting from 0 to 24. Some discussion regarding the possibility of implementing metric as a universal system of measurement was not adopted (International Meridian Conference, 1884).
- 1875 Dominion of Canada -- North-West Territories Act**
The North-West Territories is formally established, comprised of a vast territory formerly held by the Hudson's Bay Company, known as Prince Rupert's Land. (Parliament of Canada, 1875)
- 1888 North-West Territories -- An Ordinance Respecting the Registration of Births, Marriages and Deaths**
The first system of birth registration begins in the administrative district of Alberta, part of the North-West Territories [sic]. This system involved district registrars maintaining registries in their respective districts (Stotyn, 1995, citing NWT Gazette, No. 6, May 1889).
- 1897 North-West Territories -- Vital Statistics Ordinance**
The second system of birth registration begins in the administrative district of Alberta, part of the North-West Territories [sic]. This system involved a central registry contributed to by regional registrars (Legislature of North-West Territories, 1897; Stotyn, 1995).

- 1905 Alberta -- Alberta Act**
Alberta becomes a freestanding province and no longer an administrative district of the Northwest Territories (Parliament of Canada, 1905).
- 1917 Canada -- requests for delayed birth registrations**
Between 1917 and the 1940s, historical events such as eligibility to join the military, the introduction of driver's licenses, the repeal of prohibition, changes to documents required to immigrate into the United States and any other statutory changes that exclude minors result in increased numbers of delayed-birth registrations (Emery, 1990).
- 1919 Canada -- compilation of vital statistics**
The first compilation of Canadian vital statistics is published, including births and infant mortality. Alberta vital statistics data is included in this compilation (Kaler, 2013).
- 1921 Canada -- First annual vital statistics (births) report compiled**
Eight provinces, including Alberta, join a cooperative Canadian vital statistics reporting system. The first annual report from this is issued in 1921 (Statistics Canada, 2016).
- 1945 Canada -- Vital Statistics Council**
Vital Statistics Council of Canada is established, comprised of vital statistics heads from all provinces and territories and the Health Statistics Branch of Statistics Canada. The Council helps develop common practises and models for collecting and reporting on vital statistics, including developing standardised birth certificate formats (Wiesel, 1997).
- 1949 Canada -- First computer**
University of Toronto team begins building Canada's first computer, the University of Toronto Electronic Computer (UTEC) Mark 1 (Bateman, 2016).
- 1951 Canada -- Old Age Assistance Act**
Canadian government passes the Old Age Assistance Act, providing assistance for people aged sixty-five or over. Age-based statutory requirements often require proof of age through a birth certificate (Emery, 1990).
- 1957 Canada -- First programmable computer**
University of Toronto has the Canada's only programmable computer, the FERUT. In early 1957, the University of Alberta's Department of Physics successfully used a teletype machine and telegraph connection to transmit programs to the FERUT (Smillie, 2003).
- 1957 Alberta -- First programmable computer**
In late 1957, the University of Alberta purchases its first computer, an LGP-

30. Within one year, the computer is being used by people from many different departments; within three years, the computer is in use 24/7 (Smillie, 2003). By 1961, the University acquires a second computer, an IBM 1620 (Smillie, 1990).

1960s North America -- Computerisation

Encoding names and numbers to identify individuals is carried over into bureaucratic computerisation from the 1960s onward (Lyon, 2001).

1960s Canada -- Computerisation at Statistics Canada

Statistics Canada acquires its first computer. Shipped in many parts, the first part arrives in July, 1960 (Statistics Canada, 2015) and is used to process the 1961 federal census. Within two years, Statistics Canada has two computers, and by 1963, three computers (Statistics Canada, 2013).

1962 Alberta -- Computerisation at Provincial Auditor

The government of Alberta acquires its first computer, legislated to be under the authority of the audit office and initially used for cheque processing. This centralised data processing centre handled data for all Alberta government departments (Provincial Archives of Alberta, 2005).

1965 Canada -- Canada Pension Plan Act

Canadian government passes the Canada Pension Plan Act, to provide pension for retired workers after age sixty-five. Age-based statutory requirements often require proof of age through a birth certificate (Emery, 1990).

1973 Alberta -- Bill 65 (Vital Statistics Amendment Act)

Alberta amends its Vital Statistics Act to allow transgender people to amend their sex on their birth certificate. The same bill also allows people to request vital records of ancestors for the purposes of genealogical research (Legislature of Alberta, 1973). [Note: The United States did not put forward a model vital statistics act recommending provisions for amending gender until 1977 (Spade, 2008).]

1977 Alberta -- in-department access to computer technology for vital statistics

The Department of Social Services and Community Health, then responsible for Alberta vital statistics, gains access to in-house computer records management (Alberta Social Services and Community Health, 1978). Two years later, the Department develops a computerised index for information retrieval (Alberta Social Services and Community Health, 1980).

1980s Alberta --paper birth certificates

In the early 1980s, Alberta designs its final paper substrate birth certificate. This paper certificate has nine security features to discourage fraud (CBC News, 2007).

- 1990 International -- Convention on the Rights of the Child**
United Nations treaty affirming children have a right to an identity comes into force. (United Nations, 1989).
- 1993 Alberta -- privatisation of registry services**
The Government of Alberta privatises some services previously performed by government officials. While vital statistics are still managed by a government department and/or ministry, Albertans requiring copies of vital documents such as birth certificates must now approach a privatised registry agent on a fee-for-service basis (Rusnell, 2006).
- 2008 Alberta --polymer birth certificates**
Alberta begins issuing birth certificates manufactured on a polymer substrate that includes 24 security features to discourage fraud and identity theft, some of which are already found on Alberta driver's licenses and Canadian passports. (CBC News, 2007).
- 2014 Alberta -- C.F. v. Alberta (Vital Statistics)**
An Alberta woman identified as "C.F." has a portion of the Alberta Vital Statistics Act struck down as unconstitutional under the equality provisions of the federal Charter of Rights and Freedoms (s. 15, 1982) (Alberta Court of Queen's Bench, 2014).
- 2014 Alberta -- Bill 12 (Statutes Amendment Act)**
Alberta amends multiple statutes, including the Vital Statistics Act. The section declared unconstitutional by the Alberta Court of Queen's Bench (C.F. v. Alberta, 2014) is left intact (s. 30(1)), but an additional subsection (1.1) is added, referring to alternate regulations that may be followed (Legislature of Alberta, 2014).
- 2015 Alberta -- Vital Statistics Information Regulation**
Alberta amends the Vital Statistics Information Regulation in accordance with section 30(1), subsection (1.1) of the Vital Statistics Act, amended the previous year. Transgender people may now have their birth certificates and other Alberta government-issued identification documents amended through presenting a personal affidavit and a letter from an approved physician (Service Alberta, 2015).
- 2016 Alberta -- Bill 29 (Vital Statistics and Life Events Modernization Act)**
Alberta amends its Vital Statistics Act to comply with C.F. v. Alberta (2014) decision. Alberta also enshrines in law a prior regulatory requirement for transgender people to have third-party verification of their gender (Legislature of Alberta, 2016).

Appendix C: Permissions

A copy of my permissions request regarding Alberta vital statistics images [image reduced to fit].



Jan Buterman <buterman@ualberta.ca>

permissions sought for inclusion in Master's thesis

Jan Buterman <buterman@ualberta.ca>

Fri, Feb 17, 2017 at 11:47 AM

To: Jan Buterman <buterman@ualberta.ca>, "vsregistries@gov.ab.ca" <vsregistries@gov.ab.ca>

To Whom it May Concern:

I called Vital Statistics today (February 17, 2017) requesting permissions for using some material in my Master's thesis. They asked me to submit my request in writing.

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3 -- <http://www.servicealberta.gov.ab.ca/pdf/vs/BirthCertificateSampleParentParent.pdf>

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Should you have any further questions, please do not hesitate to contact me.

Your assistance is greatly appreciated.

Regards,

Jan Lukas Buterman

Master's student, Department of Educational Policy Studies

Faculty of Education

University of Alberta

A copy of the permissions granted to my request regarding Alberta vital statistics images [image reduced to fit].



Jan Buterman <buterman@ualberta.ca>

permissions sought for inclusion in Master's thesis

Eileen Joly <eileen.joly@gov.ab.ca>
To: "buterman@ualberta.ca" <buterman@ualberta.ca>

Thu, Feb 23, 2017 at 9:29 AM

Good Morning Jan,

My apologies for the late response to your email. No issues with copying and incorporating the sample birth certificate images you referenced providing the source of the images is referenced.

I wish you the best of luck with your thesis and please let us know if there is any additional assistance we can provide.

Thank you,

Eileen Joly
Director
Vital Statistics
[780-717-9529](tel:780-717-9529)

From: Jan Buterman [<mailto:buterman@ualberta.ca>]
Sent: Friday, February 17, 2017 11:47 AM
To: Jan Buterman; GOVSVC VS Registries
Subject: permissions sought for inclusion in Master's thesis

[Quoted text hidden]

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