

~~A~~ A

... A .. A ..

, A, AAD,

~~AA~~

←  
, DAA, A,

, A .. ,

; . . A .. ,

← A, <sup>wA</sup> ← inc inc, A,

CBB, CDD

X

A, <sup>wA</sup> ← inc inc - , A,

BB C, DD C  
? ~~BB~~

A B B B  
D D D

→

A, CBB, A

← C ADD, C

C A C

A no, no C, X A

AC BB

← ABB CA ADD D  
CA  
AC →

$\rightarrow$   
 $A_1 \cdot c \cdot A_2$   
 $\leftarrow \bar{A} \cdot A$

~~$A \cdot C \cdot A$~~   
 $\leftarrow$   
 $\rightarrow$   
 $A \cdot C \cdot \cdot \cdot A$   
 $\leftarrow \cdots C A$

Possible sets for  $A_1 = \begin{smallmatrix} \text{no} \\ A \\ \text{no} \\ A \end{smallmatrix}$

BBB

CCC

DDD

ABC or DCC

✓ ABD

ACB or CCD

✓ ADB

ACD CCB

~~(ABC BCD)~~

- ADC BCC

~~CBB CDD~~

~~BBC DDC~~

DBB

BBD

ddb

BDD

✓ CDC

✓ CBC

BCB or BCD

BDB

DBD

✓ ABB

✓ ADD

BCD or DCB

23 - 1 = 22

With C allowed in first position

we reject all Czy

Then reject C  $\begin{smallmatrix} A & A \\ B & B \\ D & D \end{smallmatrix}$

Then code

A ...  
no A no A

- BBB
- CCC
- DDD
- ABC (or DCE)
- ABD
- CCD
- ADB
- CCB
- ADC
- BBC (or DCC)
- DBB
- BBD
- DDB
- BDD

22  
=

i.e.

B B B  
D D D

A B B  
D D

$\checkmark$  B  
CD C

BL

8

6

BBC

22  
=

Ternary code

Forward

A B C  
D D D → B C A ✓

hand checked ✓

Backward

DCB  
D → BCA

ADC → BCC ✓

BBC → DDC ✓

CBC → BAC ✓ & CAB ✓

CCC → AAC ✓, ACB ✓ & CAB ✓

CCB → ACB ✓ & CAB ✓

First weat Don't in B.

A,      no A  
          no C

A

<u>AAB</u>	<u>AAB</u>	<u>ABB</u>	<u>ACB</u>	<u>CCB</u>	<u>CBB</u>	<u>BBC</u>	<u>CAB</u>	<u>BAB</u>	<u>BCB</u>
A BB								X	
{ ACB				X					
{ CCB		X			X				
CBB					X				
-BBC						X			
CAB				X					
BAB							X		
BCB								X	

This one rejects  
the one above.

BA  
A  
B  
C  
D

$$\therefore Z = \frac{B}{D} = 2$$

$$x = y = z = \gamma = \text{all}$$

ACB  
CCB

CBB  
C  
B  
D  
A  
B  
C  
D

BBC

CAB

BCB

BCB

Thus ab AB is  
clear

CCB

ACB    CB  
A  
B  
D

A, ...  $\frac{w_A}{w_C}$

$$Z = z = \frac{B}{D}$$

	AAB	ACB	ACD	CBB	BBC	CAB	DAB	BCB	BCD	DCB	
AAB											
AAD											
{ ACB		x	x								
{ CCD	x	x	x	x	x						
{ ACD		x	x								
{ CCB	x	x	x	x	x						
{ CBB				x	x						No
{ CDD				x	x						No
{ BBC						x	x				
{ DDC						x	x				
CAB				x	x			x			
{ BAD							x				No
{ DAB							x				No
CAD				x	x		x				
{ BCB								x	x		
{ DCD							x	x	x		
{ BCD							x	x	x	x	
{ DCB							x	x	x	x	
				No	No		No	No			

Thus reject: CBB & CDD

Code of the form

A,  $\dots$  <sup>no A</sup> <sub>no C</sub>.

Possible selection.

✓ AAB

(BBB)

-

✓ AAD

(DDD)

-

✓ ABD

✓ ACB or ~~CED~~

✓ ADB

✓ ACD or ~~CDB~~

-

~~CRB~~ or ~~CPQ~~

~~DRB~~ or ~~DCE~~ -

(DBB)

(BBD)

(DDB)

(BDD)

✓ CAB

~~BAD~~ or ~~DA~~B

✓ CAD

✓ BCB or ~~DCD~~

(BDB)  
(DBD)

✓ ~~AB~~B ABB

✓ ~~AA~~ ADD

✓ BCD or ~~DCB~~

23 parts

21 allowed

Code of the form

$A, \frac{no\ C}{\cancel{no\ A}}$

$\begin{matrix} A \\ B \\ C \\ D \end{matrix}$

$\begin{matrix} BBB \\ DDD \end{matrix}$

$\begin{matrix} A \\ BAC \\ D \end{matrix}$

$\begin{matrix} BCC \\ D \end{matrix}$

$\begin{matrix} BBC \\ (or \\ DDC) \end{matrix}$

~~$\begin{matrix} BAD \\ CAB \end{matrix}$~~

22

Thus

$$\left. \begin{array}{l} X = AB \ D \\ Y = ABCD \\ Z = BCD \end{array} \right\} \begin{array}{l} = 2 \\ = 3 \\ = 2 \end{array}$$

$\begin{matrix} B \\ C \\ D \\ D \end{matrix}$  rejects

$\begin{matrix} B \\ C \\ D \\ B \end{matrix}$  A ✓

$\begin{matrix} B \\ D \end{matrix}$  AC rejects

$\begin{matrix} C \\ A \\ B \\ D \end{matrix}$  ✓

BAD rejects

$\begin{matrix} D \\ A \\ B \\ D \end{matrix}$  ✓

$\begin{matrix} A \\ A \\ B \\ B \end{matrix}$  rejects

$\begin{matrix} A \\ C \\ B \\ A \end{matrix}$  and  $\begin{matrix} C \\ B \\ A \\ B \\ D \end{matrix}$  ✓

$\begin{matrix} A \\ C \\ D \\ B \end{matrix}$  rejects

$\begin{matrix} C \\ C \\ A \\ B \\ D \end{matrix}$  ✓

$\begin{matrix} A \\ B \\ D \end{matrix}$  AC rejects.

$\begin{matrix} C \\ B \\ D \\ C \end{matrix}$  ✓

$\begin{matrix} B \\ B \\ C \end{matrix}$  rejects.

$\begin{matrix} D \\ D \\ C \end{matrix}$  ✓

$\begin{matrix} B \\ C \\ C \\ D \end{matrix}$

$\begin{matrix} A \\ B \\ D \\ C \end{matrix}$ ,  $\begin{matrix} B \\ C \\ D \\ A \\ B \\ D \end{matrix}$  ✓

ok.