

SAN JOSE LABORATORY
ADVANCED SYSTEMS DEVELOPMENT

April 19, 1960

FILE MEMORANDUM: 5720-4.1

SUBJECT: Coding of Error Data

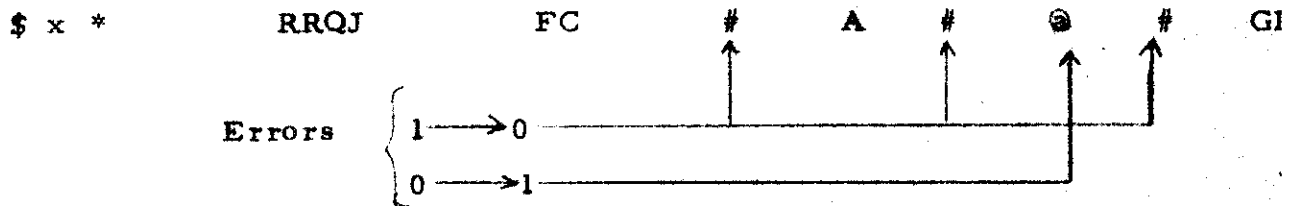
A system of coding raw error data for recording on a 727 Tape Unit for future analysis by a computer is proposed. If a better code system has been developed elsewhere, this system would be dropped in preference to the established or better system.

The coding system (omitting the redundant bit) is shown in Fig. 4.1a. The errors are indicated by numeric symbols and the number of bits, blocks, and length of blocks is indicated by alphabetic characters. The existing alphanumeric code of the 727 is used. Some sample records are shown below:

Error Mode A: Simple Counting of Errors and Separation of Errors

\$ x *	RRQJ	FC	1	A	21	GD
Block Length of 64 bits	641 Correct blocks	+36 correct bits	+1 bit error	+1 correct bit	+3 bits in error	72 correct bits

Error Mode B: Error Type (0 → , 1 → 0) Recording.



It is proposed that error records in Mode A or Mode B be processed on a 704 by use of logical operation instruction such as LDQ, LLS, SLW, CAS, etc. To use this coding method, two 704 programs are required: (1) a program to count correct messages and analyze errors in error blocks, and (2) a program to make a statistical analysis and tabulate detected and undetected errors for different codes for given sets of errors.

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FBW:pm

Tape Bits 3-4-5-6	Errors (Bits)	Correct Units			Quantity
		(Bits)	(Blocks)	(Length)	
	00	11	10	01	
0001	1	A	J	I	1
0010	2	B	K	S	2
0011	3	C	L	T	4
0100	4	D	M	U	8
0101	5	E	N	V	16
0110	6	F	O	W	32
0111	7	G	P	X	64
1000	8	H	Q	Y	128
1001	9	I	R	Z	256

1011	#		1 → 0
1100	@		0 → 1
1011		\$	Begin
1100		*	End

Fig. 4. 1a. Proposed Error Accounting Code for Analysis of Data Transmission Errors