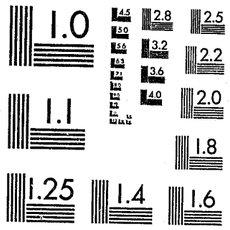

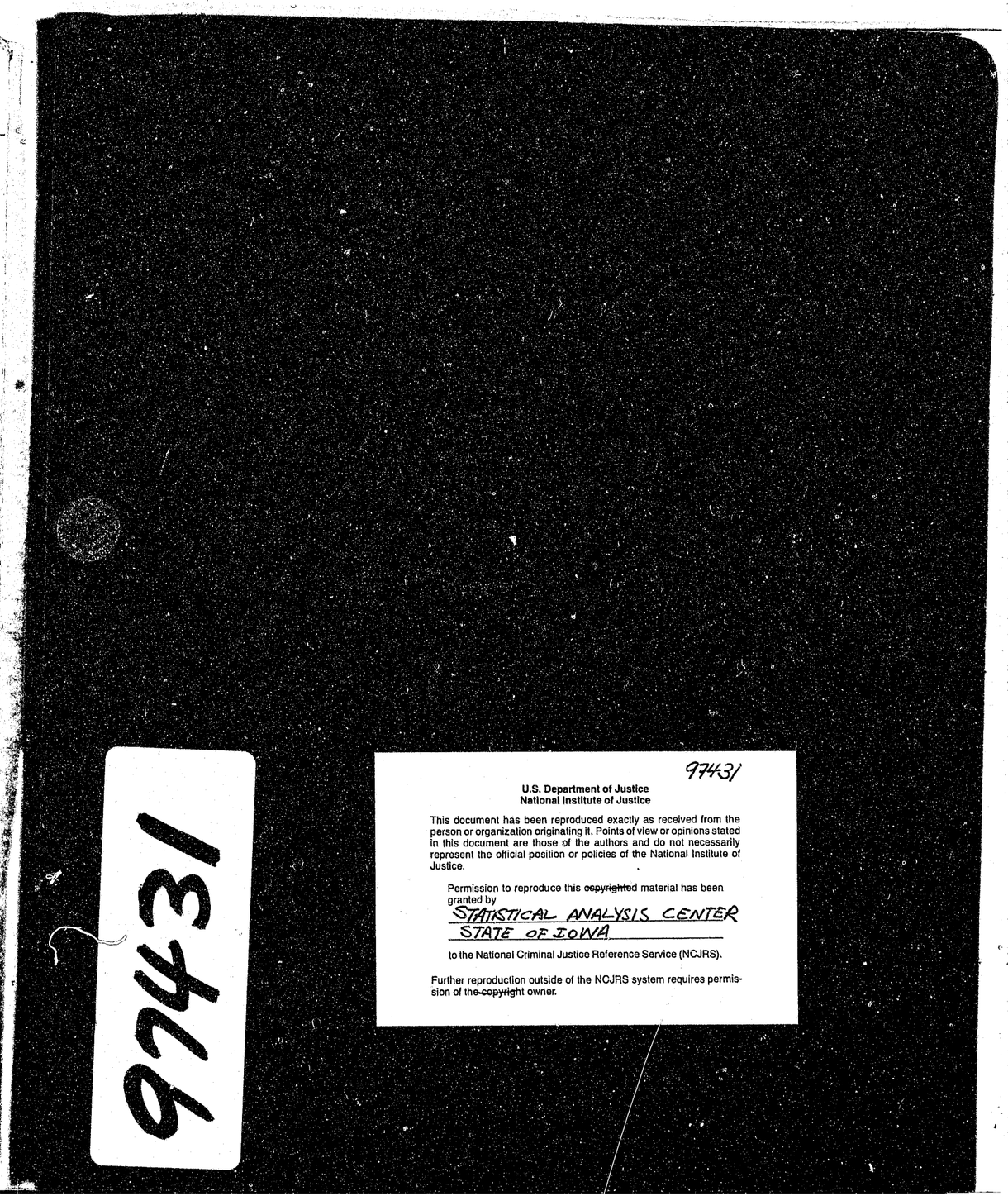

OFFENDER RISK ASSESSMENT
THE IOWA MODEL

VALIDATION RESULTS
FIRST DRAFT

- Validation Results - 1983 Version
- Partial Validation Results - 1984 Version
- Comparative Analysis of Seven Predictive Devices
- Recidivism Measures for the Iowa Risk Assessment Validation Study
- Seriousness Weightings for New Offenses
- The Coefficient of Predictive Efficiency (CPE)

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April, 1984

OFFENDER RISK ASSESSMENT
THE IOWA MODEL - 1983 VERSION
VALIDATION RESULTS

SAFETY RISK LEVEL	SAMPLE CASES	NEW SAFETY CRIME		SAFETY RISK RATING	RELATIVE RISK	% TOTAL CASES	% TOTAL RISK
		ARREST	CONVICTION				
VERY POOR	66	72.7%	51.5%	160.1	3.011	8.1%	24.4%
POOR	235	61.3%	44.3%	100.8	1.896	28.9%	54.7%
FAIR	45	37.8%	26.7%	39.7	.747	5.5%	4.1%
GOOD	158	25.3%	13.3%	24.7	.465	19.4%	9.0%
VERY GOOD	138	17.4%	8.0%	17.0	.319	17.0%	5.4%
EXCELLENT	172	6.4%	1.7%	5.8	.110	21.1%	2.3%
ALL CASES	814	34.9%	22.7%	53.2	1.000	100.0%	100.0%

COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE) = .866

VIOLENCE RISK LEVEL	SAMPLE CASES	NEW VIOLENT CRIME		VIOLENCE RISK RATING	RELATIVE RISK	% TOTAL CASES	% TOTAL RISK
		ARREST	CONVICTION				
VERY POOR	66	59.1%	34.8%	109.5	3.754	8.1%	30.4%
POOR	145	42.8%	28.3%	76.0	2.608	17.8%	46.5%
FAIR	90	23.3%	13.3%	27.0	.925	11.1%	10.2%
GOOD	107	14.0%	5.6%	15.7	.537	13.1%	7.1%
VERY GOOD	234	4.3%	0.9%	5.6	.191	28.7%	5.5%
EXCELLENT	172	1.2%	0.0%	0.5	.016	21.1%	0.4%
ALL CASES	814	18.3%	10.3%	29.2	1.000	100.0%	100.0%

COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE) = 1.497

OFFENDER RISK ASSESSMENT
THE IOWA MODEL - 1984 VERSION
VALIDATION RESULTS

SAFETY RISK LEVEL	SAMPLE CASES	NEW SAFETY CRIME		SAFETY RISK RATING	RELATIVE RISK	% TOTAL CASES	% TOTAL RISK
		ARREST	CONVICTION				
VERY POOR	40	75.0%	57.5%	181.4	3.412	4.9%	16.8%
POOR	77	67.5%	49.5%	144.9	2.726	9.5%	25.8%
FAIR	198	49.5%	38.4%	67.1	1.263	24.3%	30.7%
GOOD/MODERATE	282	28.4%	15.6%	32.6	.613	34.6%	21.2%
VERY GOOD	93	14.0%	5.4%	14.0	.264	11.4%	3.0%
EXCELLENT	124	8.9%	2.4%	8.7	.163	15.2%	2.5%
ALL CASES	814	34.9%	22.7%	53.2	1.000	100.0%	100.0%

COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE) = .805

VIOLENCE RISK LEVEL	SAMPLE CASES	NEW VIOLENT CRIME		VIOLENCE RISK RATING	RELATIVE RISK	% TOTAL CASES	% TOTAL RISK
		ARREST	CONVICTION				
VERY POOR	40	67.5%	45.0%	156.8	5.378	4.9%	26.4%
POOR	82	53.7%	31.7%	98.7	3.380	10.1%	34.0%
FAIR	114	27.2%	14.0%	31.5	1.078	14.0%	15.1%
MODERATE	143	15.4%	10.5%	19.5	.668	17.6%	11.7%
GOOD	218	9.2%	3.7%	11.2	.384	26.8%	10.3%
VERY GOOD	93	5.4%	1.1%	6.2	.211	11.4%	2.4%
EXCELLENT	124	0.0%	0.0%	0.0	.000	15.2%	0.0%
ALL CASES	814	18.3%	10.3%	29.2	1.000	100.0%	100.0%

COEFFICIENT OF PREDICITIVE EFFICIENCY (CPE) = 1.858

OFFENDER RISK ASSESSMENT
THE IOWA MODEL - 1983 VERSION
VALIDATION RESULTS

			VIOLENCE RISK					
	All Cases	CPE	VERY POOR	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
Validation Cases	814		66	145	90	107	234	172
New Felony Arrest (A)	45.8%	.291	84.8%	71.0%	75.6%	39.2%	35.5%	12.2%
New Felony Conviction (B)	35.6%	.368	65.2%	57.2%	65.6%	31.8%	26.1%	5.8%
Return to Prison (C)	38.2%	.408	75.8%	60.7%	72.2%	34.6%	26.5%	5.2%
New Prison Sentence (D)	30.8%	.504	65.2%	53.8%	58.9%	25.2%	18.4%	4.1%
New Violent Felony Arrest (E) .	18.3%	1.093	59.1%	42.8%	23.3%	14.0%	4.3%	1.2%
A or C	48.6%	.276	87.9%	73.8%	80.0%	42.1%	39.3%	12.8%
B or C	42.0%	.333	75.8%	64.1%	76.7%	38.3%	32.9%	7.0%
B or C or E	44.5%	.338	83.3%	69.7%	77.8%	39.2%	34.2%	8.1%
B or E	39.4%	.365	77.3%	64.1%	66.7%	35.5%	28.6%	7.0%
C or E	41.3%	.407	83.3%	67.6%	74.4%	37.4%	27.8%	6.4%
D or E	35.4%	.477	77.3%	62.1%	61.1%	31.8%	20.9%	5.2%
General Recidivism Rate	69.4	.694	192.2	128.2	121.6	46.8	32.1	10.3
Violence Recidivism Rate	29.2	1.497	109.5	76.0	27.0	15.7	5.6	0.5
Non-Violence Recidivism Rate ..	40.2	.391	82.7	52.2	94.9	31.1	26.5	9.8
% of Total Cases	100%		8.1%	17.8%	11.1%	13.1%	28.7%	21.1%
% of Total General Risk	100%		22.4%	32.9%	19.4%	8.9%	13.3%	3.1%
% of Total Violence Risk	100%		30.4%	46.5%	10.2%	7.1%	5.5%	0.4%
% of Total Non-Violence Risk ..	100%		16.7%	23.1%	26.0%	10.2%	19.0%	5.1%

COMPARATIVE ANALYSIS OF SEVEN PREDICTIVE DEVICES
GENERAL RISK ASSESSMENT

OFFENDER RISK LEVEL	IOWA (1984)		IOWA (1983)		IOWA (1980)		INSLAW		FEDERAL SFS		RAND		MICHIGAN	
	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK
VERY POOR	(40)	2.990	(95)	2.426	(152)	2.110	(97)	2.119	(67)	1.984	(128)	2.118	(53)	1.903
POOR	(77)	2.503	(206)	1.833	(253)	1.338	(127)	1.738	(320)	1.404	(123)	1.279	(227)	1.586
FAIR	(198)	1.302	(45)	.868	-	-	(198)	1.100	(126)	.945	(149)	.949	(123)	1.204
MODERATE	(98)	.751	-	-	(62)	.627	-	-	-	-	-	-	-	-
GOOD	(184)	.609	(158)	.524	(172)	.457	(69)	.824	(124)	.587	(207)	.691	(29)	.695
VERY GOOD	(93)	.378	(212)	.322	(77)	.282	(209)	.441	(109)	.296	(207)	.488	(382)	.484
EXCELLENT	(124)	.186	(98)	.160	(98)	.160	(114)	.187	(68)	.116	-	-	-	-
ALL CASES	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000
COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE)	.618		.662		.472		.413		.302		.300		.283	

RRISK = Relative Risk of Recidivism (General)

COMPARATIVE ANALYSIS OF SEVEN PREDICTIVE DEVICES
SAFETY RISK ASSESSMENT

OFFENDER RISK LEVEL	IOWA (1984)		IOWA (1983)		IOWA (1980)		INSLAW		FEDERAL SFS		RAND		MICHIGAN	
	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK
VERY POOR	(40)	3.412	(66)	3.011	(152)	2.169	(97)	2.119	(67)	2.096	(128)	2.245	(53)	2.134
POOR	(77)	2.726	(235)	1.896	(253)	1.414	(127)	1.865	(320)	1.412	(123)	1.263	(227)	1.615
FAIR	(198)	1.263	(45)	.747	-	-	(198)	1.108	(126)	.898	(149)	.935	(123)	1.237
MODERATE	(98)	.796	-	-	(62)	.550	-	-	-	-	-	-	-	-
GOOD	(184)	.516	(158)	.465	(172)	.366	(69)	.853	(124)	.585	(207)	.646	(29)	.766
VERY GOOD	(93)	.264	(138)	.319	(77)	.231	(209)	.376	(109)	.250	(207)	.474	(382)	.418
EXCELLENT	(124)	.163	(172)	.110	(98)	.119	(114)	.133	(68)	.131	-	-	-	-
ALL CASES	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000
COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE)		.812		.866		.558		.477		.360		.357		.358

RRISK = Relative Risk of Safety Crime

COMPARATIVE ANALYSIS OF SEVEN PREDICTIVE DEVICES
VIOLENCE RISK ASSESSMENT

OFFENDER RISK LEVEL	IOWA (1984)		IOWA (1983)		IOWA (1980)		INSLAW		FEDERAL SFS		RAND		MICHIGAN	
	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK	Cases	RRISK
VERY POOR	(40)	5.378	(66)	3.754	(86)	2.995	(84)	3.004	(11)	3.735	(27)	3.781	(53)	2.800
POOR	(82)	3.380	(145)	2.608	(113)	2.082	(58)	2.242	(104)	2.398	(137)	2.123	(57)	2.260
FAIR	(114)	1.078	(90)	.925	(206)	1.245	(82)	1.641	(56)	1.740	(59)	1.330	(213)	1.518
MODERATE	(143)	.668	-	-	-	-	(93)	1.160	(298)	1.212	(243)	.894	(109)	.926
GOOD	(218)	.384	(107)	.537	(54)	.369	(174)	.707	-	-	(230)	.447	-	-
VERY GOOD	(93)	.211	(234)	.191	(257)	.168	(99)	.400	(277)	.219	(118)	.192	(382)	.295
EXCELLENT	(124)	.000	(172)	.016	(98)	.017	(224)	.120	(68)	.065	-	-	-	-
ALL CASES	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000	(814)	1.000
COEFFICIENT OF PREDICTIVE EFFICIENCY (CPE)	1.858		1.497		.960		.845		.686		.661		.627	

RRISK = Relative Risk of Violence

Recidivism Measures for the Iowa Risk Assessment Validation Study

Each case in the validation study sample was followed for four years after release from prison, with the following information coded on each case:

- o The nature of each new charge (counts treated as separate charges)
- o The nature of the convicting offense (if any)
- o Months from release to rearrest on the new charge
- o Months from release to reconviction
- o The nature of the disposition and sentence for the new charge (if any)

Each individual new charge (no limit on number) was recoded into a seriousness rating as given in the table labelled "Seriousness Weightings for New Offenses." The seriousness weighting W of any new charge was then damped to reflect the delay time from release to rearrest, using the damping function $D = (5-T)/4$, where T is the number of years from release to rearrest (three significant digits). Likewise, the seriousness weighting of each new convicting offense was damped using the delay time from release to reconviction. For each new charge, the two damped values (the second scored as 0 if no conviction) were added to arrive at a single damped seriousness weighting:

$$W_d = \frac{W(5-T)}{4} + \frac{W'(5-T')}{4}, \text{ where}$$

W = Seriousness weighting of new charge

W' = Seriousness weighting of convicting offense

T = Years from release to rearrest

T' = Years from release to reconviction

Then all damped seriousness weightings for new charges were added to obtain a single measure of the seriousness of new charges:

$$R_G = \text{Sum}(W_d) = \text{General Recidivism Rate}$$

Likewise, a Violence Recidivism Rate was defined by limiting new charges in the above calculations to felonies and aggravated misdemeanors ("prison" offenses) classified as Homicide, Rape, Kidnapping, Assault, or Robbery in the Seriousness Weighting Table. Finally, a Safety Recidivism Rate was defined by limiting new charges to offenses carrying a weight of 36 or more in the Seriousness Weighting Table. Such offenses were considered as above-average in seriousness among all felonies and aggravated misdemeanors.

For any subclass S of the validation study sample, General, Violence, and Safety Recidivism Rates for S were defined as the mean values of the corresponding rates over all members of S. This allowed the specification of recidivism rates, also referred to as "risk ratings," for various "risk levels" of recidivism prediction and risk assessment devices under study.

In addition to the charge-based recidivism rates defined above, a number of discrete measures of recidivism were defined on the validation study sample to allow a more comprehensive analysis of recidivism within the sample and across risk levels of the various models being tested. The discrete measures were coded 0 or 1 according to the absence or presence of the indicated result within the four-year follow-up period. Finally, one, two, three, and four-year follow-ups were isolated and compared to discern variations in recidivism rates over time. The discrete measures examined for this study were as follows:

- o New felony arrest (A)
- o New felony conviction (B)
- o Return to prison (as parole violator or with new sentence) (C)
- o New prison sentence (D)
- o New violent felony arrest (E) (for Homicide, Rape, Kidnapping, Assault, or Robbery)
- o A or C
- o B or C
- o B or C or E
- o B or E
- o C or E
- o D or E
- o New safety felony arrest
- o New violent felony conviction
- o New safety felony conviction

SERIOUSNESS WEIGHTINGS FOR NEW OFFENSES

GENERAL OFFENSE CATEGORY	Misdemeanor			Felony			
	Simple	Serious	Aggrav.	D	C	B	A
HOMICIDE	15	30	45	90	135	180	225
RAPE	12	24	36	72	108	144	180
KIDNAPPING	12	24	36	72	108	144	180
ASSAULT	9	18	27	54	81	108	135
ROBBERY	9	18	27	54	81	108	135
EXTORTION	9	18	27	54	81	108	135
SEX OFFENSES	9	18	27	54	81	108	135
OTHER VIOLENT	8	16	24	48	72	96	120
ARSON	7	14	21	42	63	84	105
BURGLARY	6	12	18	36	54	72	90
DRUGS	6	12	18	36	54	72	90
WEAPONS	6	12	18	36	54	72	90
VANDALISM	6	12	18	36	54	72	90
LARCENY/THEFT	5	10	15	30	45	60	75
VEHICLE THEFT	5	10	15	30	45	60	75
EMBEZZLEMENT	5	10	15	30	45	60	75
ESCAPE/FLIGHT	5	10	15	30	45	60	75
FORGERY	4	8	12	24	36	48	60
STOLEN PROPERTY	4	8	12	24	36	48	60
CHECKS/FRAUD	4	8	12	24	36	48	60
CONSPIRACY	4	8	12	24	36	48	60
MISCELLANEOUS	3	6	9	18	27	36	45
PROSTITUTION/MORALS	2	4	6	12	18	24	30
DRUNKEN DRIVING	2	4	6	12	18	24	30
MOTOR VEHICLE OFFENSES	1	2	3	6	9	12	15
ALCOHOL OFFENSES	1	2	3	6	9	12	15

In Iowa, statutory maximum penalties are as follows: Simple Misdemeanor - 30 days, Serious Misdemeanor - 1 year (jail), Aggravated Misdemeanor - 2 years, Class D Felony - 5 years, Class C Felony - 10 years, Class B Felony - 25 years, and Class A Felony - Life.

The most common offense seriousness weightings are as follows:

First Degree Murder	225	Robbery	81,108	Weapons	18,36
Second Degree Murder	180	Extortion	54	Vandalism	18,36
Voluntary Manslaughter	135	Sex Offenses	54,81	Theft	5-45
Involuntary Manslaughter	45,90	Other Violent	16	Embezzlement	5-45
Rape	108,144	Arson	21,63	Escape/Flight	15,30
Kidnapping	108,144	Burglary	54	Forgery/Fraud	5-45
Assault	9,27,81	Drugs	12,36,54	Drunken Driving	4,6,12

END