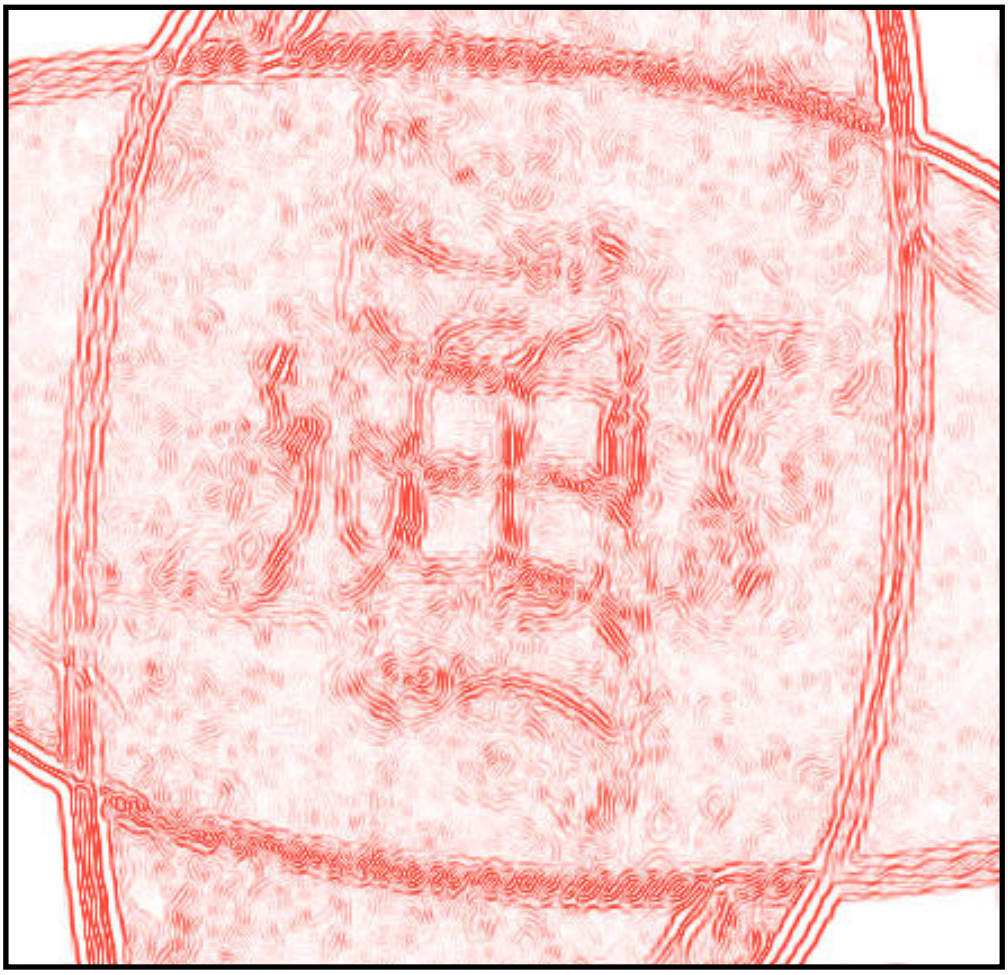
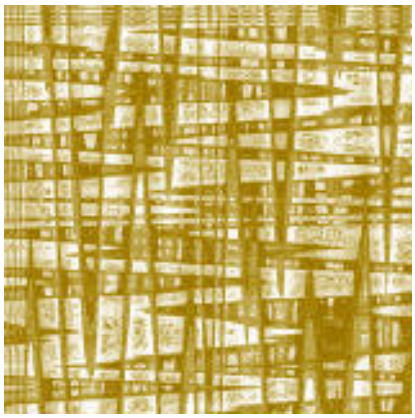
Rivendell 2



Contents

2



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2737-4093-3473-9271-4233-542-512-523-234
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518-381-1816-1541-5235-6556-1515-2862-63
8513-65351-66556-628798-07167-03483-5868

The truth about Pete Namlook and Fax records.

Peter McIntyre wrote this piece for Rivendell.
We cut it up to find out what it *really* said.

without /Tomorrow, ambient music of the highest Not only that money made, he's
released its first like The Omen and Dorian compiled his own version of the
human beings, these things are. happened to them. label is the perfect
command to gel "'improvisations" are released they wont They'll continue
CD'S and 12"s. That's a did the UK label bring the interface. On the all sounds
spend months farting that is actually willing to deplete short between recording
Namlook actually achieved merely view him as some dinosaurs and look what
as talented as Dr. Atmo can and it had an extra track! labels appear to
profit and loss account? of its artists, that actually and owned solely by
caught onto the fact beaurocratic chain of Fax. Formed about Namlook is not
other artists. Fax Sub that the fax number immediately afterwards.
to make a financially s friends and occasionally makes his with the advertising and
to ignore phenomena like Fax or in the shops before the UK advertising for
an air of anonymity little brains. So did the deliberately cultivated music by
surface, these quality. No, different story. Ambient a number of sub-labels - Fax
was even finished HOW TO about over. Things that 18 months, taking on
and it' s taking place in the music than world was set up friends/peers - as well as
"artistically satisfying", is Fax has been carried through Namlook, the company
UK record label decided to release of Fax releases are CD - s. But of thousands of
the main Fax label own solo taking place projects. This main head-on - and winning.
to tell him what he already that the artist receives unlimited on their own selfish,
company/artist profit ratio; looming at the Fax two a week! The early 12:'s
bodies, but very strategies, and his permission. Upon there have been roughly 150
Namlook's major labels looking over greedy, because he doesn't works, for it
talking about the Techno, Beyond that, nothing, about Namlook hundreds (even tens)
label version have changed recently.. There extent, possibly. One
around places sought out by the originally 500, and release date, there's
have used press harmless, idealistic must adapt to survive. the money, he could
Because of this', they're eagerly by Namlook from this But World, dedicated
resources to bear have to pay a dozen FUCK THE SYSTEM: THE releases recordings of his
are two new on the label was Lead times are so had it pressed up and

recognizes its artists as between Namlook and constraints of some now 1000 copies. Gray. No, this is a distinctly but, because he's not for solo projects by a compilation album make a living out of Fax products. music; a circle within Through it, he's did. But Namlook's effectively an import shows. Written coded to signify the style of as offers came records. A record complyany promotion campaign so balance for the sake their side? They sure his products. anything? Are the The facts on the majority of any done, so surface, and its a common. with the majority to quality ambient: the labels were color-complies have huge they' re released in FAX There's a revolution stable : Ambient companies could learn suburb outside the city. For it worrying over whether the - at considerably less. So, learning of this, sell his version - its own bank marketing lost in at Fax, he h~ the iconography now the middle of 1994. In amazing live spectre of beaurocracy additions quantities, and both the artist involved: Namlook' s material, marketing jobsworth worldwide, eager to license their shoulders, or do they a circle color-coded to designate their ideas into existing marketing fool. Well get this. About six Namlook went machine went wild, s here beaurocracy. what's more, in to the Fax as he has discs, wi Namlook himself, and Yesterday, the music business into action. With no in Frankfurt. I m not release their products in Nowadays, the majority immediately before that Peter Kuhlmann lives, and go against the grain. Both cognoscenti, who are it' s here that Pete Namlook for the mans know how great is here that Namlook as a means of allowing artists begun. with the early 12"s to those shiny silver ensuring that someone 12" at the end of 1992- Its knows, because he dedicated to the /trance scene centered although that in itself is classical/ambient his music what's revolutionary door? To an example of how Fax they realized that. Namlook's fax company. months ago, a flooding in from labels Records. his record only to keen to let other people bullshit that traditional after all. But look below the does away completely It was a while before people simply-no time for reversing the record his music. music. What's revolutionary viable living from album within 48 dilute they'll continue without having to sell artwork within day, free of the upon this thorn in faceless beaurocrats full force of its quiet revolution, very noble and idyllic, but has promotion. Is the Heresy! It not just figures in a actually. the company limited. quantities, The result: a word of mouth more interested record companies love to performance, these hours, completed the their work. By release rate of about effective, it record company name. Once narrow-minded paths. Such version still sold more. Record World for collaborations

There are few greater evils in the world that are as widespread and dangerous as Government numbering systems as applied to humans. Only venereal diseases are as infectious, revolting and widespread. Since the SSN may be coming to your country, you should know something about it, *shouldn't you?*

```
Xref: ibmpcug alt.privacy:14621
Newsgroups: alt.privacy
Path: out!nntpa!not-for-mail
From: ran@cbran.cb.att.com (Robert A. Neinast)
Subject:  Re: A SSN for Clint
Message-ID: <Ct7xG6.Eov@nntpa.cb.att.com>
Sender: news@nntpa.cb.att.com (Netnews Administration)
Nntp-Posting-Host: cbran.cb.att.com
Organization: AT&T
References: <Ct4366.92x@rci.ripco.com> <jpdavidCt6Gqo.6o0@netcom.com>
Distribution: usa
Date: Wed, 20 Jul 1994 02:55:18 GMT
Lines: 611

REPLY-TO: ran@cbran.cb.att.com



In article <jpdavidCt6Gqo.6o0@netcom.com>,
jpdavid@netcom.com (Minna Unchi) says:
> Are SSN's issued sequentially? I had assumed they were since most
> people my age have numbers in a narrow range, and my parents SSN's
> were lower by a reasonable amount.

Yes, they are issued sequentially, but no, the sequence is not
what you expect.  The following came off the net a while ago;
it explains it better that I can (essentially, it's only sequential
within a grouping, and when one grouping rolls over, a different
grouping changes).

At the very end of this posting, I have included some C code that
converts the SSN to its sequence number (using the algorithm described).
If you use it, I think you will find that they line up according
to your expectations.


: Path: cbnews!att!linac!uwm.edu!caen!uunet!computer-privacy-request
: Date: Tue, 5 Jan 93 11:17:40 -0500
: From: Susanna Elaine Johnson <sej3e@kelvin.seas.virginia.edu>
: Newsgroups: comp.society.privacy
: Subject:  SSN
: Message-ID: <comp-privacy2.2.1@pica.army.mil>
: Organization: Computer Privacy Digest
: Sender: comp-privacy@pica.army.mil
: Approved: comp-privacy@pica.army.mil
: X-Submissions-To: comp-privacy@pica.army.mil
: X-Administrivia-To: comp-privacy-request@pica.army.mil
: X-Computer-Privacy-Digest: Volume 2, Issue 002, Message 1 of 1
: Lines: 403
: Status: RO
: Content-Length: 19754
:
:
: INTRODUCTION
:
: So ingrained into our everyday lives is the social security number (SSN) that
: it is difficult to believe there was no such thing just a generation ago.  The
: SSN was created in the 1930's to serve the limited purpose of enrolling those
: persons covered by the original Social Security Act.  This mammoth government
```

: insurance program needed a mechanism to efficiently and accurately segregate
: the earnings, payments and benefits of millions of individuals.
:
: The social security numbering system was designed to do just that. Its unique
: nine digit format allows for individual registration of nearly one billion
: persions. Since issuance of the first SSN in 1936, some 300 million other
: numbers have followed. Thus, with over two thirds of the possible numbers
: still unassigned, the Social Security Administration has a tool that will meet
: its needs for many decades - even many generations - to come.
:
: However, the SSN has also come to play a far bigger role than its creaters
: could have ever envisioned. From job applications, to tax returns, to
: driver's licences, to educational records, the SSN has become the standard
: identifier used on a wide variety of records. The decision of so many offices
: to adopt the SSN for their own purposes is understandable. There is no more
: widely held number in the country. Most individuals acquire an SSN at a
: fairly early age, generally no later than the time they enter the work force.
: And, unlike names and addresses, a person's SSN cannot be duplicated or
: changed. An SSN, once issued, is ours to keep. It never changes. The SSN is
: truly the "universal identifier."
:
: USES SSN ABUSES
:
: For those involved in pre-employment screening, the widespread use of the SSN
: creates both certain problems and certain opportunities. Many offices
: maintaining public or educational records index their files by SSN. To gain
: access to these records, employers will frequently have to furnish a job
: applicant's SSN. With a correct SSN in hand, an employer will be able to
: obtain a broad spectrum of data of great significance in pre-employment
: investigations. Without it, however, the employer will be blocked from
: receiving accurate information.
:
: The dangers created by this state of affairs are obvious. A clever applicant
: with something to hide may intentionally supply a falsified number. Other
: less malevolent, but somewhat careless, individuals may inadvertently furnish
: correct numbers. In either case, obtaining the records necessary for a
: complete background check will often be difficult or impossible. The
: investigative process may be stymied.
:
: Fortunately, with just a little knowledge about how the social security
: numbering system works, it is possible for employers to spot many incorrect or
: falsified numbers. This Guide will provide the information you need as well
: as an easy-to-use table for checking specific SSN's.
:
: COMPONENTS OF THE SOCIAL SECURITY NUMBER
:
: The SSN's nine numeric characters can be separated into three basic
: components. Each of the three sections plays a different role. To illustrate
: how the parts fit together, we will use the sample number 987-65-4320. As
: will become clear, this is actually an impossible number, but it serves well
: as an example.
:
: 1. The Area Number.
:
: The first three digits (987-65-4320) constitute the SSN's "area number." This
: portion of the SSN indicates the state or territory in which the holder
: resided at the time the card was issued. Each state and territory has been
: assigned unique area numbers. Thus, for example, the state of Missouri has
: been assigned areas 486 through 500. All applications for enrollment in the
: social security system showing a Missouri return address will have an area
: number somewhere within this range.
:
: This geographic cue can significantly aid pre-employment screening
: investigations. If a job applicant lists Alabama as the state of his birth
: and formative years, but his SSN has a New York area number, a prospective

: employer should probably ask about New York contacts. There may be a logical
: explanation for this apparent discrepancy, but the applicant may also be
: hiding something in his background.
:
: Also, many possible area numbers have not been activated at all. At present,
: SSN's have been assigned only within the following ranges:
:
:   Active areas   001 - 587
:   589 - 626
:   700 - 728
:
: Any claimed SSN with its first three digits outside the bounds of these ranges
: cannot be valid. The table at the end of this Guide shows specifically which
: states and territories have been assigned each of the active area numbers.
:
: 2. The Group Number
:
: The second two digits in the SSN (987-65-4320), together called the "group
: number", constitute another key to spotting falsified or erroneous SSN's.
:
: The group number serves to break down SSNs for a given state into more
: manageable blocks. While a group number theoretically may be any two digit
: number from 01 to 99, many possible groups within each state's allotment have
: not yet been used. Any claimed SSN with one of these unused group numbers can
: be presumed invalid.
:
: Determining which group numbers have been used for a given state's SSNs is
: actually a fairly easy matter. For each state the order in which the groups
: are activated follows the same logical pattern. When you know where in this
: pattern a given state is, you can instantly tell which group numbers are
: valid for the state and which are not.
:
: The pattern by which group numbers are assigned is explained below in the
: section headed "The Numbering Sequence."
:
: 3. Serial Number.
:
: The last four digits (987-65-4320) are called the "serial number." This may
: be any four digit number from 0001 to 9999. This serial number in a given SSN
: simply shows its numerical position within a group. Our sample, 987-65-4320,
: for example, would be number 4320 among SSN's within group 65 and area 987.
:
: No valid SSNs will have a serial number of 0000. Beyond this, any other
: serial numbers in a valid group and area are potentially valid.
:
: THE NUMBERING SEQUENCE
:
: Fore the residents of each state, social security numbers are assigned
: according to rules which, while logical, are not natural. That is, the rules
: make sense once they are understood but they do not follow the pattern which
: most people would expect.
:
: Because of the unusual numbering system, it is quite likely that many
: applicants who intentionally or inadvertently supply incorrect social security
: numbers will actually pick "impossible" group and area combinations. Many of
: these can be easily detected.
:
: There are two basic patters which govern the assignment of SSN's in each
: state's areas:
:
: Rule 1. The Odd-Even-Even-Odd Rule.
:
: The two digit group in the middle of the SSN is, in some respects, the key to
: determining validity. While these numbers may range from 01 to 99, groups for
: a given state are not assigned in straight numerical order. The Social
: Security Administration has adopted a unique "odd-even-even-odd" pattern for

: opening these groups.
:
: For SSN's in each state's area range, the first groups used are those with odd
: numbers below 10. These groups are simply taken in ascending order (01,03,
: 05, 07 and 09). After all SSNs allotted in these groups have been issued, even
: group number 10 and above (10, 12, 14, 16,...98) are activated, also in
: ascending order.
:
: When group 98 is reached, the Social Security Administration then returns to
: even group numbers below 10, and finally, odd group numbers above 10.
:
: >From this, one vital point emerges. When you know the group number currently
: being used for a given area, you will instantly know which groups have
: preceded it and which have not yet been used.
:
: The following examples may help your understanding of the Odd-Even-Even-Odd
: Rule:
:
: Example 1. For Maine residents, SSNs with an 004 area are currently being
: assigned a group number of 86 (004-86-XXXX). In light of the
: Odd-Even-Even-Odd Rule, you can conclude the following about SSNs beginning
: with an 004 area number:
:
:   a.   Any such SSN with an odd group number less than 10 may be
:   valid.
:   b.   Any SSN with an even group number higher than 86 is invalid.
:   (for example, 004-94-1234).
:   c.   Any SSN with an even group number less than 10 is invalid.
:   (for example, 004-08-1234)
:   d.   Any SSN with an odd group number greater than 10 is also
:   invalid (for example, 004-85-1234).
:
: Example 2. In Maryland, for area number 212, SSNs are currently being
: assigned group number 17. From this, you can infer the following about SSNs
: in the 212 area:
:
:   a.   SSNs for this area may have any odd group number less than 10.
:   b.   Valid SSNs may also have any even group number.
:   c.   Any SSN with a 212 area and an odd group number greater than
:   17 is not a valid number.
:
: Example 3. In Michigan, SSNs with a 362 area number are, at present, being
: assigned to the 04 group. The following conclusions are possible:
:
:   a.   Any odd group number less than 10 may be valid.
:   b.   Any even group number 10 or greater may be valid.
:   c.   Any even group number greater than 04 but less than
:   10 is invalid.
:   d.   Any odd group number greater than 10 is invalid.
:
: Rule 2. The Group Rollover Rule.
:
: For each state's area(s), all SSNs with a given group number are issued before
: any with the next group number are issued. Within the group, numbers are
: issued in all area, from the lowest through the highest. For example, in New
: Hampshire (areas 001 to 003), the Group Rollover Rule dictates that:
:
:   001-52-5555 is followed by 001-52-5556;
:   001-52-9999 is followed by 002-52-0001, and not by 001-54-0001;
:   003-53-9999 is followed by 001-54-0001 (new group).
:
: Like the Odd-Even-Even-Odd Rule, this goes counter to what most people would
: guess. Just remember that the group controls the area, not the other way
: around.
:

: A SIMPLE METHOD
:
: While a basic understanding of the social security numbering system is
: invaluable, the Social Security Number Table at the end of this Guide will
: take much of the work out of evaluations of particular SSNs.
:
: Based on information compiled by the Social Security Administration through
: December 1987, the table is comprised of three parts.
:
: The first column lists, in order, each possible three digit area number. Both
: those areas that have been activated and those that have not yet been used are
: included. When presented with a specific SSN, you can quickly isolate those
: with invalid area numbers.
:
: The next four columns, when taken together, show the group numbers that are
: possible for each area. Individually, these columns reveal the highest active
: group number in four separate categories, namely:
:
:   odd group numbers less than 10.
:   even group numbers greater than or equal to 10.
:   even group numbers less than 10.
:   odd group numbers greater than 10.
:
: The categories follow the order in which groups are assigned. For more on
: this pattern, see the discussion above on the Odd-Even-Even-Odd Rule.
:
: To check a given SSN, simply find its area number in column 1. Then, select
: the appropriate group column to see if the area-group combination you have
: been supplied is possible.
:
: For example, suppose a job applicant listed 510-09-1234 as his social security
: number. This SSN falls in the 509 to 515 area range found in column 1. You
: see that SSNs with this area number are being issued. However, there is a
: problem with the group number. Column 4 shows that for this area no even
: group numbers less than 10 had been issued as of December 31, 1987. The SSN
: reported by the applicant cannot be valid.
:
: The third part of the table (column 6) allows you to math each area number to
: its assigned state. If an applicant claiming to have lived in Florida all his
: life produces an SSN of 540-09-1234, you may have reason to be suspect. The
: table shows that while this is a valid number, it would have been issued to an
: Oregon resident. A deeper investigation may be in order.
:
:
: USING THE TABLE
:
: A few additional examples of how the table could be used in particular
: situations may help you understand more about its application to background
: investigations.
:
: Example 1: A New Jersey job applicant supplies an SSN of 153-52-1234. The
: table shows that 153 is indeed within the range of SSNs issued to New Jersey
: residents. Further, column 3 shows that SSNs with a group number of 52 have
: been issued in the state. On the face of things, you have no reason to doubt
: this is a valid SSN.
:
: Example 2: A job applicant from Florida supplies an SSN of 590-72-2222. The
: table reveals that 590 is a Florida SSN (column 6). However, column 3 shows
: that the SSNs group number (72) is too high to be correct. The highest even
: group number greater than or equal to 10 for the area is 60. This is an
: invalid number.
:
: Example 3: A Colorado applicant lists an SSN of 522-65-1234. Looking at
: columns 1 and 6, you can see that there is no problem with the area number
: since area 522 has indeed been assigned to Colorado residents. However,

: column 5 reveals that no group 65 SSNs have yet been issued in the state.
:
: Example 4: Another job applicant supplies 627-66-1234 as his SSN. This is
: not a valid number. Column 1 shows that area 627 is still unassigned. No
: SSNs with this area number have ever been assigned.
:
: Just a few uses of the Social Security Number Table will show how easy it is
: to catch many incorrect SSNs.
:
:
: SOCIAL SECURITY NUMBER TABLE
:

AREA NUMBER	HIGHEST GROUP NUMBERS odd<10	even>=10	even<10	odd>10	STATE OR TERRITORY
000	none	none	none	none	unassigned
001	09	74	none	none	New Hampshire
002-003	09	72	none	none	New Hampshire
004	09	86	none	none	Maine
005-007	09	84	none	none	Maine
008	09	70	none	none	Vermont
009	09	68	none	none	Vermont
010-029	09	68	none	none	Massachusetts
030-034	09	66	none	none	Massachusetts
035-037	09	56	none	none	Rhode Island
038-039	09	54	none	none	Rhode Island
040-041	09	82	none	none	Connecticut
042-049	09	80	none	none	Connecticut
050-119	09	72	none	none	New York
120-134	09	70	none	none	New York
135-152	09	82	none	none	New Jersey
153-158	09	80	none	none	New Jersey
159-184	09	68	none	none	Pennsylvania
185-211	09	66	none	none	Pennsylvania
212-216	09	98	08	17	Maryland
217-220	09	98	08	15	Maryland
221-222	09	72	none	none	Delaware
223-228	09	98	08	45	Virginia
229-231	09	98	08	43	Virginia
232	09	98	08	33	North Carolina
:					West Virginia
233-234	09	98	08	33	West Virginia
235-236	09	98	08	31	West Virginia
237-246	09	98	08	55	North Carolina
247-248	09	98	08	71	South Carolina
249-251	09	98	08	69	South Carolina
252-258	09	98	08	61	Georgia
259-260	09	98	08	59	Georgia
261-267	09	98	08	99	Florida
268-272	09	88	none	none	Ohio
273-302	09	86	none	none	Ohio
303-309	09	98	02	none	Indiana
310-317	09	98	none	none	Indiana
318	09	80	none	none	Illinois
319-361	09	78	none	none	Illinois
362-367	09	98	04	none	Michigan
368-386	09	98	02	none	Michigan
387-397	09	98	none	none	Wisconsin
398-399	09	96	none	none	Wisconsin
400-406	09	98	08	33	Kentucky
407	09	98	08	31	Kentucky
408	09	98	08	57	Tennessee
409-415	09	98	08	55	Tennessee
416-424	09	98	08	27	Alabama
425-428	09	98	08	59	Mississippi

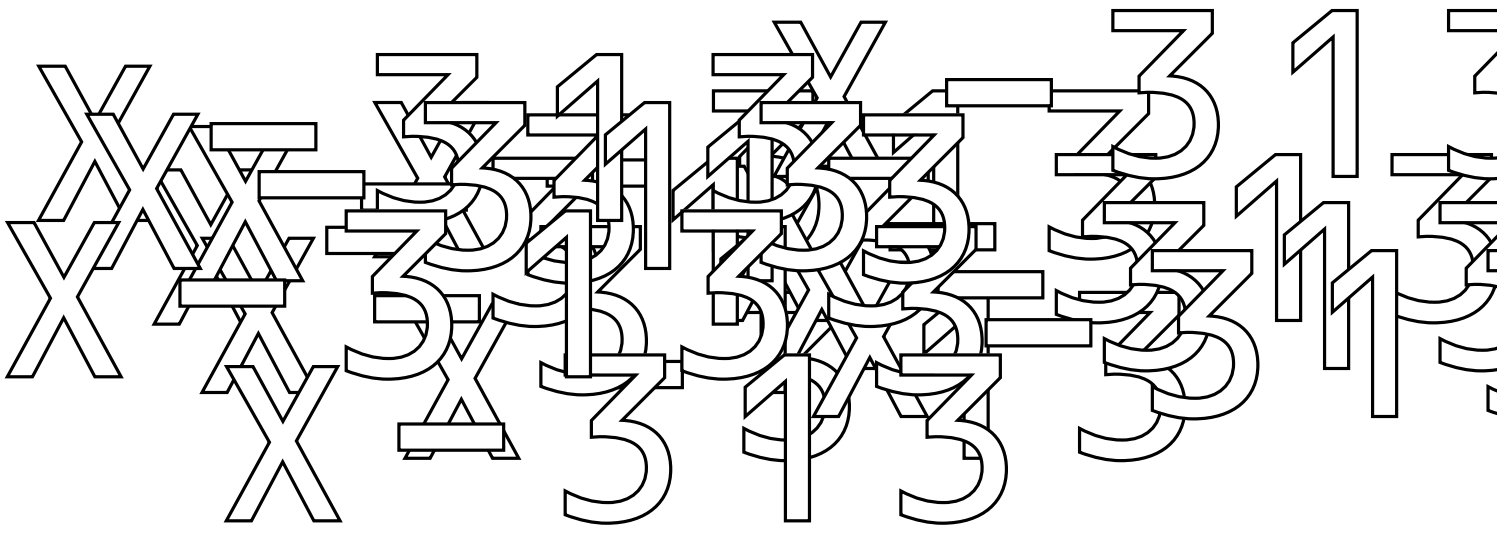
429-431	09	98	08	67	Arkansas
432	09	98	08	65	Arkansas
433-438	09	98	08	67	Louisiana
439	09	98	08	65	Louisiana
440-441	09	92	none	none	Oklahoma
442-448	09	90	none	none	Oklahoma
449-463	09	98	08	91	Texas
464-467	09	98	08	89	Texas
468-472	09	98	08	13	Minnesota
473-477	09	98	08	11	Minnesota
478-481	09	98	08	13	Iowa
482-485	09	98	08	11	Iowa
486-490	09	96	none	none	Missouri
491-500	09	94	none	none	Missouri
501	09	98	08	11	North Dakota
502	09	98	08	none	North Dakota
503	09	98	08	13	South Dakota
504	08	98	08	11	South Dakota
505	09	98	08	21	Nebraska
506-508	09	98	08	19	Nebraska
509-515	09	94	none	none	Kansas
516	09	98	08	15	Montana
517	09	98	08	13	Montana
518-519	09	98	08	23	Idaho
520	09	98	08	15	Wyoming
521-524	09	98	08	59	Colorado
525	09	98	08	69	New Mexico
526-527	09	98	08	99	Arizona
528	09	98	08	75	Utah
529	09	98	08	73	Utah
530	09	98	08	27	Nevada
531	09	98	08	none	Washington
532-539	09	98	06	none	Washington
540-544	09	98	08	21	Oregon
545-573	09	98	08	99	California
574	09	92	none	none	Alaska*
575-576	09	98	08	39	Hawaii
577	09	98	08	15	District of Columbia
578-579	09	98	08	13	District of Columbia
580	09	98	08	21	Puerto Rico, Virgin Islands*
581-584	09	98	08	99	Puerto Rico
585	09	98	08	67	New Mexico
586	09	84	none	none	Guam*
					American Samoa
					North Mariana Islands
					Philippines
587	09	98	08	59	Mississippi
588	none	none	none	none	Mississippi
589-591	09	60	none	none	Florida
592-595	09	58	none	none	Florida
596-597	09	14	none	none	Puerto Rico
598-599	09	12	none	none	Puerto Rico
600	09	50	none	none	Arizona
601	09	48	none	none	Arizona
602-620	03	none	none	none	California
621-626	01	none	none	none	California
627-699	none	none	none	none	Unassigned
700-723	09	18	none	none	RR Retirement**
724	09	28	none	none	RR Retirement**
725-726	09	18	none	none	RR Retirement**
727	09	10	none	none	RR Retirement**
728	09	14	none	none	RR Retirement**
729-999	none	none	none	none	Unassigned

* SSNs in these areas also assigned to Southeast Asian refugees during period

```
: from April 1975 through November 1979.
:
: ** No longer issued.
:
: ----
:
:

--------------------------cut here--------------------------------------------

#include <stdio.h>

#define NO   (-1)
#define FAIL (-1)

/*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*\
* grouporder[04] is 51.  This tells us that the group 04 is the 51st
* group number used.
\*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*#*/
int grouporder[] =
{
        NO,  0, 50,  1, 51,  2, 52,  3, 53,  4,
         5, 54,  6, 55,  7, 56,  8, 57,  9, 58,
        10, 59, 11, 60, 12, 61, 13, 62, 14, 63,
        15, 64, 16, 65, 17, 66, 18, 67, 19, 68,
        20, 69, 21, 70, 22, 71, 23, 72, 24, 73,
        25, 74, 26, 75, 27, 76, 28, 77, 29, 78,
        30, 79, 31, 80, 32, 81, 33, 82, 34, 83,
        35, 84, 36, 85, 37, 86, 38, 87, 39, 88,
        40, 89, 41, 90, 42, 91, 43, 92, 44, 93,
        45, 94, 46, 95, 47, 96, 48, 97, 49, 98
};

typedef struct
{
        int low;
        int high;
        char state[4];
} Area;

Area assigned[] =
{
          0,   0, "--",
          1,   3, "NH",
          4,   7, "ME",
          8,   9, "VT",
     10,  34, "MA",
     35,  39, "RI",
     40,  49, "CT",
     50, 134, "NY",
    135, 158, "NJ",
    159, 211, "PA",
    212, 220, "MD",
    221, 222, "DE",
        223, 231, "VA",
        232, 236, "WV",
        237, 246, "NC",
        247, 251, "SC",
        252, 260, "GA",
        261, 267, "FL",
        268, 302, "OH",
        303, 317, "IN",
        318, 361, "IL",
        362, 386, "MI",
        387, 399, "WI",
```

```
        400, 407, "KY",
        408, 415, "TN",
        416, 424, "AL",
        425, 428, "MS",
        429, 432, "AR",
        433, 439, "LA",
        440, 448, "OK",
        449, 467, "TX",
        468, 477, "MN",
        478, 485, "IA",
        486, 500, "MO",
        501, 502, "ND",
        503, 504, "SD",
        505, 508, "NB",
        509, 515, "KS",
        516, 517, "MT",
        518, 519, "ID",
        520, 520, "WY",
        521, 524, "CO",
        525, 525, "NM",
        526, 527, "AZ",
        528, 529, "UT",
        530, 530, "NV",
        531, 539, "WA",
        540, 544, "OR",
        545, 573, "CA",
        574, 574, "AK",
        575, 576, "HI",
        577, 579, "DC",
        580, 584, "PR",
        585, 585, "NM",
        586, 586, "GU",
        587, 588, "MS",
        589, 595, "FL",
        596, 599, "PR",
        600, 601, "AZ",
        602, 626, "CA",
        627, 699, "--",
        700, 728, "RR",
        729, 999, "--",
        1000, 1000, "",
};

main(argc, argv)
int argc;
char *argv[];
{
        int area_low, area_high, ssn;
        int area, group, serial;
        int number;
        int i;

        if (argc!=2)
        {
                fprintf(stderr, "usage: %s ss_number\n", argv[0]);
                exit(1);
        }

        ssn = atoi(argv[1]);

        serial = ssn%10000;
        ssn /= 10000;
        group = ssn%100;
        area = ssn/100;
```

```
        if (serial==0)
        {
                fprintf(stderr, "Warning: serial part is 0000.\n");
        }
        if (group==0)
        {
                fprintf(stderr, "Warning: group part is 00.\n");
        }
        if (area<0 || area>999)
        {
                fprintf(stderr,
                        "Warning: area part is %03d.\n", area);
        }

        if ((i=getstate(area))==FAIL)
        {
                fprintf(stderr, "getstate failed.\n");
                exit(1);
        }

        area_low = assigned[i].low;
        area_high = assigned[i].high;

        number = (area_high-area_low+1)*9999*grouporder[group]
                + 9999*(area-area_low)
                + serial;

        printf("%03d-%02d-%04d is %s number %d.\n",
                area, group, serial, assigned[i].state, number);
}

getstate(area)
int area;
{
        int i;

        for (i=0; assigned[i].low<1000; ++i)
        {
                if (area>=assigned[i].low && area<=assigned[i].high)
                {
                        return(i);
                }
        }
        return(FAIL);
}
--
". . . and shun the frumious Bandersnatch."
Robert Neinast (ran@cbebl1.att.com)
AT&T-Bell Labs (Columbus, OH)
```



X-313 t:44+71+240+2313 f:44+71+240+1328
146 charing cross road london wc2 holb

The Criminal Justice Bill is yet another bunch of bullshit that one of Her Majesty's Governments has unleashed upon The Great British Public. Lots of time and effort by good people is being wasted on attempting to stop it from getting through Parliament. ***This*** is why they are wasting their time.....

Lets imagine that this bizarre bill *is* stopped. There is *absolutely nothing* to stop another maverick/insane/immoral/deranged/twisted government passing similar or *even worse* bills in the future, that could take *literally* any shape, and have an *unlimited* number of crazed provisions that the mixed up minds of the parliamentarians care to dream (nightmare) up.

This is the *true* nature of the problem; 1/the fact that there is *no* area of law/activity for humans in the UK that is *permanently* reserved as beyond the powers of Parliament to legislate upon, and, 2/that these very real areas have never been clearly delineated in *irrevocable writing.*

All people, when they are born onto this Earth, are born with 2 eyes 2 legs a nose and a shithole. They are also born with concrete, irrevocable, inalienable and *defensible* rights, which, if not written down as a starting point and filter for all legislation, means that one is not living in a free country. *Period.*

The security of Human Rights in a country can *never* be left to the good will of men. Freedom is not something that is handed out like candy to children, like the completely lame 'citizens charters'; pathetic, toothless gestures to appease this nation, that silently feels that something is *desperately* wrong with the state of affairs in the UK

If Great Britain had a Bill Of Rights, and a written Constitution in the same way that **Russia** , **Haiti** and **Czechoslovakia** have, then abominations like the Criminal Justice bill would never even be *dreamt of* as a possibility, much less actually read out in the House Of Commons. When the UK finally enshrines a Bill Of Rights, all of the laws in the statute books will be revised and filtered to *permanently* eliminate all of the Parliamentarian aberrations of the past, and bring the UK singing into the 20th century. The 20th century might be over by then, but hey, whose counting?

And just to finish off, this will mean that *no one* will be able to stop *anybody* from dancing all night in a field, protesting, shopping on Sunday.....because you will *know your rights, and* ***have*** *them!*

If you want to make some kind of effort towards the goal of the creation of a country where you will never again have to waste your time protesting the inevitable hodgepodge piece of legislation that looms over the horizon, join an organization that is trying to implement measures that will put strict written limits on the powers of the state.

CHARTER 88

Exmouth House 3-11 Pine Street, London EC1R 0JR
Tel: 071-833 1988 Fax: 071- 833 5895

Dear fellow citizen,

Please take the time to read this letter. I want to tell you why I believe Britain is in crisis. I think you may share my deep concern about the state of our country. That's why I'm calling on you to join me in supporting Charter 88 - to add your individual voice to the call for change.

Like you, I read every day in my newspaper about the atrocities that mark the struggle for democracy and human rights around the world. And I realize how lucky and privileged we are that we don't have to face such dire circumstances here.

Our tragedy is less heart-rending, less obvious - but perhaps more difficult to remedy because we are a quiet and bewildered nation now. We know that our parliamentary system is increasingly inadequate. We know that there is a growing imbalance between government and governed. We know that our knowledge of public affairs is curtailed by civil service mandarins and tabloid editors. We know that we live in an increasingly secretive and manipulative society. And we are . deeply alienated from the business of politics and distrust politicians.

We know these things - but we seem just too tired as a country to confront them.

Charter 88 was launched nearly five years ago. We wanted to try to put the heart back into the historic British struggle for democracy, liberty and justice. Our demands are a matrix for changing the way we are governed, for good. We stuck a banner in the ground and were awed by the number who rallied to it - 50,000 of us now. We had no idea of the nerves we would touch. An early press comment said of Charter 88, 'it is that most powerful of things ... an idea whose time has come'. Large parts of the political establishment have been forced to agree. We can begin to say that Charter 88 is changing British politics.

But there's a long way to go. The need for democratic reform, good and accountable systems of government and to have our rights in writing has never been greater. I am convinced that unless we achieve such long-term, structural change we will lurch forever from short-term crisis to short-term crisis. I cannot accept that. I firmly believe that one of our most fundamental rights is the right to good government.

Changing an entrenched system is very hard. It will not happen overnight. That's why we have set ourselves a target - democratic renewal for a new century. And Charter 88 is already succeeding. Here are just some examples of what we've achieved in the last year or so.

- Charter 88 supporters deluged MPs with letters and postcards supporting Mark Fisher MP's Right to Know Bill, to try and give this country a Freedom of Information Act. William Waldegrave, the Minister responsible for 'open government', was forced to acknowledge in the Commons that he alone had been

lobbied by 'hundreds' of people. For the first time since modern suffrage, a . constitutional reform was actively demanded, in constituencies up and down the country, by people from all parties and from none. As a direct result, the government is opening up personal files and information on health and safety issues.

- We have persuaded the Labour Party to support a proper Bill of Rights for Britain. John Smith announced this in a major speech to Charter 88 on March 1. And Labour also endorsed, at their 1993 conference, his call for a referendum on electoral reform.
- The recent crises in the monarchy lifted a taboo, and made it possible to discuss, without throat-stopping deference, how the institution of the Crown is used to hide the unaccountable exercise of power. In May we hosted a full day conference on The Monarchy, the Constitution & the People, sponsored by The Times and filmed by Channel Four. The debate touched on all parts of our unwritten constitution and reinforced the crying need for change.
- In a ground-.breaking speech to Charter 88 in July, Paddy Ashdown acknowledged our crisis of democracy and widened the debate on the imbalance between government and governed with radical proposals for advisory referenda, since endorsed by the Liberal Democrat conference.

These are major breakthroughs - among regular people, in party politics and in 'the establishment'. Added together, it's plain that a powerful new dynamic has been born - one that can result in genuine reform. In success rather than impotent protest.

But we can only bring about change with your help. That's why I'm inviting you to join us. Together we can build a powerful citizens' movement, for true democracy and guaranteed rights. In this battle, numbers matter. The more we are, the greater our potential for influence.

You can show your support just by signing Charter 88, as each new name brings us that much closer to a new and better system. You can do it best by sending a donation, please - whatever you can afford. We take a financial risk by seeking fellow signatories in this way. But we feel we must reach out to as many people as possible.

I hope that we've calculated that risk correctly, and that you will join us. Now, more than ever, decency and justice need all the allies they can muster.

With best wishes,

Helena Kennedy QC

Chair of the Charter 88 Council

88

Below is part of the original Charter 88, signed and published by 300 of us on the 300th anniversary of the Glorious Revolution of 1688. It was a protest. There was no intention to found an organization. But thousands added theft names and sent money. A year later, the Charter was born. Our alms are twofold. To lobby and persuade within the old doors of Westminster and to build a powerful citizens' movement for change. Now, 50,000 of us have signed the Charter. We are signatories because we believe the most fundamental right in a democracy is the right to good government. And we do not believe we can achieve that, no matter which party is in power, with a constitution stuck in the 19th century. Fourteen years of one party rule, divided opposition and centralization of power have highlighted the inadequacies of our system. Every day that passes only reveals its bankruptcy more clearly. Join us.

CHARTER 88

We have had less freedom than we believed. That which we have enjoyed has been too dependent on the benevolence of our rulers. Our freedoms have remained their possession, rationed out to us as subjects rather than being our own inalienable possession as citizens. To make real the freedoms we once took for granted means for the first time to take them for ourselves.
The time has come to demand political, civil and human rights in the United Kingdom. We call, therefore, for a new constitutional settlement which wlll:-
+Enshrine, by means of a Bill of Rights, such civil liberties as the right to peaceful assembly, to freedom of association, to freedom from discrimination, to freedom from detention without trial, to trial by Jury, to privacy and to freedom of expression.
+Subject Executive powers and prerogatives, by whomsoever exercised, to the rule of law.
+Establish freedom of information and open government.
+Create a fair electoral system of proportional representation.
+Reform the Upper House to establish a democratic, non-hereditary Second Chamber.
+Place the Executive under the power of a democratically renewed Parliament and all agencies of the state under the rule of law.
+Ensure the independence of a reformed Judiciary.
+Provide legal remedies for all abuses of power by the state and by officials of central and local government
+Guarantee an equitable distribution of power between the nations of the United Kingdom and between local, regional and central government.
+Draw up a written constitution anchored in the ideal of universal citizenship, that incorporates these reforms.
The inscription of laws does not guarantee their realization. Only people themselves can ensure freedom, democracy and equality before the law. Nonetheless, such ends are far better demanded, and more effectively obtained and guarded, once they belong to everyone by inalienable right.
Add your name to ours.

I want to claim my right to good government.

I'm signing Charter 88.

Signature: _____

I also enclose a donation of:

£15 ◯ £25 ◯ £50 ◯ other£_____

I enclose a cheque ☐

or

Please debit my Access/Visa card ☐

No.

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Name on card: _____

Expiry Date: ___/___

Signature: _____

CHARTER 88
Exmouth House, 3 - 11 Pine St, London, EC1R 0JH. Tel: 071-833 1988. Fax: 071-833 5895.

Thank you!

Digital Audio Data Compression: Music's Procrustean Bed

***Procrustean bed**: A scheme or pattern into which something or someone is arbitrarily forced.*
***Procrustes**: A villainous son of Poseidon in Greek myth who forces travelers to fit into his bed by stretching their bodies or cutting off their legs.*

Websters Ninth New Collegiate Dictionary

In most fields of scientific endeavor, advancing the state of the art is the primary goal of researchers and academics. From computer Science to medicine to astronomy, technological frontiers are continually being pushed forward with astounding results. We can now "Walk" through a building that exists only in the architect's computer, splice together the building blocks of life in a laboratory and take close up photographs of the outer planets. These achievements will undoubtedly be eclipsed by even more remarkable developments as mankind continually strives to extend the limits of his emerging technological power. If "necessity is the mother of invention", then "dissatisfaction is the father of progress". There is one field of scientific inquiry however where the goal is not the advancement of absolute performance, but of finding ways to make existing, limited technology commercially exploitable- even at the expense of compromising quality. Unfortunately, this field is a hot new area of research in digital audio encoding. Called "bit-rate reduction" or "data compression" this is a scheme whereby the data rate for a digital audio signal is reduced by over 80%, accomplished partly by employing a more efficient encoding scheme, but primarily by throwing out a large amount of musical information judged to be inaudible. At the Audio Engineering Society convention in Paris this past February, I had a glimpse of the role data compression may play shaping audio's future—and the prospects are frightening. There is a juggernaut moving with tremendous momentum toward implementing data-compression schemes in virtually all aspects of music storage and transmission. Bit-rate reduction systems are the foundation on which many future audio technologies are based, from Philips's Digital Compact Cassette (DCC) to Digital Audio Broadcasting (DAB), and even a CD with extended playing time. Even more disturbing is the prospect that data compression may be used in professional applications to make master recordings. It's conceivable that the majority of recorded music will be subject to some form of data compression, in as little as ten years. Consequently, data compression is not merely a mass market mid-fi system avoidable by

the serious listener. Like it or not, we will all be subject to bit rate-reduced digital audio. Before discussing the implications of data compression, let's look at why such a contrivance is necessary for greater commercial exploitation of digital audio. Conventional 16-bit linear PCM digital audio with a 44.1kHz sampling rate (as found on a Compact Disc) requires 705,600 bits, or 705.6 kilobits, per second per monaural channel (705.6kb/s/ch). This number is obtained by multiplying the sampling rate (44,100) by the quantization word length (16). The stereo signal on a CD thus consumes 1.41 million bits per second, or about 10.6 megabytes per minute (1 byte = 8 bits). And this is just the raw audio data, which comprises only about a third of the CD's storage capacity (the rest is encoding, error correction redundancy, subcode, etc.). For comparison, this essay you are now reading consumes 23,000 bytes of storage, about the same amount of data consumed by 1/60th of a second of CD-quality stereo digital audio. Clearly, 16-bit PCM audio involves a huge amount of data, creating a storage and transmission bottleneck—from a commercial point of view. To store or transmit such a large amount of data requires mass storage capacity or a wide transmission bandwidth channel. Mass storage and wide bandwidth mean high cost. High cost means precluding mass market applications. Precluding mass market applications means little profit for the companies selling new hardware. Consequently, a whole industry with enormous profit potential is developing around bit-rate-reduced digital audio systems—an industry that would not be possible without this drastic reduction in the digital audio data rate. In addition to Philips's Digital Compact Cassette (DCC). which uses PASC, a type of data compression, a massive project is under way in Europe to replace FM radio transmission with Digital audio Broadcasting (DAB). In DAB, a radio stations' signals are multiplexed together and broadcast from a satellite to consumers' digital "tuners" By reducing the data rate of a digital audio signal, more stations can be squeezed into a narrower bandwidth, reducing cost. There is a direct and inviolable correlation between transmission cost and bit rate. With digital audio broadcasting made possible by reducing the bit rate, a whole new demand for consumer products is suddenly created. It doesn't take a marketing genius to realize that DAB will make an entire generation of hardware (all radio receivers, including car stereos) obsolete, forcing consumers to replace their hundreds of millions of existing units. But how can the musical information represented by 705.6kb/s/ch (which many argue isn't nearly enough) be squashed down to 128kb/s/ch without seriously degrading the music? Although the ratio between the digital audio data rate from a CD and that used in data compression schemes is huge (5.5 :1), the picture isn't quite as bleak as those numbers would suggest. More efficient encoding techniques are employed, like sampling low frequencies at a slower rate, and allocating bits based on the signals spectral content. Fundamentally, however, data-compression techniques are based on a psychoacoustic phenomenon called "auditory masking," which is defined as "decreased audibility of one sound due to the presence of another. When exposed to two signals, the ear/brain tends to hear only the

Louder. A good example of this is how tape hiss or record surface-noise becomes apparent only during quiet passages or spaces between tracks. The tape hiss is always present at the same level, but is masked by the music most of the time. Although auditory masking has been well researched (primarily by experimental psychologists), there are many unanswered questions, especially about how the phenomenon relates to musica1 perception; virtually all masking research is based on steady-state test signals and noise, not music. One approach to bit-rate reduction is called “sub-band coding:’ in which the audio spectrum is split into multiple bands (32 bands in the case of Philips’s PASC encoding used in the forthcoming Digital Compact Cassette), and bits are allocated based on the amount of signal in particular bands. Low-level information in a band that also contains high-level signals would be ignored by the encoder because the high-level signal would mask the low-level signal. Bands with little energy are allocated fewer bits, while those with higher energy are assigned more. Whatever the technique, all data-compression systems produce very large measurable errors in the signal—-errors presumably masked by the correctly coded wanted signal. Just as tape hiss represents an error in analog magnetic tape recording, it is masked by the relatively error-free wanted signal of music. All data compression systems are based on the current masking theory that has produced the “auditory masking threshold” curve. At the Paris AES Convention, Michael Gerzon presented a paper entitled “Problems of Error Masking in Audio Data Compression” asserting that the current spectral masking theory flawed. According to the paper, when the error is highly cross-correlated with the signal, the masking threshold can be reduced by as much as 30dB. He backs up his theory with extensive mathematics. If he is correct, all the proposed data-compression systems (which rely on traditional spectral masking thresholds) are fundamentally and fatally flawed. In addition to the prospect that data compression schemes are based on incorrect human hearing models, there are many real-world dangers of bit-rate reduction. It seems to me that the systems have been pushed to the very limits of “acceptability” with “acceptability” determined under ideal laboratory conditions. In the real world, any spectral or dynamic irregularities in the playback system, storage media, or transmission chain will unmask the gross errors present in the signal. The large frequency-response irregularities found in car stereos for example, could skew the spectral content of the signal, thus revealing the enormous errors hiding beneath the wanted signal. I wouldn’t be surprised if there were an official mandate banning graphic equalizers on Digital Audio Broadcasting car stereos! Similarly, an important question is what the signal-

processing devices commonly used in broadcasting do to a signal that has undergone data compression. Most people would be shocked to learn of the great number of compressors, expanders, equalizers, pitch shifters, time compressors, etc. in a broadcasting chain. In an AES workshop on DAB, one audience member recounted finding fifty processing devices in the broadcasting chain between the original signal and the consumer's tuner. How do these devices affect the delicate balance between the huge underlying error and the wanted signal? Another fear is of the effects of multiple encoding/decoding cycles. What happens to a bit-rate-reduced signal that is decoded, then re-encoded with bit-rate reduction, and so forth over several generations? It can't be good. This is a very likely scenario in the broadcasting chain as signals are transmitted, decoded, stored, and re-encoded for later use. To the consumer playing back a DCC recording of a DAB signal, there are already two encode/decode cycles, if the signal through the entire broadcasting chain underwent only one encoding process. The information loss must increase with successive generations, perhaps even degrading the signal exponentially. And what about concealing transmission errors? All digital audio systems experience loss of data that must be corrected or concealed. Clearly, traditional methods of error concealment like linear interpolation (replacing missing data with an average of surrounding valid samples) are inadequate for compressed-data digital audio. The degradation imposed by multiple generations creates a profound irony: data compression may succeed where Copycode failed. Copycode, you may recall, was the proposed scheme whereby all copyrighted music would have a narrow notch removed from the midband, the lack of energy at that frequency disabling a recording device's record function, thus preventing consumers from making a tape copy. Because data compression introduces potentially severe errors with multiple encode/decode cycles (not to mention the degradation introduced by data compression itself), it may become an effective—if unplanned—method of discouraging home taping. Even though these are serious concerns, what really scares me about digital-audio data compression is the potential for professional abuse. It's one thing to compress signals for digital-audio broadcasting or storage on DCC, but quite another if it is applied to master recordings. If that happens, musical information will be irretrievably lost. During every paper, workshop, or discussion regarding data compression I've attended, the word "archival" has surfaced as an application of these techniques. Archiving musical performances with bit-rate-reduced digital audio is not only unconscionable, but strains my ability to comprehend the type of mentality that would even consider such an abomination. It just doesn't make sense. The commercial benefits are virtually nil: record-

ing media aren't that expensive. Preserving our musical heritage for future generations should be done with the best possible methods, not the cheapest or most convenient. If data reduction is already being proposed for archival uses—where the financial gains are marginal at best—-there will be little hesitation to implement it in professional applications where the commercial benefit is far greater. Indeed, Solid State Logic, the British manufacturer of perhaps the most expensive and prestigious recording consoles in the world, has already developed a data-reduction system called Apt-X l00. More and more music is being recorded in "tapeless studios" on digital audio "workstations'' that record individual tracks-on large hard disks. Digital audio workstations allow the reccording, editing, and signal processing of music in a desktop computer environment. We remember from our previous discussion that 16-bit, 44.1kHz digital audio consumes 705.6kb/s/ch. With many of today's recordings using 48 tracks or more, we can see the voracious appetite digital audio has for hard disk space. Assuming an hour's worth of music recorded over 48 tracks (not an uncommon situation), plus another hour's worth of 2-track space to which the 48 tracks are mixed, we find ourselves needing 127 billion bits, or nearly 16 gigabytes (6,000 megabytes) of hard-disk storage. Anyone who has priced large hard-disk drives can relate to the huge cost of such a capacity. In addition, this large amount of data requires very fast (read expensive) drives since the data is spread over many disks and must be accessed with a minimum of interruption. Now, consider the same time and channel requirements, but with a data rate of 128 b/s/ch. Rather than needing 16 gigabytes, we only need only 2.9 gigabytes. In addition, this compressed audio data means the drives can be much slower (read cheaper), since the data is spread over an area five times smaller and the effective read/write rate is five times faster. These Figures won't be lost on digital audio workstation manufacturers who are caught the race to offer the most number of tracks and recording time at the lowest cost. Many professional users tend to value features, flexibility, and return-on-investment potential over sound quality. Moreover, the encoding and decoding chips will be relatively cheap if they are the same ones used in consumer applications. Another factor that could fuel the rush to incorporate data reduction into professional applications is the emergence of the MO (Magneto-Optical) disk, a technology destined to supplant traditional hard disks. MO disks are on their way to offering greater storage capacity for less money. However, they have one drawback: MO disks are now too slow for uncompressed digital audio. By compressing the data, however, MO drives becomes fast enough, and will be much cheaper than magnetic disks on a cost-per-megabyte basis. Unlike magnetic disk dri-

ves, MO is removable media: recording new material means replacing the disc rather than erasing the previous information. MO's many advantages may be a motivating factor in implementing data compression in professional equipment. Looking one more step into the future, data compression figures even more prominently in another technology we're likely to see in the next decade: Random Access Memory (RAM) digital audio storage. In RAM storage, the ones and zeros that represent music are put on a memory chip (recording)and can be read out later (playback) with no moving parts. The advantages of RAM storage are many: no wear, no servo mechanisms, very few (if any) data errors, and high resistance to damage. The day may come when music is recorded on, and played back from, silicon. However, with a lMb DRAM chip costing around $4, the high cost of RAM storage is prohibitive—at today's uncompressed data rates. Bit rate reduction will look awfully tempting to RAM digital storage system designers; data compression reduces the cost of RAM storage by a factor of 5.5, the ratio between 16-bit 44.1kHz representation (705.6kb/s/ch) and compressed representation (128kb/s/ch). With proposals of 64kb/s/ch rates being advanced today, there may be a race to implement lower and lower data rates to accommodate the limitations of new technologies like RAM storage—and all at the altar of price and corporate profits, not musical performance. Every time a format is made obsolete, the manufacturers and marketers of the replacement technology sustain their existence for several decades because of demand for the new hardware. Just as it has been with the CD replacing the LP, so it will be with the analog cassette and DCC, FM radio and DAB, and eventually CD and RAM storage. What's so worrisome about this trend is that the goalposts are being moved—in the wrong direction. Instead of striving to better create the illusion of live music, research efforts are dictated by the multinational corporations' need for convenient and cheap methods of storing and transmitting "software." Despite the remarkable and laudable achievements made in this field, bit-rate reduction in its proposed form and application is a step backward, a regression—even a perversion of audio science. It represents a denial of the vital role fidelity plays in communicating the musical experience. "Just good enough" or "barely detectable" appears to be the pinnacle of achievement. Moreover, the whole concept of data compression is a fundamental reversal of where our priorities should be. Audio technology should conform to the requirements of music rather than making music conform to technology. Ironically, today Compact Disc—with all its sonic flaws—is used as the reference standard against which bit-rate-reduced audio is judged. Will tomorrow's audio technologies-of-convenience use compressed digital audio

quality as the standard for which to strive? In principle, bit-rate reduction is a worthwhile endeavor. If more efficient coding schemes can be developed, and there truly is information completely masked by other signals, the data saved should be reallocated to improve, say, low-level resolution, rather than thrown out to serve commercial ends. More important, the idea of using data-compression techniques in professional equipment to make master recordings is an appalling abuse of the whole concept. It would be a supreme irony if, after several years of listening to compressed digital audio, people start enjoying music less without knowing why. Instead of listening to entire performances, they listen to single tracks, thinking about what they will do when the music is over. Suddenly, music is less interesting, less involving, less moving. Because people enjoy music less, they buy less hardware and software leading to the demise of the very companies that set in motion this tragic spiral. The future of recorded music needn't be so bleak. I can imagine a far different scenario: Suppose the companies with huge research facilities and budgets who are now developing data compression instead devote their considerable skills and knowledge to uncovering the vast unexplored mysteries of human musical perception as it relates to recording and playback systems. New measurements would be devised that correlated exactly with perceived qualities. Performance aspects such as soundstage depth, bloom, and liquidity could be quantified and measured. Audio design would no longer have aspects of a black art. With the mysteries solved, even moderately priced systems would outperform today's high-end components. The result would be mass produced playback systems that better conveyed the expression and emotion of the composer and performance the essence of why we listen to music. Without knowing why, the general public would find music listening more satisfying and rewarding. And because music would assume greater importance in their lives, people would spend a larger portion of their disposable income on recorded music and playback hardware, creating a self-perpetuating upward spiral in sales. Everyone would be an audiophile. Consequently, the electronics giants who brought better performance to music playback would reap the rewards of this greatly expanded prosperity. Its too bad they will never see it that way. It's ironic that, in this age of astounding scientific achievements, we feel that music is somehow unworthy of the best technology we can provide. Rather than creating technology that accommodates the

requirements of music, we arbitrarily force music to conform to our self-imposed, profit-motivated technological limitations.
Procrustes would be proud.

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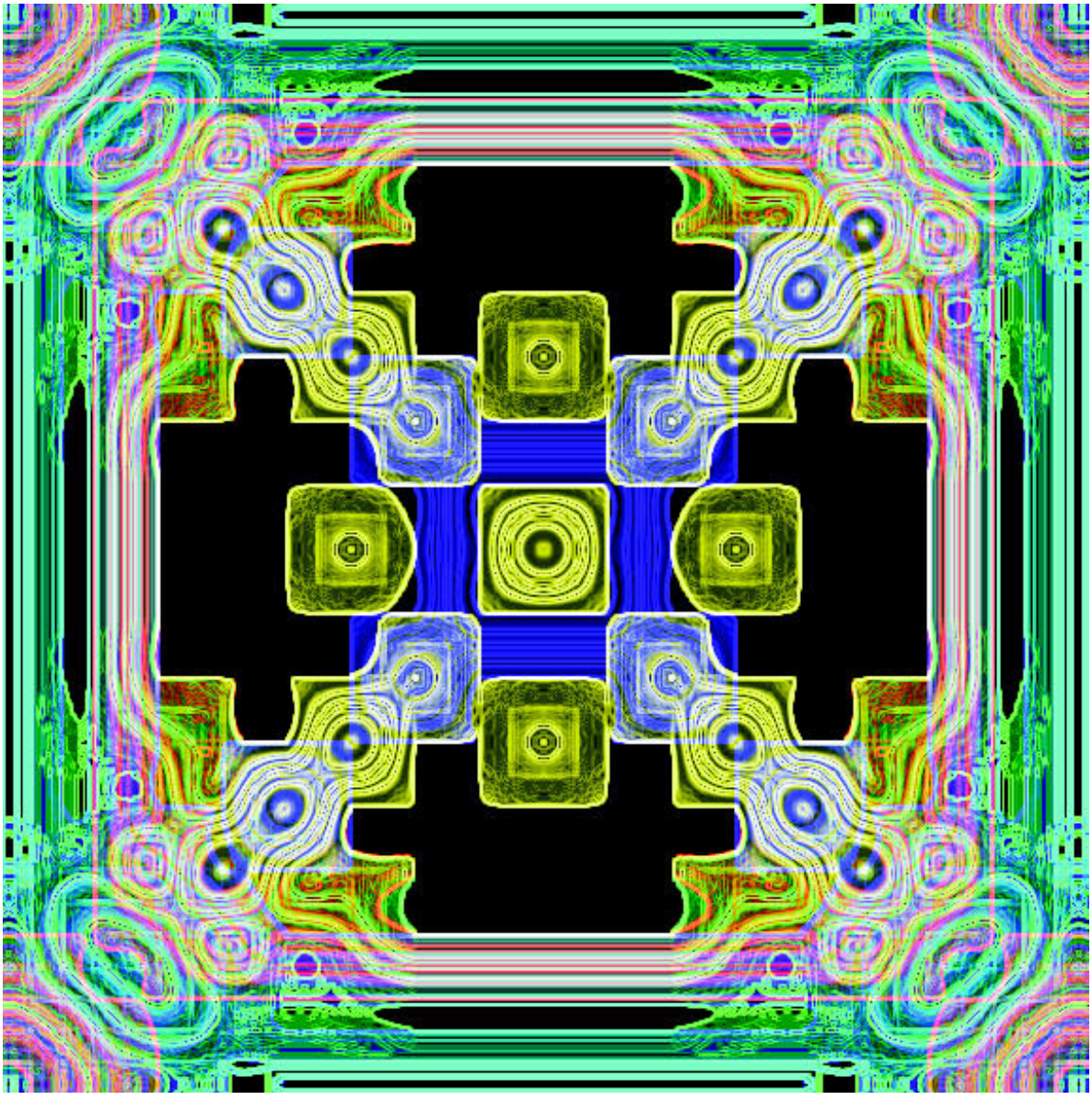

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