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## A short history of national identification numbering in Iceland

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**Abstract:** Iceland created national identification numbers in the early 1950s as part of the process of automating civil registration. Numbers were based on a person's birthdate. In 1959, an additional "name number" for each person was created, based on the position of the person's name in alphabetical order. After Iceland began to issue personal identity cards showing the name number in 1965, the practice of using the name number as a unique personal identifier slowly penetrated through all of society. By the 1980s, the name number space became exhausted, and in 1987-1988 the name number was replaced by the birthdate-based number, rechristened the "kennitala." Compared to other countries, the kennitala is very widely used, and its status approaches that of an alternative name. As well, the databases that allow conversion between a given person's name and kennitala are publicly accessible. Some individuals and data protection organizations have expressed concerns about the wide use of identification numbers in Iceland, as well as the transparent use of the birthdate in the kennitala. However, others have successfully argued against any major changes, and the system seems to enjoy general acceptance. The Icelandic numbering system is unusual by international standards and the article attempts to bring its history to a larger audience.

**Keywords:** kennitala, nafnnúmer, national identification number, Iceland

**Ágrip:** Persónuauðkennisnúmer voru búin til í íslenskri stjórnsýslu snemma á sjötta áratug 20. aldar þegar almannaskráning var færð yfir á tölvuspjöld. Númerin byggðust á fæðingardegi hvers einstaklings. Nafnnúmerið svokallaða bættist við árið 1959 og byggðist á hvar nafnið stóð í stafrófsröð. Eftir útgáfu nafnskírteina með nafnnúmeri árið 1965 varð notkun nafnnúmera smám saman algengari í daglegu lífi. Rýmið í nafnnúmerakerfinu fylltist á níunda áratugnum og á árunum 1987-88 var nafnnúmerinu skipt út fyrir gamla númerið, sem var endurskírt sem „kennitala.“ Miðað við önnur lönd er kennitalan mikið notuð á Íslandi og staða hennar jafngildir næstum því nafni. Í gagnagrunnum, sem opnir eru almenningi, má gefa upp kennitölu og finna nafn viðkomanda (og öfugt). Stofnanir, samtök og einstaklingar, sem láta sig persónuvernd varða, hafa lýst yfir áhyggjum af breiðri notkun auðkennisnúmera á Íslandi, en einnig af því að kennitalan inniheldur fæðingardaginn. Aðrir hafa hins vegar mælt á móti stórum breytingum á kerfinu og það virðist vera almennur stuðningur við það. Í alþjóðlegu samhengi er íslenska persónuauðkenniskerfið óvenjulegt og markmið greinarrinnar er að veita fleirum upplýsingar um sögu þess.

**Lykilorð:** kennitala, nafnnúmer, auðkennisnúmer, Ísland

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## 1. Introduction

Each resident of Iceland is identified with a ten-digit number, called the *kennitala* in Icelandic. This paper is an effort at charting the history of the *kennitala* and other national identification numbers in Iceland, and reviewing the main controversies that have surrounded them. The history of personal numbers in Iceland is particularly interesting because they are especially widely used, perhaps more widely than in any other country in the world. As well, they are open: a publicly accessible database allows one to convert between anyone's name and *kennitala*, something which would be unthinkable in countries like the United States or Britain.

The design of personal numbering systems is a matter in which societies have a considerable amount of choice. At a time when the future of civil registration, identity cards, and personal numbering is extremely controversial in the Anglo-Saxon world,<sup>1</sup> it is instructive to see how Iceland's approach has worked.

Scholars of identification have tended to pay more attention to physical rather than semantic tokens of identity, preferring to study passports and identity cards rather than national identification numbers. The most accessible authoritative sources of information on identification numbers tend to be on the websites of national civil registration administrations.<sup>2</sup> There are a few exceptions, such as the short section on the history of French identification numbers in Pierre Piazza's book on the history of identity cards in France.<sup>3</sup> A few other scholars have written about the role of identity numbers in privacy, security, or taxation and these scholars' principal interest is usually in those allied fields.<sup>4</sup>

The author's background is different: he has spent considerable time studying the design of numbering systems in general, and the issues of semantic reference, standardization, and social convention that surround them. He is the author of a monograph which examines many numbering and labeling systems that are important to entire societies in the same way as national identification numbers are important to Iceland.<sup>5</sup>

This article provides a basic overview of the history and status of Icelandic personal identification numbering. Iceland is an island nation with a little over 300,000 residents. Some will find it tempting to dismiss the Icelandic case as anomalous, and insignificant for other countries because of the difference in scale. However, the au-

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1 Proposals for a national identity card in Britain, for standardized driver's licenses in the United States, for a so-called Australia Card, and for a national identification number system in India have been among major recent matters of debate.

2 For example, "The personal identification number," section 4.2 in "The civil registration system in Denmark" (2001; available on the website of Det Centrale Personregister: <http://www.cpr.dk>).

3 Pierre Piazza, *Histoire de la carte nationale d'identité* (Paris: Odile Jacob, 2004).

4 For example, Paula N. Singer and Linda Dodd-Major, "Identification numbers and U.S. government compliance initiatives," *Tax Notes* 104, 13 (20 September 2004).

5 Ian Watson, "Cognitive design: creating the sets of categories and labels that structure our shared experience," Ph.D. dissertation, Rutgers University, 2005.

thor sees no *a priori* reason not to consider what the history of Icelandic identification numbering might offer to those involved in numbering policy in larger societies.

Before proceeding, it is important to mention three things this article does not do. First, it does not answer the question of how the development of the Icelandic number system compares and relates to the history of the analogous systems in the other Nordic countries. Secondly, the records of Hagstofa Íslands (Iceland's statistical service), which are held in Iceland's national archives, were not examined in preparing this article. Finally, it does not offer a detailed engagement with the critique of identification systems as state surveillance by scholars such as David Lyon.<sup>6</sup> These three projects are worthy, but would require time and money and would lengthen an already long paper. There are indications that the Hagstofa archives do not include rich detail on the history of identification numbering.

## 2. The National Register is created

The current Icelandic national identification number system started life as a byproduct of the creation of Iceland's National Register (Ic. *Þjóðskrá*)<sup>7</sup> on 1 July 1952.<sup>8</sup> The register was, and is, a list of all Icelandic residents, including their name, birthdate, address, various personal details, and links to spouses and children. The creation of the register served three goals: more effective civil registration, a reliable database for public services, and efficient statistical collection for the Icelandic government.

The first goal in creating the register was to bring civil registration under the control of a single office. Previously, each district was supposed to keep its own register of inhabitants and update it each year. But

before the National Registry took over civil registration [...] there was no certainty that those who disappeared from the register of one district were added to the register of another, and a considerable number of people wound up not paying their taxes for this reason. Similarly, it was common for people to be considered residents of two districts at the same time.<sup>9</sup>

6 Lyon's most recent work in this vein is *Identifying citizens: ID cards as surveillance* (Cambridge: Polity, 2009).

7 In this article, the Icelandic word *Þjóðskrá* has been translated in two different ways: as "National Register" when it refers to the official list of Icelandic residents, and as "National Registry" when it refers to the institution responsible for keeping that list. The word *Hagstofa* (the name of the cabinet-level institution responsible for statistical research in Iceland, of which the National Registry was originally a part) has had several official translations through the years; here, to reflect the institution's continuity, it has not been translated. *Nafnúmer* has been translated as "name number," but the word *kennitala* (pl. *kennitölur*) has been left untranslated.

8 On the early history of the National Register, see Klemens Tryggvason, "Hagstofa 1951-1964," *Hagtiðindi* 49 (1964): 44-57.

9 Klemens Tryggvason, "Hagstofa 1951-1964," *Hagtiðindi* 49 (1964): 52. "Áður en þjóðskráin tók við almannaskráningu [...] það var undir hælinn lagt, hvort þeir, sem hurfu af skrá eins sveitarfélags, voru teknir á skrá annars sveitarfélags, og kvað talsvert að því að menn slyppu við að greiða opinber gjöld af þeim sökum. Á hliðstæðan hátt var algengt, að menn væru taldir heimilsfastir í

Besides the tax authorities, the country's health authorities, social security system, public health and tuberculosis researchers, and electrical power authorities and election boards also needed authoritative lists of inhabitants and a way to use them in record-keeping and billing.<sup>10</sup>

As well, a key aim of centralized record-keeping was to make it easy to produce statistical data on Icelandic society. The feeling in Iceland, as elsewhere, was that it might be easier to generate needed statistical data from a national registry than from censuses or random surveys.<sup>11</sup> Indeed, the National Registry was established as a part of Hagstofa, Iceland's government statistical service, and it remained so until 1 July 2006 when it was transferred to the Ministry of Justice by law 51/2006.

The crucial elements of the system were that birth, marriage, and death certificates would be submitted to the National Registry, a note of each person's district residence would be made, and Icelanders would be required to notify the Registry when changing their residence.

The National Register was, physically speaking, a punch-card index, where one punch card represented each person (Image 1). An important factor in the development of the Register was the availability and increasing sophistication of punch-card processing machinery. The technical foundation of the Register was a new type of punch-card machine which could generate alphabetic output used for billing. The machines were used jointly by the Reykjavík power authority and Hagstofa. A joint organization was formed to manage them on 28 August 1952, called *Skýrsluvélar ríkisins og Reykjavíkur-borgar*, or *Skýrr* for short. (The full name translates literally as "State and Reykjavík City Computing Machines.")<sup>12</sup>

On 10 September 1952 a law (#58/1952) was passed allowing a special census to be taken on 16 October and used as the basis for creating the Register.<sup>13</sup> The process took over a year. The first printed registers of inhabitants (Ic. *íbúaskrá*), listing residents as of 1 December 1953, were apparently sent to each district government in Iceland in January 1954.<sup>14</sup> The only copies of these registers that the author has seen

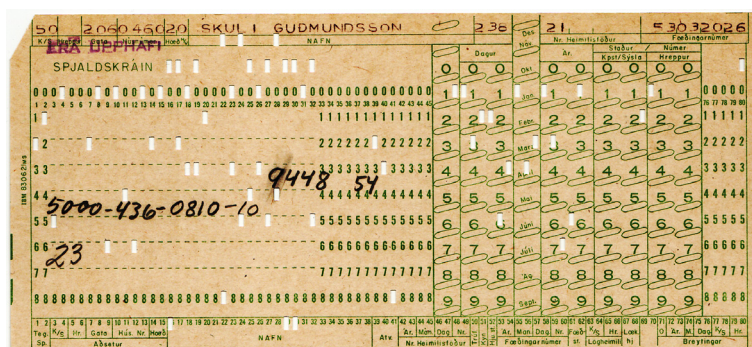


Image 1: Punch card for Skúli Guðmundsson, born 20 March 1953.

tveimur sveitarfélögum samtímis.”

10 Klemens Tryggvason, “Hagstofa 1951-1964,” pp. 52-53.

11 Hallgrímur Snorrason interview, 5 February 2008.

12 Klemens Tryggvason, “Hagstofa 1951-1964,” p. 53; Óttar Kjartansson, *Upplýsingaiðnaður í hálfa öld: saga Skýrr 1952-2002* (Reykjavík: Skýrr hf., 2002), pp. 26-39.

13 Klemens Tryggvason, “Hagstofa 1951-1964,” pp. 52-53.

14 “Vélsþjaldaskrá yfir alla Íslendinga að verða fullgerð,” *Morgunblaðið*, 17 October 1953, p. 1.

are held by the National Registry (Image 2). In subsequent years, these registers were updated using the reference date of 1 December, and then the data for Reykjavík at least was printed, bound, and sold to the general public at some point during the new year.<sup>15</sup>

Creating the Registry and keeping it up to date required co-operation from all of Iceland's residents, and this was, not surprisingly, not easily accomplished. In November 1954, shortly before the reference date of the second annual edition of the printed registers of inhabitants, forms were sent to each house in Reykjavík asking for updated information on changes of residence since the initial reference date of 1 December 1953.<sup>16</sup> Enforcement was needed to get people to comply. A year later, an article mentioned that 800 people had been fined in Reykjavík alone for not reporting their residence.<sup>17</sup>

HAFNARFJÖRÐUR		1. 12. 1953	1000
9	I NACRUS MAGNUSSON	19 180826 13	1 10
009	I KRISTRÚJÓRN JÓNSSON	11 111226 17	1 10
9	I GYLFI GUDJONSSON	11 020544 13	1 10 3612
9	I ELISA RÚNSSDÓTTIR	29 180389 43	1 10 3007
004	I EIRIKUR AGÚSTSSON	13 190621 43	1 10
004	Z GUDLAUG GUDMUNDSD	23 071119 47	1 10
004	3 STEINUNN EIRIKSDÓTTIR	21 281148 41	1 10
009	I GUDJON AANES	15 240730 21	1 10
009	I JONNA HERMANSDÓTTIR	21 210137 36	1 10
009	I BIRNA RÚNSSDÓTTIR	21 100538 17	1 10
BRANDSBER		001 0300	
101	I ÞORSTEINN GÍSLASON	13 040499 50	1 10
101	Z GUNÐRÚNN VÍGLUNUSD	23 060109 47	1 10
201	I ÞÓRVARINN STEINÞÓRSSON	13 110312 50	1 10
201	Z HALLDÓRA HINRIKSD	23 130817 46	1 10
201	3 ÞÓRBJÖRG ÞÓRARINSD	21 240545 50	1 10
BRUSASTADIR		001 0600	
101	I ÞÓRÞÓR EYJÓLFSSON	13 060598 50	1 10
101	Z SÁLME SÁLMUNDSDÓTTIR	23 280599 35	1 10
101	3 SIGRÍÐUR ÞÓRDARD	21 061242 50	1 10

Image 2: Íbúaskrá for Hafnarfjörður as of 1 December 1953. Held by the National Registry.

### 3. Personal numbering in the new system

Saying that Iceland's national identification number was a "byproduct" of the creation of the National Register reflects that there is no evidence to suggest that identifying people by number in everyday life in Iceland, as is now common, was part of the expressed intent of the system at its beginning. The rationale for the registry was to assist with civil registration, billing, taxation, and statistical reports. Indeed, the creation of a national registry does not necessarily entail the creation of a numbering system for individuals.<sup>18</sup> However, not surprisingly, the designers of the system did create a unique, formal identifier which allowed unambiguous reference to a particular individual. It seems that they did so deliberately and with some consideration — although not with the intent that people would have to use the identifier in their daily life. As we will see below, the idea that people should know and use their number every day did not really occur to the system's overseers until the 1960s.

15 See, for example, "Íbúaskrá Reykjavíkur er komin út," *Morgunblaðið*, 17 July 1956, p. 11.

16 "Sérstakar ráðstafanir vegna niðurfellingar manntals hér," *Morgunblaðið*, 2 November 1954, p. 1.

17 "Manntal fellur niður í Reykjavík," *Morgunblaðið*, 2 November 1955, p. 6.

18 One can imagine creating, maintaining, and making use of a punch card deck representing all Icelandic residents without creating a numerical identifier for each person. Examining enough attributes of an individual person, such as their address, birthdate, or any other information listed in the registry entry, should in theory be enough to ensure accurate reference to a given individual record.

Creating a personal identifier is a nontrivial semantic design task. A person's name is not sufficient as a unique identifier, because many people have the same name. Name and address combined is an impractical solution, because addresses change when people move, and there are sometimes two people by the same name at the same address. A name, plus a number further identifying the individual among all the holders of that name (e.g. Jón Jónsson 1) would run into the problem that identifiers would be of widely varying length, and people who change their names would be stuck with an identifier based on a name they did not bear.

Icelandic law is strongly influenced by Danish law, but Denmark's national identification number was not introduced until 1968 and civil registration in Denmark has developed differently than in Iceland.<sup>19</sup> It is more reasonable to hypothesize that Iceland was influenced by Sweden in establishing its numbering system. The laws creating Sweden's *personnummer* were passed in June 1946.<sup>20</sup> The Icelandic system resembles it in many, though not all aspects.

The approach used in Iceland was to form an identifier from an individual's birthdate plus a number further identifying the individual within the group of all people born on that day. Birthdates do not change over the life course. The number of births per day is the main uncertainty in this system, but its range in a given population can be predicted with considerable confidence. Iceland averaged about 4400 births per year from 1951 to 2000. Two digits easily sufficed to give every person born on a given day a unique identifier, and that is the length of the number that the National Registry assigned to everyone in its card index.

This two-digit number does not appear in the first register of inhabitants (for 1 December 1953, shown in Image 2). But it does appear on the earliest punch cards in the system (see Image 1 above). It also appears in the *Íbúaskra Reykjavíkur* for 1 December 1954, the first widely distributed printed register of inhabitants, which was issued by Hagstofa in April 1955 (Images 3 and 4). This edition of the *Íbúaskrá* calls the two-digit number the "birth number" (Ic. *fæðingarnúmer*). The birth number directly follows the birthdate, in more or less the same way as today, though separated by a space rather than a dash. The introductory text of the *Íbúaskrá* describes the birth number as a "special identifier, which together with the birthdate distinguishes each individual from all others in the card index."<sup>21</sup>

19 "The personal identification number," section 4.2 in "The civil registration system in Denmark" (2001). Available on the website of Det Centrale Personregister: <http://www.cpr.dk>. See also Karl Jakob Krogness, "Registration in Denmark" (unpublished manuscript, Ritsumeikan University, 2009).

20 *Folkbokföringsuppgifter hos arkivmyndigheterna* (Statens offentliga utredningar 2004/106), section 3.2.2.

21 "sérstakt auðkenni, sem ásamt fæðingardegi aðgreinir hvern einstakling frá öllum öðrum í spjaldskránni" (*Íbúaskrá Reykjavíkur 1. desember 1954*, gefið út af Hagstofu Íslands fyrir hönd Allsherjar Spjaldskrárinnar, Reykjavík, 1 apríl 1955).



SÖRLASKJÓL 40		508	0400			
3	111220	26	5000	1		
3	160121	32	1000	1		
1	190650	27	5000	1		
1	250651	33	5000	1		
1	111253	53	5000	1		

Image 3: The entry for Sörlaskjól 40 in the very first printed edition of Íbúaskrá Reykjavíkur (reference date 1 December 1954, page 938). The register was ordered by street address. Under each address all residents were listed, and for each the following information: name; sex and marital status (coded singly); birthdate; “birth number”; numerically coded birthplace; religious membership; and citizenship (if not Icelandic).

The full eight digits – the six-digit birth date plus the two-digit birth number – are particularly important because they were the ancestor of the current Icelandic kennitala. Once again, all evidence suggests that Icelanders were, in the mid-1950s, neither encouraged nor required to know these eight digits nor to state them in any particular context. Within the National Registry though, right

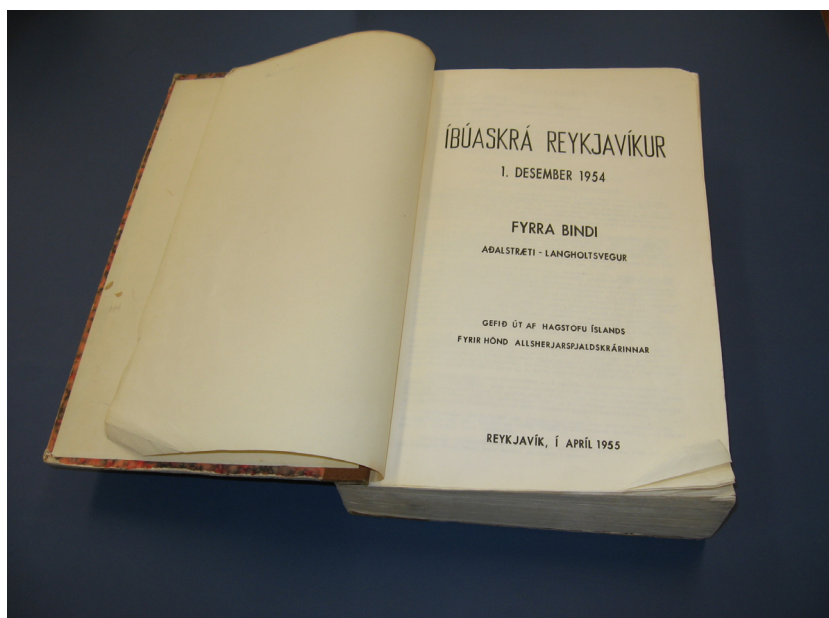


Image 4: population register for Reykjavík, published in 1955 with a reference date of 1 December 1954.

from the beginning, this eight-digit identifier was listed on punch cards and considered as a concept of its own. It was sometimes called the “birthdate number” (Ic. *fæðingardagsnúmer*),<sup>22</sup> but the early punch cards confusingly call it the “birth number” (Ic. *fæðingarnúmer*) and it is this name that stuck.

The use of these eight digits as a unique identifier or surrogate name was restricted to the National Register and the other large databases connected to it. However, the inclusion of these eight digits in the *Íbúaskrá Reykjavíkur* shows that even in 1955, Icelanders' birth numbers were a matter of public record. Hagstofa sold printed copies of the *Íbúaskrá* to the public at least as early as 1956, describing it as “a most useful handbook for associations, companies, and others who have considera-

22 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, pp. 953-954.

ble interaction with the public.”<sup>23</sup> The *Íbúaskrá* was advertised in newspapers at least through 1968<sup>24</sup> and paper copies can theoretically still be ordered today, although the data is typically now sold in electronic form through third-party vendors. Anyone can view back issues of the *Íbúaskrá Reykjavíkur* in the National and University Library in Reykjavík (the last printed copy on hand is from 2002), and from the 1980s on the library also holds similar printed registers for other Icelandic municipalities.

Note that the birthdate listed in the 1 December 1954 *Íbúaskrá* was only six digits long. The underlying punch cards, as well, listed only the last two digits of the birth year. Thus they did not formally distinguish between birthdates that are exactly a century apart. Both the birthdates of a person born on January 15, 1953 and a person born on January 15, 1853 would have been listed as 150153. Of course, two such people could be kept separate by receiving different two-digit “birth numbers” just like two people born on the same day of the same year. However, the inability to predict the birthdate from the eight-digit birth number did lead to cases in which municipal authorities sent letters to centenarians inviting them to attend kindergarten.<sup>25</sup> After the century number was added into the kennitala in the mid-1980s, it became possible to work out birthdates with complete accuracy.

#### 4. Creating the name number

The birth number was part of the Icelandic National Register from the very beginning. But it was actually a different personal identification number, the so-called name number (Ic. *nafnnúmer*), which first came into broad everyday use throughout Icelandic society. This process started in the early 1960s, and took place despite the fact that the design of the name number system ultimately crippled its ability to serve as an effective identifier and led to its demise.

The key feature of the name number was that it was assigned so that the numerical order of the numbers would replicate the Icelandic alphabetical order of peoples' names.

The National Registry developed the name number in 1959 as an internal tool to solve the technical problem of generating reports in alphabetical order by name. The IBM punch cards that made up the National Register had two control rows and ten rows for the numbers zero to nine. Thus, while numbers could be listed in a transparent way, letters of the alphabet had to be coded with multiple punches. The “unit record machines” that sorted IBM cards mechanically did so into a maximum of twelve stacks. Sorting by number was thus much simpler and quicker than sorting alphabetically. Special Icelandic characters such as *þ* and *ð* made alphabetical proces-

23 “hin mikilvægasta handbók fyrir félog, stofnanir, fyrirtæki og aðra, sem hafa mikil samskipti við almenning” (“Íbúaskrá Reykjavíkur er komin út,” *Morgunblaðið*, 17 July 1956, p. 11).

24 “Íbúaskrá Reykjavíkur komin út,” *Morgunblaðið*, 11 May 1968, p. 12.

25 See for example “Orðin allra kerlinga elst: Tölván neitaði að trúa aldrinum,” *Þjóðviljinn*, 15 April 1980, p. 16.



sing even more complicated. The advantage of the name number was that it was a quick basis for sorting, and generated card stacks which were conveniently in alphabetic order as well.<sup>26</sup>

The name number differed from the already-existing birth number and from the future kennitala in that it was inextricably bound to a person's name, not to that person as an entity. So if a person's name changed, their name number had to be changed as well.<sup>27</sup> Since women do not change their names at marriage in Iceland, name changes are very uncommon, but they do nevertheless occur.

The name number was assigned only to Icelandic residents 12 years of age and older.<sup>28</sup> This age may have been chosen in anticipation of the name number's use on identification cards, an important function of which was to allow teenagers subject to curfew and alcohol laws to prove their age.

Another possible factor is that in Iceland, it is customary to wait days or weeks after birth before making the choice of a child's name public and official. Indeed, parents often delay their own private deliberations about a name until well after the birth. (Since 1991, when the law on names was revised,<sup>29</sup> parents have been required to register a child's name before it reaches six months of age.)

Thus, short of forcing an end to this custom, it would have been impossible to assign name numbers to Icelandic residents at birth, since many recipients would have no name and thus no position in alphabetical order for the numerical position of the name number to correspond to. Even if the age at which name numbers were issued were lowered from 12 years to six months (or as soon as a child's name was registered), any name-based numbering system in Iceland would never be able to identify many of the very youngest Icelanders. This meant something important: the name number could never form a comprehensive identification system for all Icelandic residents, only for those over a certain age.

During the early 1960s several other government institutions in Iceland began to use the name number in their internal bookkeeping. These included the payroll departments of the Icelandic government and of the city of Reykjavík, the State Social Security Institute (Ic. *Tryggingastofnun ríkisins*), Sjúkrasamlag Reykjavíkur (a health insurance system in Reykjavík, starting in 1962), and the state tax authorities (starting in 1963).<sup>30</sup> The first public use of the name number that the author has found record of occurred in November 1963, when Sjúkrasamlag Reykjavíkur announced in the

26 Óttar Kjartansson, *Upplýsingaiðnaður í hálfa öld: saga Skýrr 1952-2002* (Reykjavík: Skýrr hf., 2002), pp. 42-45; Oddur Benediktsson interview, 8 October 2009; *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 953; see also Hallgrímur Snorrason. "Endurskipulagning Þjóðskrár," lecture at meeting of Skýrslutæknifélag Íslands, 1 October 1985 (available at <http://hagstofa.is/lisalib/getfile.aspx?itemid=1733>).

27 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 953.

28 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 953.

29 Law 37/1991.

30 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 953.

daily newspaper *Morgunblaðið* that it was issuing new membership cards. According to the announcement, the cards would list their holder's "nafnnúmer," a seven-digit number which would henceforth serve as the membership number. Members would need to keep a note of it.<sup>31</sup>

## 5. Adding a check digit

In 1963 or 1964, the National Registry lengthened the name number from seven to eight digits by adding a check digit.<sup>32</sup> The occasion for this was that Skýrr, the joint organization which managed the data processing systems for the state and for the city of Reykjavík, acquired its first real computer, an IBM 1401.<sup>33</sup> The new eighth digit of the name number was a check digit derived from the other seven digits by a formula. Using the check digit meant that the National Registry was able to reduce the number of errors associated with input and reinput of name numbers. A mistyped digit would result in an incorrect checksum, and the computer would let the operator know.

This was considered so useful that a check digit was also added to the end of each birth number (the six-plus-two-digit number based on the birthdate).<sup>34</sup> Given the name number *bcde-fgh* or the birth number *abcdef-gh*, a standard formula gives the check digit *v*.<sup>35</sup> First, find the sum  $3a + 2b + 7c + 6d + 5e + 4f + 3g + 2h$ . Divide this sum by 11 and call the remainder *r*. If  $r = 0$ , then  $v = 0$ ; if  $r = 1$ , then the birth number is deemed invalid and a new birth number must be selected; in all other cases,  $v = 11 - r$ . Table 1 shows two examples.

Table 1. Calculating the check digit in the name number and kennitala.

	Name number	Kennitala
Full form	5 1 8 8 3 5 8 6	1 8 0 1 7 0 2 3 5 9
Multipliers	2 7 6 5 4 3 2	3 2 7 6 5 4 3 2
Products and their sum	10 7 48 40 12 15 16 = 148	3 16 0 6 35 0 6 6 = 72
Remainder mod 11	$148 = 13 * 11 + 5$ , so $r = 5$	$72 = 6 * 11 + 6$ , so $r = 6$
Check digit	$v = 11 - 5 = 6$	$v = 11 - 6 = 5$

31 "Ný samlagsskírteini Sjúkrasamlags Rvíkur," *Morgunblaðið*, 24 November 1963, p. 2.

32 A check digit is a way of reducing the frequency of errors in the entry or transmission of a given sequence of digits or characters, by adding one element to the sequence whose value (the checksum) is calculated from that of the other elements in the sequence. The checksum can be recalculated after a sequence is transmitted, and if the result does not match the value of the check digit, it means that there was a transmission error and the transmission must be repeated.

33 Oddur Benediktsson et al., "Computerisation of the Icelandic state and municipalities from 1964 to 1985," pp. 45-60 of *History of Nordic computing: IFIP WG9.7 first working conference on the history of Nordic computing (HiNC1)*, June 16-18, 2003, Trondheim, Norway, edited by Janis Bubenko, Jr., John Impagliazzo, and Arne Sølvénberg (New York: Springer, 2005), section 1.

34 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, pp. 953-954.

35 Skúli Guðmundsson interview, 28 November 2008.

Skýrr's new computers were used to print the *Íbúaskrá Reykjavíkur* for the first time in early 1965. Images 5 and 6 show that this edition of the *Íbúaskrá*, which reflects the city's population as of 1 December 1964, looks different from previous editions. The second-to-last column shows the name number in its new eight-digit length (the eighth digit being the check digit), with a hyphen between the fourth and fifth digits. The birth number, previously two digits, becomes three digits long with the addition of the check digit. Notice the new print face as well.<sup>36</sup>

SÖRLASKJOL 40		508 0400			
1	HELGI ARNASON	3	130489	18	35 1
2	SIGRUN ÖSSURARDOTTIR	3	060598	04	35 1
3	HALLDORA HELGADOTTIR	1	250530	55	35 1
1	ÞOR ÞORSTEINSSON	3	180625	42	50 1
2	ANNA H SVEINSDOTTIR	3	230831	40	50 1
3	GUÐRUN ÞORSDOTTIR	1	280651	33	50 1
3	EINAR ÞOR ÞORSSON	1	020653	44	50 1

Image 5: *Íbúaskrá Reykjavíkur* for 1 December 1963 (page 1208).

SÖRLASKJOL 40		8680 0400			
2	HALLDORA HELGADOTTIR	1	250530	-552 43 1	3623-4318 078
1	HELGI ARNASON	3	130489	-184 43 1	3951-1495 078
2	SIGRUN ÖSSURARDOTTIR	3	060598	-045 43 1	7739-8279 078
1	ÞOR ÞORSTEINSSON	3	180625	-429 00 1	9366-0307 080
2	ANNA H SVEINSDOTTIR	3	230831	-408 00 1	0378-8253 080
3	EINAR ÞOR ÞORSSON	1	020653	-442 00 1	080
4	GUÐRUN ÞORSDOTTIR	1	280651	-338 00 1	3320-7042 080

Image 6: *Íbúaskrá Reykjavíkur* for 1 December 1964 (page 1174), showing the addition of the check digit and of the name number for residents over the age of 12.

## 6. Maintaining the name number

After the introduction of the name number, the National Registry had its computers print a “name register” (Ic. *nafnaskrá*) each year. The name register listed everyone with a name number as of 1 December of that year. The register was bound (in several volumes) and kept on hand in the Registry’s office.<sup>37</sup> Because of the design of the system, the name register was conveniently in both alphabetical and numerical order.

A look through the old name registers, still held by the National Registry, helps show the structure of the name number system. After the mid-1960s, the eighth digit of the name number was a check digit, so only the first seven digits were under the designer's full control. The correspondence required between numerical and alphabetical order extended only to first and father's names (or surnames) – middle names were ignored. Each unique pair of first and last names, such as Jón Jónsson, was

36 *Íbúaskrá Reykjavíkur 1. desember 1964* (Reykjavík: Hagstofa Íslands, 1965), compared with *Íbúaskrá Reykjavíkur 1. desember 1963* (Reykjavík: Hagstofa Íslands, 1964).

37 Hallgrímur Snorrason, “Endurskipulagning Þjóðskrár.”

assigned a certain range of numbers. A considerable amount of free number space was left at the end of each range. The amount of free space apparently depended on the prevalence of the name at the time, although the author has not found any information on the precise method used.

Within this number range, Jón Jónsson, Jón Gunnar Jónsson, and Jón Þór Jónsson could appear in any order (in practice, it appears that they were listed in the order of birth, at least originally). It seems that the set of numbers assigned to a given combination of first and last names was never consecutive (e.g. 1234-567, 1234-568, 1234-569, ...) but rather skipped every other number (e.g. 1234-567, 1234-569, 1234-571, ...) with the intervening numbers at least initially left unassigned.

When young Icelanders turned twelve, they needed to be assigned name numbers for the first time. Notations in the name registers (such as those illustrated in Image 7) indicate that at least in the earlier years of the system, a free number was found, the assignment was written by hand into the master copy of the name register, and then the names were added to the punch-card database once a year. The free number, of course, had to conform with the requirement for a correspondence between numerical and alphabetical order.

The image shows an open register of names and firms for 1 December 1970. The left page contains handwritten entries for Sigurður Sigurðsson, with name numbers written in the right margin. The right page shows the printed register with handwritten corrections and additions. The entries are organized by name and firm, with name numbers assigned to each.

Name	Firm	Name Number
7899-4431	Sigurður Sigurðsson	210160 7582
7899-4432	Sigurður Sigurðsson	030460 0220
7899-4433	Sigurður Sigurðsson	170260 5/00
7899-4434	Sigurður Sigurðsson	300460 7701
7899-4435	Sigurður Sigurðsson	070560 1601
7899-4436	Sigurður Sigurðsson	170560 0830
7899-4437	Sigurður Sigurðsson	030760 0720
7899-4438	Sigurður Sigurðsson	170760 2/98
7899-4439	Sigurður Sigurðsson	031160 0720
7899-4440	Sigurður Sigurðsson	241160 2100

Image 7: The register of names and firms for 1 December 1970. The handwritten additions on the left-hand page show the name numbers for all of the Sigurður Sigurðssons in Iceland who were about to turn twelve.

To anyone with experience of numbering systems design, requiring this kind of principled relationship between the numerical order of the numbers and the alphabetical order of the names of their possessors is a recipe for disaster. In general, the more robust the iconic principle in a numbering system, the more quickly its numbering space will be exhausted.<sup>38</sup> Indeed it took only about fifteen years for the name

38 Ian Watson, "Cognitive design: creating the sets of categories and labels that structure our shared experience" (Ph.D. dissertation, Rutgers University, 2005), section 4.4.



number system to break down, even though it was theoretically able to accommodate ten million individuals.

In retrospect, the National Registry's creation of the name number – which involved a considerable amount of maintenance work and was destined to break down very quickly – feels unfortunate, given that it already had a perfectly workable system (the birth number) which identified all Icelanders uniquely. On the other hand, these days, most of us own computers that can sort the entire National Register in a matter of a few seconds. It is easy for us to forget that the technical limitations of computer processing and output in 1959 really were so narrow that it was worth developing and maintaining an entirely new numbering system in order to be able to output data in alphabetical order without a complicated sort procedure.

## 7. Identity cards: individuals learn their name number

In 1965, not long after the name number came into use, the National Registry started issuing identity cards (Ic. *nafnskírteini*) to all residents over the age of twelve. A mix of factors spurred the introduction of identity cards. The two most crucial and clearly stated reasons were the desire to make Icelanders aware of their name number so that they could use it to identify themselves, and the perceived need for an identity card which young Icelanders could use to prove their age in situations involving alcohol or curfews.<sup>39</sup> The cards were issued at the age of 12, at the same time as the name number was assigned.

The proposal to introduce identity cards for all individuals 12 years and older in Iceland was put before the Icelandic Parliament on 4 March 1965 and passed without controversy<sup>40</sup> as law 25/1965 on 21 April. It came into effect on 12 June. On 24 June *Morgunblaðið* printed a press release from Hagstofa announcing that the cards, numbering about 140,000, were finished and could be picked up.<sup>41</sup>

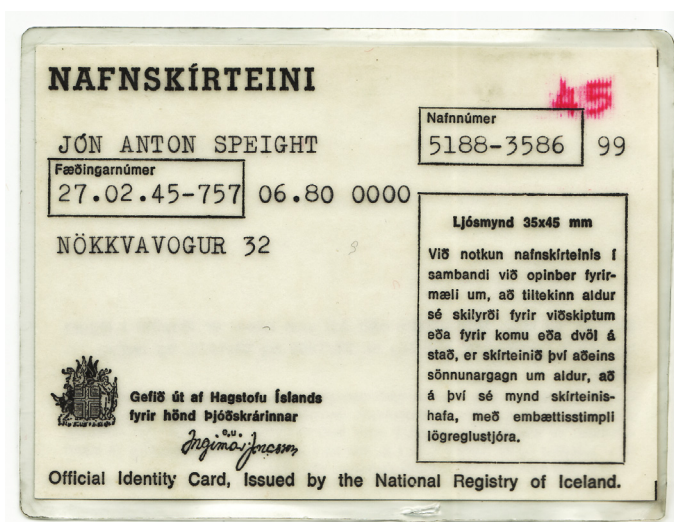


Image 8: Identity card for Jón Anton Speight. The card, which dates from 1980, lists both his name number and birth number.

39 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, pp. 954; "Nafnskírteini fyrir einstaklinga 12 ára og eldri," *Morgunblaðið*, 5 March 1965, p. 8; "Nafnskírteini afhent þeim sem vilja í næstu viku," *Morgunblaðið*, 24 júní 1965, pp. 2-3.

40 See the discussion of the bill in *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section B, pp. 771-778.

41 "Nafnskírteini afhent þeim sem vilja í næstu viku," *Morgunblaðið*, 24 June 1965, pp. 2-3.



As well as including the name number, the identity cards were to list the holder's birth date,<sup>42</sup> and by 1980 when the card in Image 8 was generated the whole birth number was included. Young people especially were encouraged (but not required) to bring a photograph which could be affixed to the card. No one was required, either, to carry the card with them at all times. There were, however, benefits to having a photograph and carrying the card in particular circumstances: principally the ability to prove one's age, for example when buying alcohol.<sup>43</sup> The law on identification cards also allowed public institutions who used the name number in their own databases to require that the identity card be presented in all dealings with them.<sup>44</sup> For example, the identity card was required when picking up social security payments at the office of the State Social Security Institute (Ic. *Tryggingastofnun ríkisins*).<sup>45</sup>

The identity card was the final step in the transformation of personal numbering in Iceland from something that happened behind the closed doors of a government institution to something that had coordinative value for the entire society. By issuing cards to everyone, adorned with a number that they were supposed to remember or at least present in various contexts, and by encouraging databases maintained by public and private institutions to use that number as a key, the idea of a new type of identifier – a new kind of name for Icelanders, really – was institutionalized throughout society and not just as a limited technical tool. The identity card gave the name number semantic and coordinative force. It changed it from an obscure database key into an identification system that was a social convention and a social fact. And this was done deliberately – it was explicitly recognized and planned by the authors of the law on identity cards and described in the supporting documents attached to the proposed law:

It is not possible to speak of making complete use of the name number or any other comparable identification number, unless every individual knows their number and can prove what it is whenever necessary. This can only come about if every person receives an identity card showing the cardholder's name number [...]<sup>46</sup>

They went on to correctly predict the use of the name number in payroll and taxation matters, as a customer ID number for companies and institutions, in the payment of social benefits, as a database key by which the National Registry could

42 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 950.

43 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 957.

44 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 951; "Nafnskírteini afhent þeim sem vilja í næstu viku," *Morgunblaðið*, 24 June 1965, pp. 2-3.

45 "Nafnskírteini og fjölskyldubætur," *Morgunblaðið*, 26 February 1966, p. 4.

46 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, p. 954. "Hins vegar getur ekki orðið um að ræða fulla hagnýtingu nafnnúmers eða annars hliðstæðs auðkennisnúmers, nema hver einstaklingur þekki sitt númer og geti hvenær sem þörf gerist sannað fyrir öðrum, hvert það sé. Svo getur því aðeins orðið, að gefið sé út nafnskírteini til hvers og eins, þar sem tilgreint er nafnnúmer skírteinishafa [...]"

offer service to associations to update address data for their members, and in keeping criminal records.<sup>47</sup>

## 8. The name number takes hold

Over the next ten to fifteen years, newspaper sources show the use of the name number penetrating into every aspect of daily life in Iceland. Using the name number to identify people seems to have caused no controversy at the time, and its acceptance laid the groundwork for the equally widespread use of the kennitala after it succeeded the name number in the late 1980s.

The examples in Table 2 were found using the every-word indices to the Icelandic newspapers *Morgunblaðið* and *Dagur*. They do not necessarily represent the first time the name number was requested in a particular context, just the earliest mention that turned up in the search.

Table 2. *Progressive use of the name number in everyday life.*

Year	Type of use	Source
1967	name number required by one of Iceland's banks as an identifier for the parties to loans	<i>Morgunblaðið</i> , 4.2.1967, p. 27
1970	name number used in library circulation records	<i>Dagur</i> , 16.9.1970, p. 5
1972	an example of what ultimately became a common practice in Iceland of signing letters to the editor with one's name number	<i>Morgunblaðið</i> , 30.3.1972, p. 28
1972	name number requested on a form for subscribing to book series	<i>Morgunblaðið</i> , 5.4.1972, p. 20
1972	name number required when registering at the University of Iceland	<i>Morgunblaðið</i> , 28.6.1972, p. 29
1975	name number used for registering at secondary school	<i>Dagur</i> , 29.8.1975, p. 3
1975	name number required when purchasing an insurance policy	<i>Dagur</i> , 3.12.1975, p. 1
1976	name number used when registering older children in sports clubs	<i>Dagur</i> , 3.11.1976, p. 7
1977	name number required when paying municipal fees in Akureyri starting on 1 January 1978	<i>Dagur</i> , 23.12.1976, p. 5
1978	name number used in workplace time clocks at Útgerðarfélag Akureyringa	<i>Dagur</i> , 20.10.1978, p. 1
1978	increased and coordinated use of name number in the banking system	<i>Dagur</i> , 7.11.1978, p. 3

47 *Alþingistiðindi*, 85. löggjafarþing (1964-1965), section A, pp. 954-956.

These newspaper citations give no evidence of any particular controversy in introducing the name number into these varied spheres of record-keeping. They only show that in some cases it took a small amount of effort – namely a formal announcement – to get people used to the idea of using their name number in a given context.

While the name number spread, Iceland's identity cards did not catch on. Although they are still issued (now at the age of 14 and with the kennitala on them instead of the name number; see Image 9), they are not a part of everyday Icelandic life. No one carries them or expects others to. People use driver's licenses or credit and debit cards (which carry the cardholder's kennitala and photo) if they need to prove their identity. At least in practice, one can say that Iceland is currently a country which does not have a national identity card.

Parallel with the name number, Iceland's corporate register (Ic. *fyrirtækjaskrá*) was created in 1969. Just as each person had a name number, each company was given one as well. Indeed, the corporation numbers were pulled from the same number space as the name numbers, using the same alphabetic principles. It was thus not possible to tell from a given eight-digit number whether the holder was a private individual or a corporation. The corporate register was originally maintained by Hagstofa, but was later transferred to the state tax authorities (Ic. *Ríkisskattstjóri*).<sup>48</sup>

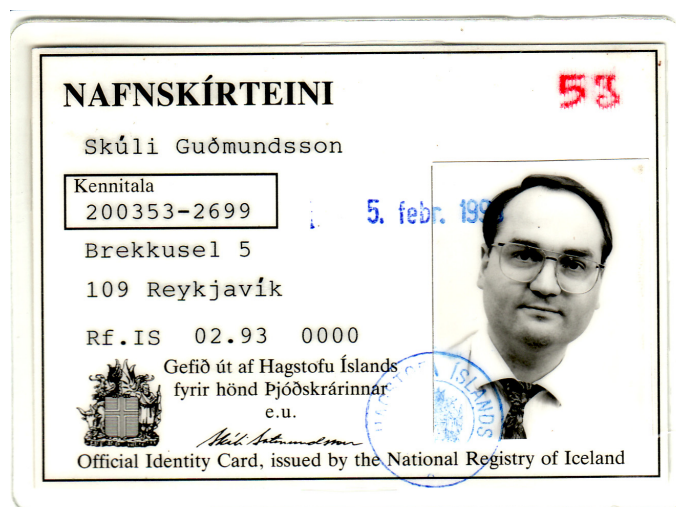


Image 9: Name card for Skúli Guðmundsson, current head of the National Registry. This card, issued in 1993, shows the kennitala rather than the name number.

## 9. The kennitala replaces the name number

The biggest problem with the name number system was that it exhausted the available number space very quickly.<sup>49</sup> In a speech and a newspaper interview in 1985,<sup>50</sup> the newly appointed director of Hagstofa, Hallgrímur Snorrason, explained that all the problems boiled down to one thing: the requirement that there be a rela-

48 Jón Þór Þórhallsson and Jón Zóphoniásson, "Tölvuvinnsla Hagstofunnar," pp. 247-257 of Sigurður Snævarr, ed., *Klemensarbók: afmælisrit Klemensar Tryggvasonar* (Reykjavík: Félag viðskiptafræðinga og hagfræðinga, 1985), pp. 250-251; Guðni Baldursson interview, 7 November 2007; Hallgrímur Snorrason interview, 29 October 2009.

49 On exhaustion, see Ian Watson, "Cognitive design: creating the sets of categories and labels that structure our shared experience" (Ph.D. dissertation, Rutgers University, 2005), section 4.4.

50 Guðrún Guðlaugsdóttir, "Þjóðskráin er undirstaða stjórnsýslu í landinu," *Morgunblaðið*, 21 April 1985, pp. B18-19; Hallgrímur Snorrason, "Endurskipulagning Þjóðskrár."

tionship between the numerical order of peoples' name numbers and the alphabetical order of their names, something which the author has elsewhere called a "mapping."<sup>51</sup> Numbers had to be chosen so that numerically based sorting would also generate an alphabetically sorted list.

By the 1980s, it had sometimes become impossible to find unused numbers which fulfilled this condition. Apparently, part of the problem was that the allotment of numbers and free space in the original system had been based on a statistical analysis of the popularity of given names in Iceland. Since naming fashions change, this allotment no longer fit the current distribution. Hallgrímur Snorrason mentioned "Linda" as an example of a name which was not popular in the 1950s but became common during the 1970s and 1980s. Hagstofa had started to have to reuse the numbers of people who had died, which was not an ideal situation, and the situation in the corporate register was even worse.<sup>52</sup>

Two other problems with the name number system also involved inefficiencies stemming from the mapping requirement. First, whenever anyone had their name legally changed, this required changing their name number as well. Second, newborn children, who in Iceland (as explained above) traditionally do not receive a name for some days or weeks, could not be assigned a name number until they had a name to base it on. Iceland's health care system dealt with babies' lack of a name number by using the birth number instead, which meant, as Hallgrímur explained at the time, that the country was in effect using a double numbering system.<sup>53</sup> Yet the limitations on computing power which had led to the creation of the name number were a thing of the past.

Interviewed in 2008, Hallgrímur mentioned two other reasons why the system had to be changed.<sup>54</sup> One was that the practice of reusing the name numbers of deceased individuals had led to several unfortunate incidents in which a number's new and old owners were mixed up. Hallgrímur showed the author a letter that he wrote in 1986 to a teenager whose name number needed to be changed. In the letter, he explained that "another person, who died a few years ago, had this number before you. This person's estate has still not been settled and so the number is still being used in connection with its former owner."<sup>55</sup>

The other reason was that people had discovered that one could cheat the system in order to rid oneself of personal debt. By changing one's name – a perfectly legal procedure – one received a new name number, and if one then applied for new

51 Ian Watson, "Cognitive design," section 4.

52 Hallgrímur Snorrason interview, 5 February 2008.

53 Guðrún Guðlaugsdóttir, "Þjóðskráin er undirstaða stjórnsýslu í landinu," *Morgunblaðið*, 21 April 1985, pp. B18-19; Hallgrímur Snorrason, "Endurskipulagning Þjóðskrár."

54 Hallgrímur Snorrason interview, 5 February 2008.

55 "á undan þér atti þetta númer annað maður, sem dó fyrir nokkrum árum. Dánarbú þessa manns hefur ekki verið gert upp enn og því er númerið enn í notkun í tengslum við fyrri eigenda." Letter dated 15 January 1986. Courtesy of Hallgrímur Snorrason.

loans from a bank, one's previous loans (linked to the old name number) were not easily traceable.

In spring 1985, Hallgrímur told the Icelandic media that the National Registry was still considering two possible solutions. A “frozen” name number system would remove the requirement for a mapping between numerical and alphabetical order but would allow people to keep current numbers. A birthdate-based system, using the birth number that the National Registry had assigned since its beginnings, would be superior in design terms, but everyone would have to get used to using a different number and computers would have to be reprogrammed on a grand scale.<sup>56</sup>

By October 1985, the National Registry had decided to use the birthdate-based system. Hallgrímur explained that two major factors in the decision were that the birth number was already in existence, and that birthdate-based systems had been in use in the other Nordic countries for many years without controversy.<sup>57</sup> The birth number was, of course, already in use in the Icelandic health care sector, where the new system represented more continuity than change.<sup>58</sup>

At that point, the birth number consisted of a six-digit birthdate, two digits to distinguish among people born that day, and a check digit. Still unresolved was whether the first two digits of the birth year (millennium and century) would somehow be indicated in the number. Hallgrímur himself said he had been in favor of including all four digits of the year in the new number (thus replacing, for example, 501231-987 with 19501231-987). The problem with that was that the lengthened birth number's checksum would not match the current check digit. The solution ultimately chosen was to add one digit, representing the century, but to put it at the very end of the number (i.e., 501231-9879), thus underscoring that it was not included in the checksum calculations. This allowed the National Registry to avoid having to change any of the existing digits in the system.<sup>59</sup>

The change caused concern, particularly among people in the computer field, that the reprogramming and administrative work involved would be extremely costly. At a meeting in Reykjavík on 13 May 1986, two associations, the Icelandic Society for Information Processing (Ic. *Skýrslutæknifélag Íslands*) and the Icelandic Chamber of Commerce (Ic. *Verslunarráðið*), passed a resolution asking Hagstofa to reconsider its decision. Ragnar Pálsson said that the change would cost the then-powerful Federation of Icelandic Cooperative Societies (Ic. *Samband íslenskra samvinnufélaga*, or SÍS) two man-years. Some predicted that the total cost of change would be 100 to 200 million crowns.<sup>60</sup>

56 Guðrún Guðlaugsdóttir, “Þjóðskráin er undirstaða stjórnsýslu í landinu,” *Morgunblaðið*, 21 April 1985, pp. B18-19.

57 Hallgrímur Snorrason interview, 5 February 2008.

58 See “Kennitölur verða á skattframtölunum,” *Morgunblaðið*, 18 December 1986, p. 49.

59 Hallgrímur Snorrason, “Endurskipulagning Þjóðskrár.”

60 “Hagstofan taki afnám nafnnúmera til endurskoðunar,” *Morgunblaðið*, 15 May 1986, p. 2; see also a letter to the editor whose author is identified only by the name number 1111-2226, “Spörum nafn-



Another criticism, voiced at the May 1986 meeting by University of Iceland computer science professor Oddur Benediktsson, was that the new number contained information that was too personal, namely the birthdate.<sup>61</sup> This issue would resurface again in 2004 (see section 14).

Hallgrímur Snorrason responded to the criticisms at the May 1986 meeting by saying that although the resolution criticizing the kennitala would be discussed at Hagstofa, he did not consider that anything new had come forward at the meeting which would undermine the rationale for the change.<sup>62</sup>

One of the last details to be taken care of was a name for the “new” number. The existing name, the birth number (Ic. *fæðingarnúmer*) was considered unattractive. In December 1986, *Morgunblaðið* published a press release from Hagstofa explaining that the new identification number would be called the *kennitala*, a name chosen over other possibilities such as *auðkennisnúmer*, *persónunúmer*, *eigintala*, *einkatala*, *mannatala*, *sértala*, *mark*, *tölnafn* and *tölunafn*.

The same press release explained that the year 1987 would be an adjustment period, with both the name number and the kennitala in somewhat overlapping use.

Starting on 1 January 1988, only the kennitala would be used.<sup>63</sup>

Public education during 1987 was an important part of getting people to change from the name number to the kennitala. In early February, Hagstofa paid for a two-color announcement in *Morgunblaðið* (Image 10) reminding people of the changeover.<sup>64</sup> If people did not already know their kennitala, they would find it preprinted on their tax returns. On 12 December 1987, the state tax authorities took out a notice in *Morgunblaðið* reminding employers that all withholding slips sent in to them in January 1988, for salaries paid during the year 1987, needed to list the kennitala, not

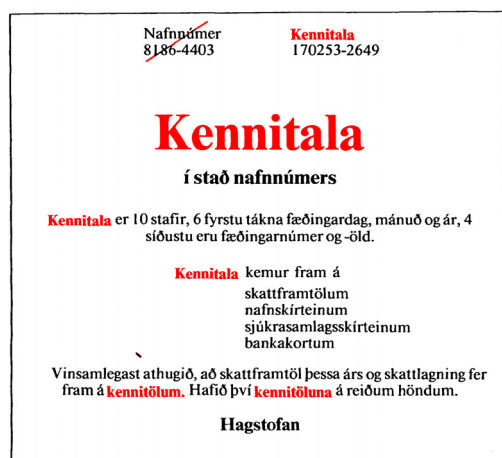


Image 10: Newspaper advertisement about the kennitala.

númeramilljónir,” *DV*, 23 May 1986, p. 11.

61 “Hagstofan taki afnám nafnnúmera til endurskoðunar,” *Morgunblaðið*, 15 May 1986, p. 2; see also Kristján Ingvarsson, “Kennitala í stað nafnnúmers: hagræðing eða persónunúmsnir?” *DV*, 24 April 1987, p.13.

62 “Hagstofan taki afnám nafnnúmera til endurskoðunar,” *Morgunblaðið*, 15 May 1986, p. 2. The author’s experience is that the deep entrenchment of numbering systems in society always makes it difficult to change them by fiat, regardless of technical concerns. Resistance to change in a widespread convention is typical, and often involves a mixture of rational arguments and instinctive opposition. See Ian Watson, “Cognitive design: creating the sets of categories and labels that structure our shared experience” (Ph.D. dissertation, Rutgers University, 2005), section 6.5.

63 “Kennitölur verða á skattframtölunum,” *Morgunblaðið*, 18 December 1986, p. 49.

64 See for example *Morgunblaðið*, 10 February 1987, p. 28.

the name number.<sup>65</sup> On 20 December 1987 the Ministry of Finance had a notice printed in *Morgunblaðið* reminding people that in the new year, anyone paid by the state treasury would have to be identified by kennitala, not name number.<sup>66</sup>

One of the difficulties encountered during the switch was the problem of unofficial or “artificial” name numbers (Ic. *gervinafnnúmer*). The issue (which has not gone away<sup>67</sup> and which the author knows well from administering student exchange programs in Iceland) is that when a social transaction requires that one of the participants be identified by number, it can become difficult to process transactions involving people who, for the perfectly innocent reason that they are not Icelandic, do not have an Icelandic identification number. It is, however, possible to fool the system (particularly computer systems) and process the transaction by giving those participants a number which has the same form as the identification number but which does not have any “official status,” or in other words, is not listed in the official database of identification numbers.

According to Hallgrímur Snorrason, this practice had become recognized enough that certain Icelandic institutions, such as the state tax and customs authorities, had been allotted sections of the name number space to use for unofficial identification numbers (these began with sequences such as 97 and 99). Other institutions, though lacking official authorization to create artificial numbers, had nonetheless created them to a considerable degree. Although this practice was well known before the change from name number to kennitala, it turned out to be a much bigger problem than had been expected. For example, the government employee pension database listed several hundred contributors who were identified by unofficial name numbers. Often these were foreigners who had come to Iceland, begun work, and made contributions without receiving a proper name number. Such cases required much research and housecleaning work by the institutions involved.<sup>68</sup>

At the same time as the changeover from the name number to the kennitala, Icelandic corporations also received new identification numbers. These numbers have the same form as the kennitala, but are based on the founding date of the company instead of the birthdate. The day is increased by 40, though, which makes it possible to tell a corporate kennitala from an individual kennitala at a glance.

## 10. The kennitala in the Internet age

The kennitala quickly took over the social role of the name number, and the name number was slowly forgotten. But as consciousness of data protection and privacy issues grew in Iceland, the kennitala became more controversial. This controversy peaked in the first few years of the 21st century.

65 *Morgunblaðið*, 12 December 1987, p. 65.

66 *Morgunblaðið*, 20 December 1987, p. C41.

67 See, for example, “Flest barnanna komin í skóla á Ísafirði,” *Morgunblaðið*, 9 July 2006.

68 Hallgrímur Snorrason interview, 5 February 2008.

In 1981, Iceland passed its first law on data protection (law 63/1981). Updated versions of the law were passed in 1985 (39/1985) and in 1989 (121/1989).<sup>69</sup> During the 1980s, both paper and computer databases were expensive to run and maintain and were held mostly by large institutions and corporations. Accordingly, these three laws concerned themselves primarily with regulating the use of databases in contexts where there was a public interest in limiting large organizations' access to personal information. These contexts included the medical, insurance, financial, and direct marketing sectors. One major thrust of the laws was to stop anyone from combining databases from different sectors or institutions to create larger databases with a wide range of information about any given person. A three-person Computer Committee (Ic. *Tölvunefnd*) was created to oversee the application of the law. The Computer Committee's approval was needed for various operations involving databases containing personal information.<sup>70</sup>

However, these laws did not regulate use of the name number or kennitala. The viewpoint expressed in these laws is that the name number and the kennitala are identifiers, like names, rather than personal information, like someone's height or fingerprint. One section (article 6 in the 1989 version) defined the name number and the kennitala as belonging, along with a person's name and address, to a class of basic public information about people which is outside the realm of sensitive "personal information."

The opening article of each of these laws specifically recognized that the name number, the kennitala, a person's actual names, and other "index numbers" have an onomastic and referential function: they are ways of referring to and labeling people. For instance, article 1 of the 1989 law stated that:

The provisions of this law relate to information about the private affairs of particular individuals, who, if they are not actually named, are identified by name number, kennitala, or any other index number, the holder of which can be traced with or without a key.<sup>71</sup>

## 11. The 2000 law: a change in tone

In the 1980s most computers stood alone without any linkages to others, but by the end of the century, most Europeans had a computer and most were connected to the Internet. Computer-related privacy issues became more and more important. The critical voices of people who saw dangers in the use of national identification numbers became louder.

69 These laws and others cited in this article are available on the Alþingi web site (althingi.is).

70 On this period, see also Oddur Benediktsson, "Skýrslutækniþéttur Íslands 25 ára," *Morgunblaðið*, 6 April 1993, p. 55.

71 "Ákvæði laganna eiga við um upplýsingar um einkamálefni er varða tiltekinn aðila, þótt hann sé ekki nafngreindur, ef hann er sérgreindur með nafnnúmeri, kennitölu eða öðru skráningaraðkenni sem unnt er að persónugreina með eða án greiningarlykils."

The most common line of criticism drew attention to the numbers as one of the tools by which larger and more dangerous databases can be assembled out of smaller ones. The argument here is that precisely because the kennitala (or its equivalent in other countries) is a standard, publicly available identifier that can be used by any database, it is actually too powerful a tool. Specifically, by having a standardized key like the kennitala for databases focused on people, it becomes a very easy programming task to combine multiple databases. Governments and corporations can then assemble undesirably thorough amounts of information on people, including sensitive data on their health or shopping habits. This information can be used for socially malignant purposes, such as covert surveillance, racial discrimination, discriminatory pricing, or security measures based on behavioral profiling. Public policy should, therefore, work to limit the ability to create such databases. According to this line of thinking, the social imperative is *not* to make personal identification easy and open, but rather to scramble and defeat (or at least hinder) any expanded capability to link standardized identifiers with data about people. One way to do this is simply to limit use of a standardized identifier, even though it is the information contained in databases, not the identifier *per se*, that is a threat.<sup>72</sup>

These issues came home to many Icelanders as the country was consumed by an acrid debate about a private company called Decode Genetics. The question was whether Decode should be given access to Icelanders' health records and DNA profiles in order to carry out research on the links between genetics and disease. In this debate, an important issue was, if access were allowed, who would have access to individuals' identities.<sup>73</sup>

Meanwhile, a 1995 European directive required that EU and EFTA member states pass laws about the use of personal identification numbers.<sup>74</sup> The next revision

72 Scholars who have expressed this kind of concern about databases include Oscar H. Gandy, *The panoptic sort: a political economy of personal information* (Boulder: Westview, 1993); David Lyon, ed., *Surveillance as social sorting: privacy, risk, and automated discrimination* (London: Routledge, 2003); Ross Anderson et al., *Database state* (Water End, York: Joseph Rowntree Reform Trust, 2009). The link between databases and identifiers is made explicit in Roger Clarke, "Human identification in information systems: management challenges and public policy issues," *Information Technology & People* 7, 4 (December 1994): 6-37 (available at <http://www.rogerclarke.com/DV/HumanID.html>).

73 Much has been written about this controversy. For a brief and easily accessible journalistic introduction to the debate as it stood at the time of the 2000 data protection law, see Sarah Lyall, "A country unveils its gene pool and debate flares," *New York Times*, 16 February 1999. A scholarly, but highly partisan treatment is Michael Fortun, *Promising genomics: Iceland and deCODE Genetics in a world of speculation* (Berkeley: University of California Press, 2008). A shorter treatment is in Sigurður Gylfi Magnússon, *Wasteland with words: a social history of Iceland* (London: Reaktion Books, 2010), pp. 250-253.

74 European Union, "Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data," Article 8, section 7 (available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:EN:HTML>); see also "Um 10. gr." in Alþingi, 125. lög-gjafarþing 1999-2000, þingskjal 399 (available at <http://www.althingi.is/altext/125/s/0399.html>).

of Iceland's data protection laws, passed in May 2000 as law 77/2000, thus made much more specific reference to the kennitala, and it took some of the critical voices into consideration.

The 2000 law included an entire, if rather short, article devoted to the kennitala and setting out a completely new policy direction. The article states:

Article 10. Use of the kennitala.

The use of the kennitala is permitted if such use has an objective purpose and is necessary to ensure certain personal identification. The Icelandic Data Protection Authority may forbid or require the use of the kennitala.<sup>75</sup>

There were two new features in this law. First, the law no longer referred to or categorized the kennitala as an innocuous name-like identifier. The 1980s laws had expressed the idea that the kennitala doesn't contain any personal information, is just a name, and is thus outside the sphere of sensitivity. The 2000 law regards the kennitala as sensitive enough to regulate, most likely because of its potential use in linking databases, and perhaps also on the grounds that it contains personal information (its holder's birthdate).

Secondly, the law instituted a mechanism for regulating and limiting the use of the kennitala, which presumes that there are circumstances in which it should not be used. Crucially, the law left considerable room for interpretation in deciding what these limits should be. The power to interpret article 10 and to restrict or require use of the kennitala was placed in the hands of a new Icelandic Data Protection Authority (Ic. *Persónuvernd*), which was the successor to the Computer Committee established by the laws of the 1980s.

The law essentially gave the Data Protection Authority the role of asking and answering the question of whether the use of the kennitala is really objectively necessary in various contexts – in other words, whether it is objectively necessary to identify someone uniquely by kennitala when they are purchasing a pizza, or exchanging foreign currency, or visiting the doctor.

On 1 June 2000, shortly after the passage of the law, *Morgunblaðið* published an article based on an interview with Sigrún Jóhannesdóttir, head of the Computer Committee and soon to become the first head of the Data Protection Authority. Sigrún called the kennitala “overused” and said that in some cases its inclusion in databases was an “obvious threat” to privacy. The article said that after the new law on data protection took effect at the end of the year, the overuse of the kennitala would end.<sup>76</sup>

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75 “10. gr. Notkun kennitölu.

“Notkun kennitölu er heimil eigi hún sér málefnalegan tilgang og sé nauðsynleg til að tryggja örugga persónugreiningu. Persónuvernd getur bannað eða fyrirskipað notkun kennitölu.”

76 “Lög um persónuvernd draga úr ofnotkun kennitölu,” *Morgunblaðið*, 1 June 2000 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=538647](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=538647)).



In restraining the use of the kennitala, and also in removing the reference to the similarity between the kennitala and personal names, the 2000 law shows a considerable degree of suspicion towards the kennitala and sympathy for the lines of criticism summarized above. But rather than marking a new period and a new resolution, the law was the beginning of a period of heated debate, which ultimately saw only minor change in the use of the kennitala.

## 12. Increasing public debate on the kennitala

During the years after the law's passage, a clear difference of opinion emerged in public statements about the kennitala. The Data Protection Authority and its director Sigrún Jóhannesdóttir spoke out repeatedly against the kennitala, calling it dangerous and overused. Hagstofa and its director, Hallgrímur Snorrason, emphasized the practical value of the kennitala and doubted that it was really as dangerous as some claimed. The result of this polite difference of opinion was a compromise in which use of the kennitala and access to it was somewhat restricted, but the system in its basic form remained unchanged.

One could call these two perspectives the “protectionist” perspective and the “pragmatist” perspective, respectively. The pragmatist perspective is interests-based and favorable towards the kennitala, seeing it as practical and useful. The protectionist perspective is more rights-based and would like to limit use of the kennitala, seeing it as a threat to privacy. Those expressing the pragmatist perspective in Iceland have tended to be actually involved with the bureaucratic oversight of the kennitala system, whereas those expressing the protectionist perspective have tended to be interested in privacy and data protection issues.

One of the first exchanges in this debate came at a meeting at Hótel Loftleiðir in Reykjavík on 19 October 2000, after the passage of the 2000 law but before it took effect. Presenters put forth the full range of views. Many criticized the kennitala as overused. A representative of Mannvernd, a group initially founded to oppose the unrestricted use of Icelanders' medical records in genetic research, said that “Many profit from the use of the kennitala, but never the people who themselves are numbered. The kennitala is, for individuals, actually unnecessary.”<sup>77</sup> In response, Hallgrímur Snorrason called the idea that individuals did not need a kennitala “absurd” (*út í hött*) and said that the kennitala was not only used to record peoples' debts but also their assets.<sup>78</sup> In saying this, Hallgrímur was using arguments similar to those put forth by scholars who see civil registration as a process which advances human rights.<sup>79</sup>

77 “Margir hefðu hag af notkun hennar en eiginlega allir aðrir en þeir sem bæru hana. Hún væri í raun óþörf fyrir einstaklinginn.”

78 “Hagstofustjóri telur kennitöluna ofnotaða,” *Morgunblaðið*, 20 October 2000 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=565958](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=565958)).

79 See Simon Szreter, “The right of registration: development, identity registration, and social secu-

The debate reached its peak in 2004. Early in January, *Morgunblaðið* published an article based on an interview with Sigrún Jóhannesdóttir. In the interview, she said that the “widespread usage of the kennitala in Iceland has been a matter of concern for a long time.”<sup>80</sup> She explained the problem: using the kennitala as a key allows one to combine multiple databases, for example from the educational, insurance, and health systems. This, in turn, allows the creation of personal profiles (by marketers, for example), and these profiles are a threat to privacy. Using regular names as a key would make it much more difficult to combine databases. Sigrún also appeared to express concern that people in Iceland were not able to remove their name and address from the web-accessible version of the National Register.<sup>81</sup>

Three days later, another article appeared in *Morgunblaðið*, based on an interview with Hallgrímur Snorrason. This article was effectively a reply to Sigrún Jóhannesdóttir's comments. Hallgrímur said that the current numbering system was extremely practical and efficient, that having a single uniform system increased the security of all kinds of transactions, and that he had not seen any reports of considerable misuse. The danger of combining databases had been much discussed, but had not turned out to be so great after all, and no cases of misuse had come to light. He did concede that in daily life, such as consumer transactions, the kennitala system might be getting used more than absolutely necessary. But his basic view was that Iceland should stick with the kennitala system because it works well.<sup>82</sup>

### 13. Restrictions on Internet access to the National Register

From the beginning of the National Register, basic data on people in Iceland had always been made public. Casual access was possible since the published registers, at least for Reykjavík, were available at public libraries. Those who wanted more robust access, such as schools, businesses, and organizations, could purchase it, either by buying the registers in book form or later by purchasing access to computer files. The state company called Skýrr, which ran the National Registry's computer equipment, was for many years was the monopoly provider of access to computerized National Registry data.

Personal banking moved more and more onto computers in the 1990s and the early 2000s. To transfer money to another account in Iceland, a bank customer needs to know not just the account number but also the kennitala of the recipient. When the author first moved to Iceland in 2001, bank web sites allowed anyone to search the

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rity – a historical perspective,” *World Development* 35 (2007): 67-86; Philip W. Setel et al., “A scandal of invisibility: making everyone count by counting everyone,” *The Lancet* 370 (2007): 1569-1577.

80 “[...] hin mikla kennitölunotkun á Íslandi hafa verið áhyggjuefni í langan tíma.”

81 “Persónuvernd berst aukinn fjöldi kvartana,” *Morgunblaðið*, 4 January 2004 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=773076](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=773076)).

82 “Ekki hefur orðið vart misnotkunar hér,” *Morgunblaðið*, 7 January 2004 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=773561](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=773561)).

National Register to look up the kennitala for any given person. This search engine was quite robust, with the ability to show the kennitala of a given person's spouse and of all the people living at a given address, and the search engine was accessible without login. Of course, these capabilities had long been available in the printed *Íbúaskrár*, although not in a form subject to as quick and easy access.

On 16 January 2004 the Data Protection Authority sent a letter to Hagstofa in which it criticized the degree of public accessibility of the National Register.<sup>83</sup> In response, Hagstofa decided that the register would no longer be available openly on the Internet, but only behind the logon barriers of institutions such as banks, and that its search capacity would be reduced. The changes went into effect at the beginning of May 2004.<sup>84</sup> Since then, given a name, the publicly accessible search engines have returned the corresponding kennitala; given a kennitala, they have returned the corresponding name; and the person's registered street address is always included as well. It is no longer possible to see information on spouses or to search by address. However, general access to the conversion tables between name and kennitala has been preserved, along with the ability to find the address of any Icelander with a known name or kennitala who is registered at a domestic residence.

It is still possible to purchase full access to the National Register. Since Skýrr's privatization in 1996, competition in selling access has been permitted.<sup>85</sup> As of 2008, four different companies were active in the market (Skýrr hf., Ferli ehf., Lánstraust hf., and Landsteinar-Strengur hf.).<sup>86</sup>

#### 14. A parliamentary bill proposes to eliminate the birthdate from the kennitala

In March 2004 and again in October 2004, Sigurjón Þórðarson, member of Parliament from the small Liberal Party, put forward a proposal to eliminate or reduce the use of the birthdate in the kennitala. The proposal stated that "The kennitala system has worked well, except for the fact that our identification numbers contain personal information,"<sup>87</sup> specifically, birthdates. The proposal suggested that people

83 I have not been able to obtain a copy of this letter, but it is discussed in Persónuvernd's comments to Alþingi, Alþingi erindi 131/170, 22 November 2004 (available at <http://www.althingi.is/pdf/umsogn.php4?lthing=131&malnr=14&dbnr=170&nefnd=a>).

84 "Netaðgangur að þjóðskrá takmarkaður," *Morgunblaðið*, 11 March 2004 (available at <http://www.mbl.is/mm/frett.html?nid=1075485>); "Sátt verður að ríkja um notkun þjóðskrárinnar," *Morgunblaðið*, 27 April 2004 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=794652](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=794652)). As of 2008, a summary of policy regarding the National Register was on the website of the National Registry at <http://www.thjodskra.is/adgangur-ad-thjodskra>.

85 "Saga Skýrr í hnotskurn," accessed October 2007 at <http://www.skyrr.is/um-skyrr/sagan>.

86 "Aðgangur að þjóðskrá," accessed November 2008 at <http://www.thjodskra.is/adgangur-ad-thjodskra>.

87 "Kennitölukerfið hefur reynst vel, að öðru leyti en því að í kennitölum okkar felast persónuupplýsingar."

should have the right to choose whether to grant access to their birthdate or not. As a supporting argument, it used the not fully accurate “fact” that national identification numbers in the United States do not contain any personal information.<sup>88</sup>

This proposal questioned one of the unstated assumptions of the 1980s data protection laws: that a person's kennitala, and their birthdate as well, is a kind of basic, public fact about that person that includes no “personal information.” It recognized some peoples’ feeling that the birthdate is in fact in the “sensitive realm,” and thus that the kennitala in its current form effectively was too. This criticism echoed Oddur Benediktsson's concerns about the introduction of the kennitala in 1986 (see section 9). Sigurjón's proposal recommended a change to the form of the kennitala to remove this sensitive information from it, but otherwise basically supported keeping the social role of the kennitala system unchanged.

In response to Sigurjón's second (October 2004) proposal, both Hagstofa and the Data Protection Authority submitted their opinions to Parliament. Although submitted in response to the proposed legislation, they were in fact much more wide-ranging commentaries on the kennitala generally. Typically, Hagstofa's proposal was pragmatic in character, while the Data Protection Authority's was protectionistic.

The Data Protection Authority's letter, dated 22 November 2004, supported the proposal. It started by saying that the Authority finds the proposal in the spirit of Icelandic law, following the reasoning that the kennitala contains personal information (the birthdate), and that the use of personal information should be subject to various limits. However, the letter then went beyond the issue at hand to make a general attack on the kennitala, saying that “the Data Protection Authority considers that the most important issue involving the kennitala in Iceland is not that they show their bearer's birthdate, but rather the fact that they are used so much and are so generally accessible.”<sup>89</sup> The letter recognized that all the Nordic countries have systems similar to Iceland's, but mentioned that personal identification numbers are much less used in other countries, that in some countries people carry multiple numbers, and that in Germany and Portugal the use of one single national identity number is constitutionally forbidden. It proposed that the public listing of the kennitala be stopped, and argued for the use of multiple identification numbers in different sectors of public administration on the grounds that this would prevent the combining of databases, noting that other countries do this already.<sup>90</sup>

88 Alþingi, 130. löggjafarþing 2003–2004, þskj. 1248 — 820. mál (available at <http://www.althingi.is/altext/130/s/1248.html>); 131. löggjafarþing 2004–2005, þskj. 14 — 14. mál (<http://www.althingi.is/altext/131/s/0014.html>); “Kennitölur feli ekki í sér persónuupplýsingar,” *Morgunblaðið*, 31 March 2004 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=789921](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=789921)).

89 “Persónuvernd telur helsta álitafnið, sem tengist kennitölum hér á landi, ekki vera að þær sýna fæðingardag viðkomandi heldur hina miklu notkun þeirra og hið almenna aðgengi sem að þeim er.”

90 Alþingi erindi 131/170 (available at <http://www.althingi.is/pdf/umsogn.php4?lthing=131&malnr=14&dbnr=170&nefnd=a>).

Hagstofa's letter, dated 30 November 2004, argued against the proposal. It began by discussing the similar systems in use in the other Nordic countries, and noting that the use of a universal birthdate-based personal identification number is typical of (though not entirely limited to) the Nordic region. Regarding the proposal specifically, it said that "Having the birthdate as the first six digits of the kennitala has attracted little or no criticism, and people [here] generally seem to consider it natural that their birthdate and age should be public information that doesn't need to be hidden [...] there is a long tradition in the Nordic countries that peoples' age is not kept secret."<sup>91</sup> The letter also, in passing, argued against the introduction of multiple identifiers.<sup>92</sup>

A key question in the debate was whether Icelanders regard birthdates as sensitive or not. In contrast to some other countries, such as the United States or southern Europe, Icelanders and other Scandinavians indeed appear quite open about revealing their age. Birthdays are a major focus of friendship and celebration in Iceland. The Icelandic newspaper *DV* currently prints in each issue a list of everyone celebrating a round-numbered birthday that day. Icelanders often disclose their age by citing their year of birth rather than by saying how old they are at the moment. However some might feel that even so, if it is not absolutely necessary to include the birthdate in the kennitala, there is really no reason to have it there. A random sequence of digits would do as well. And having the birthdate in the kennitala could be said to encourage age discrimination, for example in job hiring.

On the other hand, there are a number of practical arguments for including the birthdate. The birthdate makes the kennitala easier to remember, and in particular it makes it easier to remember the identification numbers of one's spouse, children, and other family members.<sup>93</sup> Icelandic debit cards list their holder's kennitala (credit cards used to), and store clerks who wish to ensure that the person paying with a given card is the card owner can (among other methods) check the birthdate listed on the kennitala against the apparent age of the customer.<sup>94</sup> Similarly, when using the online database to find the kennitala of a person whose rough age one knows but who has a common name, one can find the right Jón Jónsson among many by excluding those who have a birthdate that doesn't match. If you are looking for an elementary school student, you can exclude any seventy-year-olds on the list.

91 "Myndun kennitölunnar með fæðingardagsetningu í fyrstu sex sætum tölunnar sætir hins vegar lítilli sem engri gagnrýni og yfirleitt virðist fólk álita að eðlilegt sé að fæðingardagur þess og aldur séu opinberar upplýsingar og þurfi ekki að fara leynt [...] löng hefð er fyrir því á hinum Norður-löndunum að aldur manna fari ekki leynt."

92 Alþingi erindi 131/309 (available at <http://www.althingi.is/pdf/umsogn.php4?lthing=131&malnr=14&dbnr=309&nefnd=a>).

93 On the relationship between the meaningfulness and the memorability of an identifying code, see Benton J. Underwood and Rudolph W. Schulz, *Meaningfulness and verbal learning* (Chicago: Lippincott, 1960).

94 See "Kennitala á greiðslukortum til öryggis," *Morgunblaðið*, 5 January 1995, p. 2.



The debate about including the birthdate can be seen as a debate about the iconicity of a numbering system.<sup>95</sup> Those advocating eliminating the birthdate from the kennitala were advocating that it be as non-iconic as possible. Purists would note that no numbering system can be completely non-iconic and random, and that the name number system had its own type of iconicity.

Ultimately, the proposal, which was put forward by a member of a small opposition party, died in committee and was not considered by Parliament.

## 15. Debate over whether personal numbering should be referred to in the Icelandic constitution

Early in 2005 the prime minister of Iceland appointed a nine-member committee to review Iceland's constitution. Individuals and organizations were encouraged to send the committee suggestions. The original goal was to have a final proposal by the end of 2006, but in February 2007 the committee issued an interim report and said that more work and time would be needed to reach a final conclusion.<sup>96</sup>

While revision of the kennitala system was not a specific goal of the committee, there is European precedent for constitutional attention to national identification numbers. Since 1997, the constitution of Portugal has specifically forbidden the institution of a national identity number.<sup>97</sup> Constitutional courts in at least two other European countries, Hungary and Germany, have ruled that such numbering systems are not constitutionally permissible.<sup>98</sup>

Oddur Benediktsson, writing on behalf of the group Mannvernd, drafted a statement about data protection issues which was sent to the committee and also presented at a conference held by the committee on 11 June 2005. The statement, which in fact dealt with much more than the kennitala, advised that “the use of Hagstofa’s kennitala be restricted and limited to the National Register and the health care system” and that “circulation of the National Register be stopped, and the Register used only within government administration.”<sup>99</sup> As grounds for this recommendation,

95 See Ian Watson, “Cognitive design: creating the sets of categories and labels that structure our shared experience” (Ph.D. dissertation, Rutgers University, 2005), section 4.

96 Nefnd um endurskoðun stjórnarskrár Lýðveldisins Íslands, “Afangaskýrsla,” February 2007, p. 4 (available at <http://www.stjornarskra.is/media/frettir/februar.pdf>); “Stjórnarskrárnefnd skilar tillögum og áfangaskýrslu”, press release, 19 February 2007 (available at [http://www.stjornarskra.is/Stjornarskra\\_Frettir/nr/2538](http://www.stjornarskra.is/Stjornarskra_Frettir/nr/2538)).

97 See Article 35, section 5 of the Portuguese constitution: “É proibida a atribuição de um número nacional único aos cidadãos.” Text available at [http://app.parlamento.pt/LivrosOnLine/Vozes\\_Constituente/home.html](http://app.parlamento.pt/LivrosOnLine/Vozes_Constituente/home.html).

98 Hungary: Constitutional Court (Alkotmánybíróság) decision 15/1991 (available at <http://www.mkab.hu/hu/frisshat.htm>; English translation available as of 2009 at [http://www.uoou.cz/judik\\_hungarian\\_constitutional\\_court.pdf](http://www.uoou.cz/judik_hungarian_constitutional_court.pdf)). Germany: Federal Constitutional Court (Bundesverfassungsgericht), Urteil 15. Dezember 1983, BVerfGE 65, 1 - Volkszählung.

99 “Notkun kennitölu Hagstofu Íslands sé heft og takmarkist við þjóðskrá og notkun í heilbrigðis-kerfi” and “dreifingu þjóðskrár sé hætt og sé hún einungis notuð við opinbera stjórnsýslu.”

Oddur cited the increasing ease of combining databases, given advances in computer technology.<sup>100</sup>

In October 2005, the author wrote a magazine article about personal identification numbering in Iceland. The article suggested that the strength of the kennitala system was in its openness, and it criticized Oddur's speech, as well as the Data Protection Authority's rulings, as pushing Iceland towards creating an identity system which would replicate the flaws of the American arrangement. A copy of this article was also sent to the constitutional committee.<sup>101</sup> The constitutional committee's 2007 report noted receiving both contributions, and did not recommend any specific action on kennitala matters.<sup>102</sup>

## 16. The Data Protection Authority's rulings on individual cases

Under the provisions of law 77/2000, the Data Protection Authority has become involved in cases where disputes have arisen over whether use of the kennitala has been objectively necessary. The Data Protection Authority has the right to ban use of the kennitala in a given context and to levy fines on those who do not comply. It is important, though, to make clear that kennitala matters have formed only a very small part of the Data Protection Authority's work.

As of 2008, five cases involving the kennitala had come to the Data Protection Authority's attention, but only one of them had resulted in a formal ruling about kennitala use. In that case, the name, address, and kennitala of a particular person had been posted by others on the comment section of an Internet site. The person involved complained. The Data Protection Authority did not oppose the publication of his name and address, but did rule that the manager of the website had to remove the person's kennitala.<sup>103</sup> This ruling supports the protectionist view that a person's kennitala is at least to some degree in a private sphere – more so than their name, at least – and that those proposing to use it have a duty to consider whether such use has a clear purpose that accords with article 10 of the 2000 law.

Three other cases resulted only in correspondence between the Data Protection Authority and the parties involved. In one, the Data Protection Authority seemed to defend the rights of a passenger ship to record passengers' kennitölur,<sup>104</sup> in another,

100 Oddur Benediktsson, "Verndun persónubundinna upplýsinga," lecture at the conference "Stjórnarskrá til framtíðar" sponsored by the Constitutional Committee, Hótel Loftleiðir, Reykjavík, 11 June 2005. The lecture was also submitted to the constitutional committee and is available at [http://www.stjornarskra.is/media/stjorn\\_erindi/ob-fridhelgi.pdf](http://www.stjornarskra.is/media/stjorn_erindi/ob-fridhelgi.pdf).

101 Ian Watson, "We know your identity number: and that's not a bad thing," *Reykjavík Grapevine*, 7 October 2005 (issue 14), pp. 18-19.

102 Nefnd um endurskoðun stjórnarskrár Lýðveldisins Íslands, "Afangaskýrsla," February 2007, pp. 17-19 (available at <http://www.stjornarskra.is/media/frettir/februar.pdf>).

103 Persónuvernd, úrskurður í máli 2004/158, "Birthing kennitölu á spjallvef" (available at <http://personuverndvefur.eplia.is/efst-a-baugi/urskurdir-og-alit/2004/greinar/nr/130>).

104 Persónuvernd, "Kennitölunotkun í farþegaskipi," response to e-mail dated 21 July 2005 (available

the Authority ultimately did not take a position on whether a theater could ask ticket buyers for their kennitala;<sup>105</sup> and in a third, the Authority pointedly asked a bookstore for further justification of why they considered it necessary to list the kennitala on store credit slips, but ultimately did not issue a ruling after the bookstore stated its intent to change its policies.<sup>106</sup>

A final case is noteworthy because it exemplified how the kennitala can become a proxy target or scapegoat for the issue of identification in general. In 2006, an Icelandic who was changing a small amount of Danish currency into Icelandic currency at a bank was refused service after refusing to provide their kennitala. A complaint was sent to the Data Protection Authority, and on the face of it, the issue at hand appeared to be the extent of permissible kennitala usage. The real issue, though, turned out to be whether a bank may demand that a customer in a low-value foreign currency transaction identify themselves in a traceable way (for example, by giving their kennitala). The Data Protection Authority's ruling conveys the view that banks do not have such a right, which makes the issue of whether the kennitala is used for such purposes moot.<sup>107</sup> This is far from the only time when the kennitala as an institution has become a focus of attention in connection with questions which really revolve around the act of identifying people in general.

In general, one can say that the Data Protection Authority has interpreted the restraints placed on kennitala usage by law 77/2000 as making the kennitala different in quality from a name. A name is seen as a more innocent way of identification than the kennitala. The Data Protection Authority appears to advocate a standard of conduct in which the kennitala should not be used if other means of identification are sufficient. This represents a step away from the free use of the kennitala that prevailed in Iceland before that. But this stance does not seem to have had a real effect on the kennitala's role in daily life, and casual use of it is still considerable.

## 17. Current status and implications

The discussions over the past ten years have actually resulted in relatively few changes in the day-to-day usage of the kennitala in Icelandic society. The kennitala is still, in effect, a publicly available unique personal identifier. It is now only negligibly more difficult for Icelanders to find out the name that corresponds to a given kennitala or vice versa. The kennitala is still in extremely wide and unquestioned use in every sector of Icelandic society. Image 11, for example, shows a petition tacked up in

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at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar/nr/198>).

105 Persónuvernd, "Kennitala - tónleikamiðar," undated (available at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar/nr/156>).

106 Persónuvernd, "Kennitölur á inneignarnótum," undated (available at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar/nr/167>).

107 Persónuvernd, álit í máli 2005/263, "Krafa um kennitölu við kaup á gjaldeyri" (available at <http://www.personuvernd.is/efst-a-baugi/urskurdir-og-alit/2006/greinar/nr/218>).

a common area of the University of Iceland in fall 2007, asking for extended weekend opening hours at the university library during exam period. The petition's design includes a space for each signer's name and then each signer's kennitala. It is not uncommon for students to include both their name and kennitala on written work at Icelandic universities. Newborn children in Iceland receive a kennitala long before their parents are asked to decide what the child's name will be.

"In Iceland we take it for granted that there is a National Register, meaning that a government agency handles civil registration and keeps a list of every person," Hallgrímur Snorrason said in 1985. "But this is by no means an inescapable thing, and in many developed countries the idea of having a National Register like ours and using it as we do is not considered feasible [...]"<sup>108</sup> Indeed, Iceland's system is more the exception than the rule in a worldwide context.

Some countries maintain a residence registry for all inhabitants (which is used to generate voting and taxation lists), some assign an identification number to each inhabitant, some issue each resident with an identity card, and some do none of these things. The Scandinavian countries have systems which are broadly similar to Iceland, where residence registration and identity numbers are important but identity cards are not. Some other European countries require residence registration, and even issue identity cards, but do not use identity numbers and may even have laws forbidding their use. The Anglo-Saxon countries lack a tradition of residence registration. The introduction of more systematic identity and registration procedures has been a matter of great controversy in the United States, Britain, and Australia and has often been criticized fiercely. Discussion often focuses on the symbolic token of the identity card rather than on the dry details of numbering or the act of registering one's address.

The case of Iceland, however, shows that numbering, rather than cards or other physical tokens of identity, can be the key feature of how a society's personal identification system is structured. The Icelandic numbering system is also interesting be-

Nafn:	kt.
Ásgeir P. Þorsteinsson	kt. 130282-5557
Jon Fríðrik Jónsson	kt. 071287-2549
Þóráð Guðlaugsson	kt. 260906-3259
Elisabet Sæðis Páskaldottir	kt. 111084-3009
Halldór Snorrason	kt. 1407185-2139
Sigrún Edda Halldóttir	kt. 081285-2259
Klára Þorvaldsson	kt. 240586-2679
Saga Snorrason	kt. 241254-2479
Hanna María Þorvaldsson	kt. 011182-3199
Elgar Snorrason	kt. 140326-5239
Þorvaldur Snorrason	kt. 111170-2909
Þórunn Anna Þorvaldsson	kt. 040688-2989
María Þorvaldsson	kt. 261179-5679
Halldór Snorrason	kt. 050483-3559

Image 11: Petition for extended library hours showing typical use of the kennitala.

<sup>108</sup> Hallgrímur Snorrason, "Endurskipulagning Þjóðskrár": "Hér á landi þykir sjálfsgagt, að rekin sé þjóðskrá, þ.e. að opinber stofnun annist almannaskráningu og haldi skrá yfir öll landsins börn. Þetta er þó engan veginn sjálfsgaður hlutur og í mörgum iðnríkjum þykir ekki fært að halda eina grunnskrá eins og þjóðskráin okkar er og beita henni eins og við gerum [...]"

cause it is open (with relatively easy public access to a database linking names to numbers and showing addresses as well); little value is attached to knowing someone else's number, since the number is used to state but not to authenticate identity;<sup>109</sup> and the number transparently encodes holders' birthdates. In the United States, people go to great lengths to avoid disclosing their Social Security number (as it is often used as an authenticator), and there is a great fear of "identity theft" and other types of imposture. Icelanders are generally casual about disclosing their identity numbers, and yet identity theft is extremely rare in Iceland.<sup>110</sup> It is difficult to judge whether the success of the Icelandic numbering system is an effect of Iceland's small scale or of superior design choices in the system's development, and there is no room in this article for a full technical discussion of the arguments in favor and against Icelandic-style approaches. But Hallgrímur Snorrason has said that "one can argue that [Iceland's] use of a single comprehensive system of identification numbers throughout public administration and in creating statistical reports has saved considerable resources and had a decisive effect on performance and results."<sup>111</sup> At the very least, studying the Icelandic national identification number system poses questions which policy-makers in other countries might benefit from trying to answer.

## 18. Conclusion: public semiotics

One can discern a field of scholarship which could be called "public semantics" or "public semiotics." This is the study of the labels for things that are used publicly to refer to the things around us, such as houses, cars, streets, postal districts, bus routes, and, yes, people.<sup>112</sup>

From a linguistic and semiotic perspective, the kennitala's place in the history of the way we refer to people is particularly interesting. Names, qualified in various

109 Smári McCarthy also points up the importance of this factor in "Við vitum hver þú ert," *Morgunblaðið*, 23 June 2008 (available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=1223969](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=1223969)).

110 According to Rannveig Þórisdóttir, director of the department of information and planning at the Greater Reykjavík police department, identity theft is "extremely rare" (*afar sjaldgæft*) in Iceland and there are "very few cases" (*mjög fá mál*). She estimates that there are three to five reported cases per year where an attempt is made to authenticate a transaction with an identity document not belonging to the person in question. She adds that identity-related crimes are poorly defined, because they are classified statistically in a category that is very large (interview, 20 July 2010).

111 "Má fullyrða að beiting eins heildstæðs kerfis auðkennistalna í allri stjórnsýslu og við hagskýrslugerð hefur skipt sköpum um afköst og árangur og sparað mikla fjármuni." (Minningargrein um Klemenz Tryggvason, *Morgunblaðið*, 11 July 1997, p. 30.)

112 A few examples of this literature are, on clothing sizes: Susan P. Ashdown, "Sizing systems in the apparel industry" (n.d.), available at <http://www.sizingsystems.human.cornell.edu>; on floor numbering, Paul Arthur and Romedi Passini, *Wayfinding: people, signs, and architecture* (New York: McGraw-Hill, 1992); on postal codes, R. Conrad, "Designing postal codes for public use," *Ergonomics* 10 (1967): 233-238; on house numbers, Anton Tantner, *Die Hausnummer: eine Geschichte von Ordnung und Unordnung* (Marburg: Jonas Verlag, 2007); and on numbering in general, Thomas Crump, *The anthropology of numbers* (Cambridge: Cambridge University Press, 1990).

ways, have for centuries been the most common way to refer to people. Different names may be used in different circumstances, so that the same person might have a “normal” name (John Johnson), a formal version used on official documents (John Robert Johnson), and an informal version used among friends (Johnny). The increasing use of numbers in Iceland, and also elsewhere, leads one to ask whether they are simply taking their place with other names among the variety of ways in which people refer to themselves. According to this way of thinking, the kennitala is a name that one uses in some situations, usually those where exact personal reference is important, and not, for example, among friends. It is also the first name that Icelandic children receive, on the day of their birth or the day after, whereas they often do not receive their traditional first name until some weeks later and nicknames may not be determined until a child is several years old. Another way in which the Icelandic kennitala system is similar to naming is that Icelandic kennitala is not normally used as an authenticator. This way of looking at the kennitala downplays the difference between naming and numbering and emphasizes the continuum of ways in which humans refer to themselves.

In this sense, Iceland is of anthropological interest as the human society which has pushed the development of a public, numerical system of names the furthest. Other countries have numbers for people too, but not even the other Scandinavian countries have gone as far as Iceland in making those numbers open and part of everyday personal reference. The development of the national identification number as a name represents a real (if minor) change in the workings of society. Iceland is the country that best exemplifies this change – to the extent that the kennitala continues to be open and not used as a “secret code” to authenticate the bearer’s identity. If the kennitala were kept secret, it would no longer be akin to an everyday name.

Looking at the kennitala as a new kind of name encourages a pragmatist argument that it is absurd to criticize kennitala “overuse” because doing so is basically akin to criticizing the overuse of peoples’ names. However, a protectionist response might be that there is a crucial difference between numbers and names, namely that numbers are guaranteeably unique, and that the arrival of the Internet, data mining, and easy access to databases changed the rules of the game completely. In turn, a pragmatist response might be that the crucial difference is between numbers that are secret codes and numbers that are open identifiers, that one ought not to criticize open identifiers as if they are secret codes, and that one ought not to make them a scapegoat for concerns about database privacy.

Anton Tantner, who has made a detailed study of house-numbering practices in the Austro-Hungarian Empire, has shown how the imperative to number houses was linked to the bureaucratic requirements of the state, such as taxation and military conscription.<sup>113</sup> It is tempting for some to say that public numbering systems are a tool of state control over individuals, to speak critically of them on those grounds,

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113 Tantner, *Die Hausnummer*.

and to regard them historically as a potentially unnecessary extension of state power.<sup>114</sup> However, it is just as easy to emphasize how governments, in creating house numbers, national identification numbers and every other kind of number, are aiding in the imposition of technologies which have considerable benefit for people but could not be implemented without the development of coordinated semantic systems. In many such cases (say, telephone numbering plans, utility meters, or Internet addressing), the state is not the actor, or at least was not the original actor.

These acts of cognitive coordination are essential for getting things done. The possession of an identification number is just as often cause for pride in belonging as a symbol of submission to a system of social control. In saying this the author is deliberately showing sympathy for the pragmatist camp, at least in Iceland. Yet it is important to pay attention to the concerns brought by protectionistically oriented writers, and it is important that these debates continue so that solutions can be found that are as fair as possible to all interests involved. It is also important to support scholarly studies of public numbering systems. They are not just of antiquarian interest but also relevant to pressing issues of human rights, freedom, identity and power.

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## References: Printed sources

- Anderson, Ross, et al. *Database state*. Water End, York: Joseph Rowntree Reform Trust, 2009.
- Arthur, Paul, and Romedi Passini. *Wayfinding: people, signs, and architecture*. New York: McGraw-Hill, 1992.
- Ashdown, Susan P. "Sizing systems in the apparel industry." Undated. Available at <http://www.sizingsystems.human.cornell.edu>.
- Clarke, Roger. "Human identification in information systems: management challenges and public policy issues," *Information Technology & People* 7, 4 (December 1994): 6-37. Available at <http://www.rogerclarke.com/DV/HumanID.html>.
- Conrad, R. "Designing postal codes for public use." *Ergonomics* 10 (1967): 233-238.

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114 Two titles that exemplify this are Carl Watner and Wendy McElroy, eds., *National identification systems: essays in opposition* (Jefferson, N.C.: McFarland, 2004); Richard Sobel, "The demeaning of identity and personhood in national identification systems," *Harvard Journal of Law & Technology* 15 (2002): 320-387.



- Crump, Thomas. *The anthropology of numbers*. Cambridge: Cambridge University Press, 1990.
- Folkbokföringsuppgifter hos arkivmyndigheterna. Statens offentliga utredningar 2004/106.
- Fortun, Michael. *Promising genomics: Iceland and deCODE Genetics in a world of speculation*. Berkeley: University of California Press, 2008.
- Gandy, Oscar H. *The panoptic sort: a political economy of personal information*. Boulder: Westview, 1993.
- Hallgrímur Snorrason. "Endurskipulagning Þjóðskrár." Lecture at meeting of Skýrslutækni-félag Íslands, 1 October 1985. Available at <http://hagstofa.is/lisalib/getfile.aspx?itemid=1733>.
- Íbúaskrá Reykjavíkur 1. desember 1954. Gefið út af Hagstofu Íslands fyrir hönd Allsherjar Spjaldskrárinnar. Reykjavík, 1 apríl 1955.
- Íbúaskrá Reykjavíkur 1. desember 1963. Reykjavík: Hagstofa Íslands, 1964.
- Íbúaskrá Reykjavíkur 1. desember 1964. Reykjavík: Hagstofa Íslands, 1965.
- Jón Þór Þórhallsson and Jón Zóphoniasson. "Tölvuvinnsla Hagstofunnar." Pp. 247-257 of Sigurður Snævarr, ed., *Klemensarbók: afmælisrit Klemensar Tryggvasonar*. Reykjavík: Félag viðskiptafræðinga og hagfræðinga, 1985.
- Klemens Tryggvason. "Hagstofa 1951-1964." *Hagtiðindi* 49 (1964): 44-57.
- Krogness, Karl Jakob. "Registration in Denmark." Unpublished manuscript, Ritsumeikan University, 2009.
- Lyon, David. *Identifying citizens: ID cards as surveillance*. Cambridge: Polity, 2009.
- Lyon, David, ed. *Surveillance as social sorting: privacy, risk, and automated discrimination*. London: Routledge, 2003.
- Nefnd um endurskoðun stjórnarskrár Lýðveldisins Íslands. "Afangaskýrsla." February 2007. Available at <http://www.stjornarskra.is/media/frettir/februar.pdf>.
- Oddur Benediktsson. "Skýrslutækni-félag Íslands 25 ára." *Morgunblaðið*, 6 April 1993, p. 55.
- Oddur Benediktsson. "Verndun persónubundinna upplýsinga." Lecture at the conference "Stjórnarskrá til framtíðar," sponsored by the Constitutional Committee, Hótel Loftleiðir, Reykjavík, 11 June 2005. The lecture as submitted to the Icelandic constitutional revision committee is available at [http://www.stjornarskra.is/media/stjorn\\_erindi/obfridhelgi.pdf](http://www.stjornarskra.is/media/stjorn_erindi/obfridhelgi.pdf).
- Oddur Benediktsson, Jóhann Gunnarsson, Egill B. Hreinsson, Jakob Jakobsson, Örn Kaldalóns, Óttar Kjartansson, Ólafur Rósmundsson, Helgi Sigvaldason, Gunnar Stefánsson, and Jón Zophoniasson. "Computerisation of the Icelandic state and municipalities from 1964 to 1985." Pages 45-60 of *History of Nordic computing: IFIP WG9.7 first working conference on the history of Nordic computing (HiNC1), June 16-18, 2003, Trondheim, Norway*, edited by Janis Bubenko, Jr., John Impagliazzo, and Arne Sølvénberg. New York: Springer, 2005.
- Óttar Kjartansson. *Upplýsingaiðnaður í hálfa öld: saga Skýrr 1952-2002*. Reykjavík: Skýrr, 2002.
- "The personal identification number." Section 4.2 in "The civil registration system in Denmark" (2001). Available on the website of Det Centrale Personregister: <http://www.cpr.dk>.
- Piazza, Pierre. *Histoire de la carte nationale d'identité*. Paris: Odile Jacob, 2004.
- "Saga Skýrr í hnotskurn." Accessed October 2007 at <http://www.skyrr.is/um-skyrr/sagan>.
- Setel, Philip W., et al. "A scandal of invisibility: making everyone count by counting everyone." *The Lancet* 370 (2007): 1569-1577.

- Sigurður Gylfi Magnússon. *Wasteland with words: a social history of Iceland*. London: Reaktion Books, 2010.
- Singer, Paula N., and Linda Dodd-Major. "Identification numbers and U.S. government compliance initiatives." *Tax Notes* 104, 13 (20 September 2004).
- Sobel, Richard. "The demeaning of identity and personhood in national identification systems." *Harvard Journal of Law & Technology* 15 (2002): 320-387.
- "Stjórnarskrárnefnd skilar tillögum og áfangaskýrslu." Press release, 19 February 2007. Available at [http://www.stjornarskra.is/Stjornarskra\\_Frettir/nr/2538](http://www.stjornarskra.is/Stjornarskra_Frettir/nr/2538).
- Szreter, Simon. "The right of registration: development, identity registration, and social security – a historical perspective." *World Development* 35 (2007): 67-86.
- Tantner, Anton. *Die Hausnummer: eine Geschichte von Ordnung und Unordnung*. Marburg: Jonas Verlag, 2007.
- Underwood, Benton J., and Rudolph W. Schulz. *Meaningfulness and verbal learning*. Chicago: Lippincott, 1960.
- Watner, Carl, and Wendy McElroy, eds. *National identification systems: essays in opposition*. Jefferson, N.C.: McFarland, 2004.
- Watson, Ian. "Cognitive design: creating the sets of categories and labels that structure our shared experience." Ph.D. dissertation, Rutgers University, 2005.

## Newspaper articles in chronological order

*Note: The sources for advertisements and the list showing the progression of the name number in the 1960s and 1970s are not listed here, but are given fully in the text.*

- "Vélsþjaldaskrá yfir alla Íslendinga að verða fullgerð." *Morgunblaðið*, 17 October 1953, p. 1.
- "Sérstakar ráðstafanir vegna niðurfellingar manntals hér." *Morgunblaðið*, 2 November 1954, p. 1.
- "Manntal fellur niður í Reykjavík." *Morgunblaðið*, 2 November 1955, p. 6.
- "Íbúaskrá Reykjavíkur er komin út." *Morgunblaðið*, 17 July 1956, p. 11.
- "Ný samlagsskírteini Sjúkrasamlags Rvíkur." *Morgunblaðið*, 24 November 1963, p. 2.
- "Nafnskírteini fyrir einstaklinga 12 ára og eldri." *Morgunblaðið*, 5 March 1965, p. 8.
- "Nafnskírteini afhent þeim sem vilja í næstu viku." *Morgunblaðið*, 24 June 1965, pp. 2-3.
- "Nafnskírteini og fjölskyldubætur." *Morgunblaðið*, 26 February 1966, p. 4.
- "Íbúaskrá Reykjavíkur komin út." *Morgunblaðið*, 11 May 1968, p. 12.
- "Orðin allra kerlinga elst: Tölvun neitaði að trúa aldrinum." *Þjóðviljinn*, 15 April 1980, p. 16.
- Guðrún Guðlaugsdóttir. "Þjóðskráin er undirstaða stjórnsýslu í landinu." *Morgunblaðið*, 21 April 1985, pp. B18-19.
- "Hagstofan taki afnám nafnnúmera til endurskoðunar." *Morgunblaðið*, 15 May 1986, p. 2.
- "Spörum nafnnúmeramilljónir." (Author identified only by the nafnnúmer 1111-2226.) *DV*, 23 May 1986, p. 11.
- "Kennitölur verða á skattframtölunum." *Morgunblaðið*, 18 December 1986, p. 49.
- Kristján Ingvarsson. "Kennitala í stað nafnnúmers: hagræðing eða persónunjósnir?" *DV*, 24 April 1987, p. 13.
- "Kennitölur notuð frá áramótum hjá hinu opinbera." *Morgunblaðið*, 24 December 1987, p. 13.
- "Kennitala á greiðslukortum til öryggis." *Morgunblaðið*, 5 January 1995, p. 2.
- Minningargrein um Klemenz Tryggvason. *Morgunblaðið*, 11 July 1997, p. 30.

Lyall, Sarah. "A country unveils its gene pool and debate flares." *New York Times*, 16 February 1999.

"Lög um persónuvernd draga úr ofnotkun kennitölu." *Morgunblaðið*, 1 June 2000. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=538647](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=538647).

"Hagstofustjóri telur kennitöluna ofnotaða." *Morgunblaðið*, 20 October 2000. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=565958](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=565958).

"Persónuvernd berst aukinn fjöldi kvartana." *Morgunblaðið*, 4 January 2004. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=773076](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=773076).

"Ekki hefur orðið vart misnotkunar hér." *Morgunblaðið*, 7 January 2004. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=773561](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=773561).

"Netaðgangur að þjóðskrá takmarkaður." *Morgunblaðið*, 11 March 2004. Available at <http://www.mbl.is/mm/frett.html?nid=1075485>.

"Kennitölur feli ekki í sér persónuupplýsingar." *Morgunblaðið*, 31 March 2004. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=789921](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=789921).

"Sátt verður að ríkja um notkun þjóðskrárinnar." *Morgunblaðið*, 27 April 2004. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=794652](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=794652).

Watson, Ian. "We know your identity number: and that's not a bad thing." *Reykjavík Grapevine*, 7 October 2005 (issue 14), pp. 18-19.

"Flest barnanna komin í skóla á Ísafirði." *Morgunblaðið*, 9 July 2006. Available at [http://www.mbl.is/mm/frettir/innlent/2006/09/07/flest\\_barnanna\\_komin\\_i\\_skola\\_a\\_isafirdi](http://www.mbl.is/mm/frettir/innlent/2006/09/07/flest_barnanna_komin_i_skola_a_isafirdi).

Smári McCarthy. "Við vitum hver þú ert." *Morgunblaðið*, 23 June 2008. Available at [http://www.mbl.is/mm/gagnasafn/grein.html?grein\\_id=1223969](http://www.mbl.is/mm/gagnasafn/grein.html?grein_id=1223969).

## Interviews

Guðni Baldursson, employee of the National Registry. Reykjavík, 31 August 2007. Second interview, 7 November 2007.

Hallgrímur Snorrason, former director of Hagstofa Íslands. Reykjavík, 5 February 2008. Second interview, 29 October 2009.

Oddur Benediktsson. Reykjavík, 8 October 2009.

Rannveig Þórisdóttir, director of the department of information and planning at the Greater Reykjavík police department. Reykjavík, 20 July 2010.

Skúli Guðmundsson, director of the National Registry. Reykjavík, 28 March 2008.

## Manuscript sources

Íbúaskrár for 1 December 1953. Held by the National Registry.

Letter from Hallgrímur Snorrason, 15 January 1986. Courtesy of Hallgrímur Snorrason.

## Government documents

Alkotmánybíróság (Constitutional Court of Hungary), decision 15/1991. Available at <http://www.mkab.hu/hu/frisshat.htm>. English translation available as of 2009 at

[http://www.uouu.cz/judik\\_hungarian\\_constitutional\\_court.pdf](http://www.uouu.cz/judik_hungarian_constitutional_court.pdf).

*Alþingistíðindi*. 85. löggjafarþing, 1964-1965. Þingskjal 302. Section A, pp. 950-959.

- Alþingistíðindi*. 85. löggjafarþing, 1964-1965. Discussion of þingskjal 302. Section B, pp. 771-778.
- Alþingi, 125. löggjafarþing 1999-2000, þingskjal 399. Proposed law on data protection. Available at <http://www.althingi.is/altext/125/s/0399.html>.
- Alþingi, 130. löggjafarþing 2003-2004, Þskj. 1248 — 820. mál. Proposal to eliminate the birthdate from the kennitala. Available at <http://www.althingi.is/altext/130/s/1248.html>.
- Alþingi, 131. löggjafarþing 2004-2005, Þskj. 14 — 14. mál. Proposal to eliminate the birthdate from the kennitala. Available at <http://www.althingi.is/altext/131/s/0014.html>.
- Bundesverfassungsgericht (Federal Constitutional Court of Germany), Urteil 15. Dezember 1983, BVerfGE 65, 1 - Volkszählung.
- Comments by Persónuvernd to Alþingi, erindi 131/170 (14. mál), 22 November 2004. Available at <http://www.althingi.is/pdf/umsogn.php4?lthing=131&malnr=14&dbnr=170&nefnd=a>.
- Comments by Hagstofa Íslands to Alþingi, erindi 131/309 (14. mál), 30 November 2004. Available at <http://www.althingi.is/pdf/umsogn.php4?lthing=131&malnr=14&dbnr=309&nefnd=a>.
- Constitution of Portugal. Text available at [http://app.parlamento.pt/LivrosOnLine/Vozes\\_Constituente/home.html](http://app.parlamento.pt/LivrosOnLine/Vozes_Constituente/home.html).
- European Union. "Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data." Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:EN:HTML>.
- Persónuvernd (Icelandic Data Protection Authority). Úrskurður í máli 2004/158, "Birting kennitölu á spjallvef." Available at <http://personuvernd.is/efst-a-baugi/urskurdir-og-alit/2004/greinar//nr/130>.
- Persónuvernd. Álit í máli 2005/263, "Krafa um kennitölu við kaup á gjaldeyri." Available at <http://www.personuvernd.is/efst-a-baugi/urskurdir-og-alit/2006/greinar//nr/218>.
- Persónuvernd. "Kennitölur á inneignarnótum," undated. Available at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar//nr/167>.
- Persónuvernd. "Kennitala - tónleikamiðar," undated. Available at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar/nr/156>.
- Persónuvernd. "Kennitölunotkun í farþegaskipi." Response to e-mail dated 21 July 2005. Available at <http://www.personuvernd.is/efst-a-baugi/ymis-bref/greinar/nr/198>.
- Þjóðskrá (National Registry). "Aðgangur að Þjóðskrá." Accessed November 2008 at <http://www.thjodskra.is/adgangur-ad-thjodskra>.