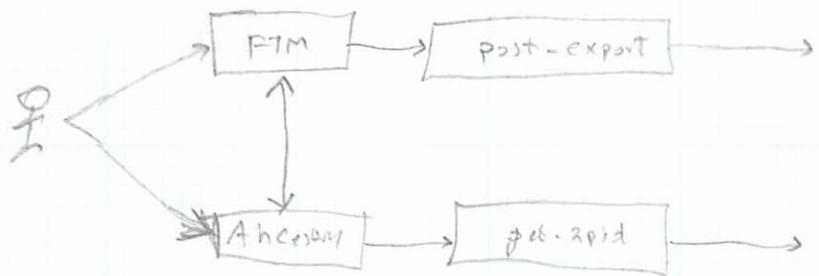
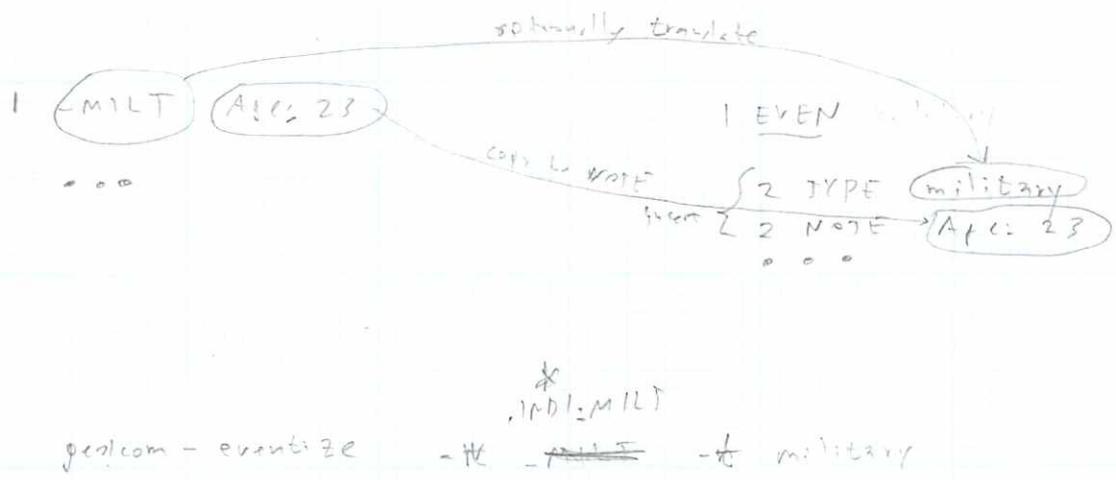


haley 2815

assumed final Ancstry/FTM/git workflow



To get -APID from Ancestry export GEDCOM  
and match/insert into original GEDCOM



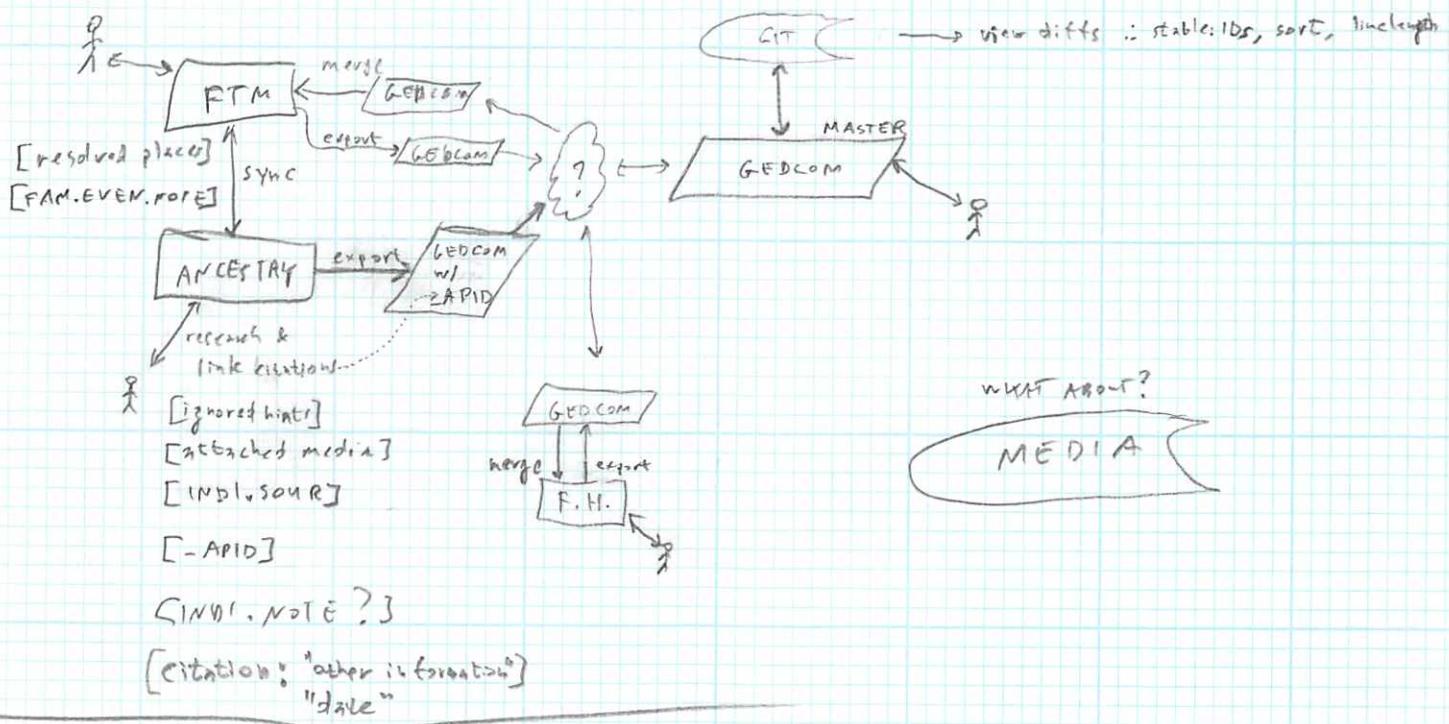
$n + v \rightarrow n \text{ EVEN}$

$n+1 \dots$

$n+1 \text{ TYPE } t'$

$n+1 \text{ NOTE } v$

$n+1 \dots$

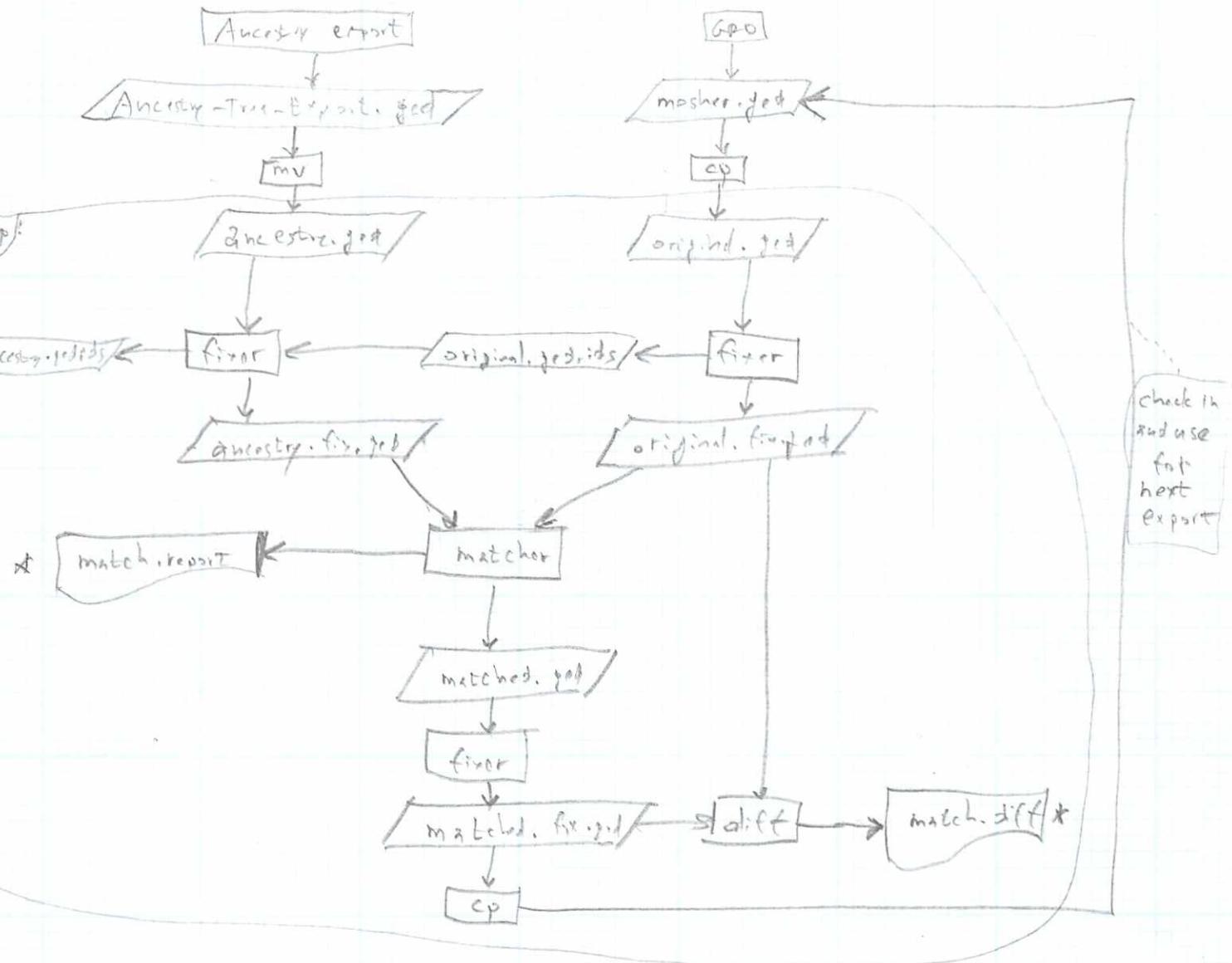


todo

CHANGE FROM TO REFERENCE DATES → ALL TIME PERIOD  
 CHANGE FROM TO DATES (~100 PEOPLE) → INT PRIM - TO - (time period)  
 RESCORE LOST NOTES  
 FIX SOURCE TEXT FORMATTING (NEW LINES)  
 FIX UNKNOWN TAGS IN NOTES (ANCESTRY)  
 DELETE ORPHANED SOURCES  
 MERGE DUPLICATE SOURCES  
 RESI → CENS

LÓPEZ 2147483647

ANCESTRY SMITH - APID FOR ONE SPOUSE IN PAM GROWTH CITATIONS



\* check in 2 report files  
from first ancestry export only

check for duplicate sibling lines (same pointer)

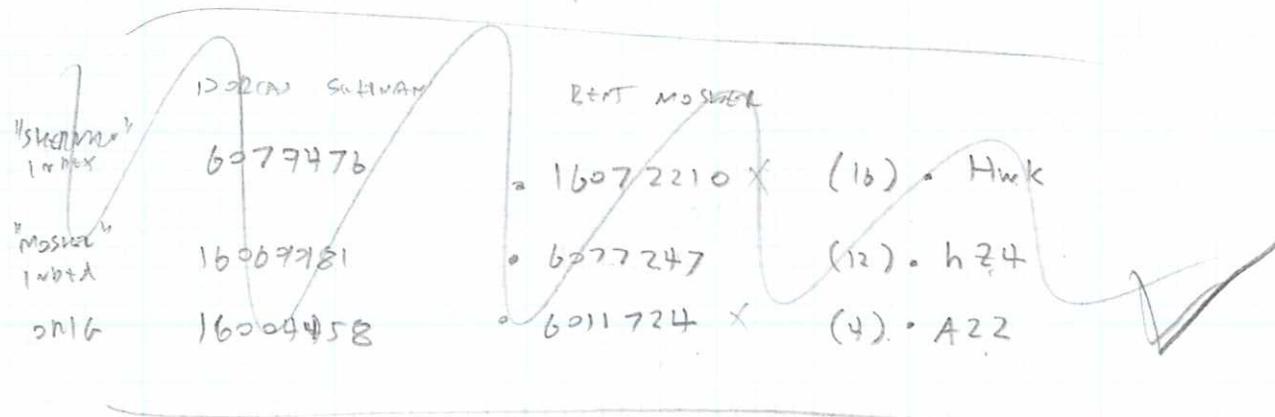
recurse through entire tree, for each:

iterate through children:

count by ID

if any count > 1

print



## Generic GEDCOM ed

✓ -w w "where" clause; chooses a set of lines to operate on

✓ -d deletes matching lines (w/ children)

✓ -u re updates values of matching lines (does not affect children)  
?? use regex groups ??

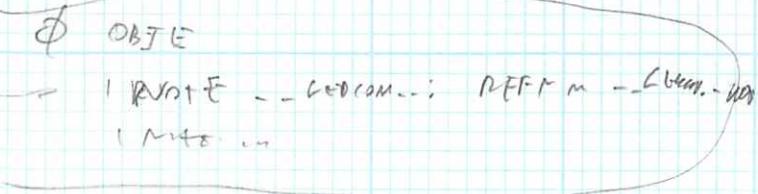
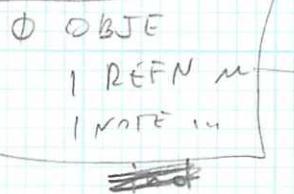
✓ -u re -R same as -u re, but also deletes all children

? {  
-g gets values of matching lines (ignores children)  
-g -R extracts - replaces

Daniel Coughsh

b 14 MAR 1787

d 9 JAN 1811 23y 9m 26d



opt = [ind] [opt] [= val]

opt val

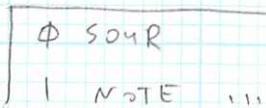
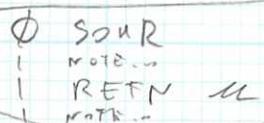
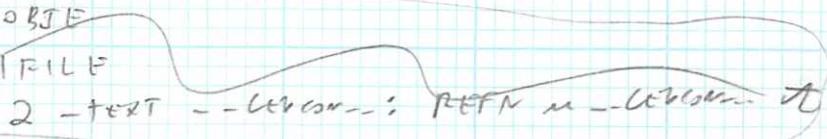
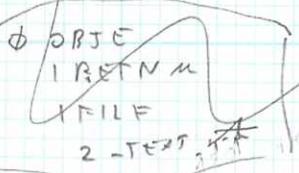
V	-	V
=	-	=
=V	-	=V

K=

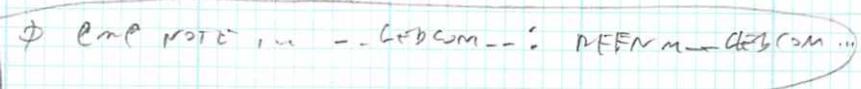
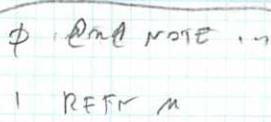
K -

K=V

K V



-- GEDCOM--; REFN m -- GEDCOM--



!! present a  
 COPY  
 parent  
 value !!

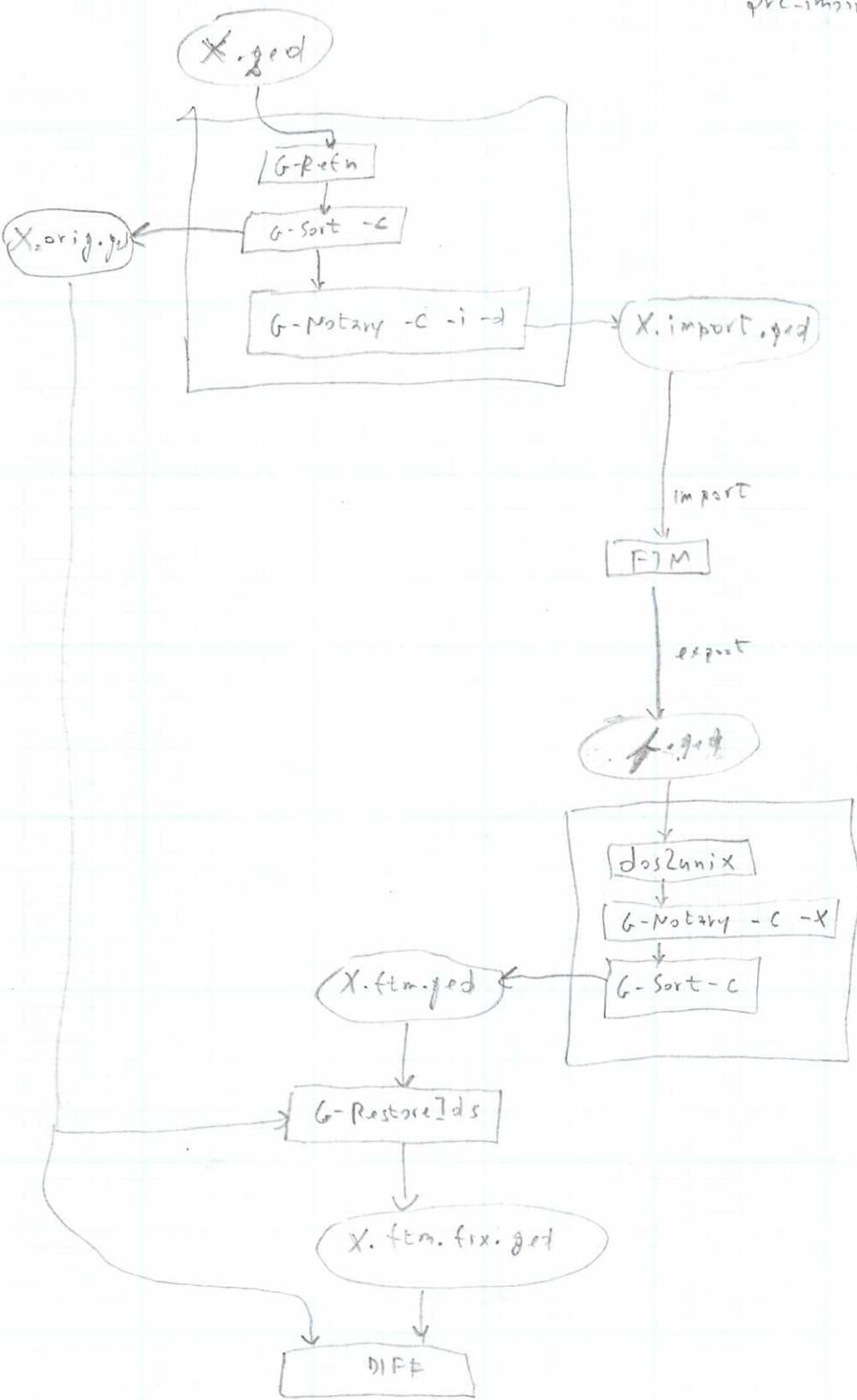
-d delete

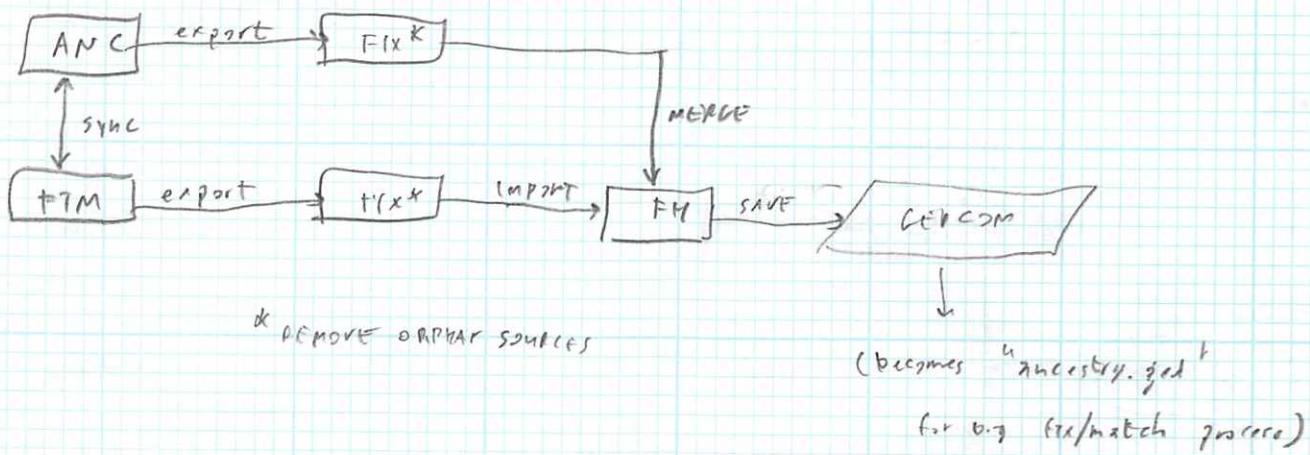
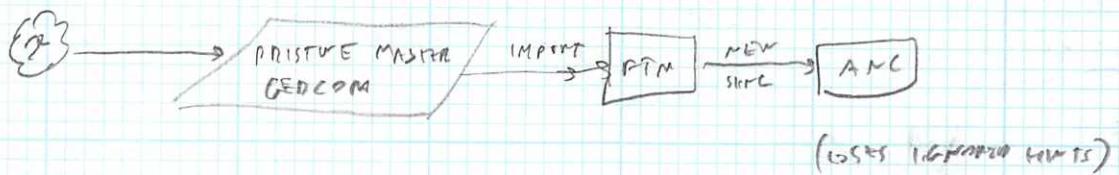
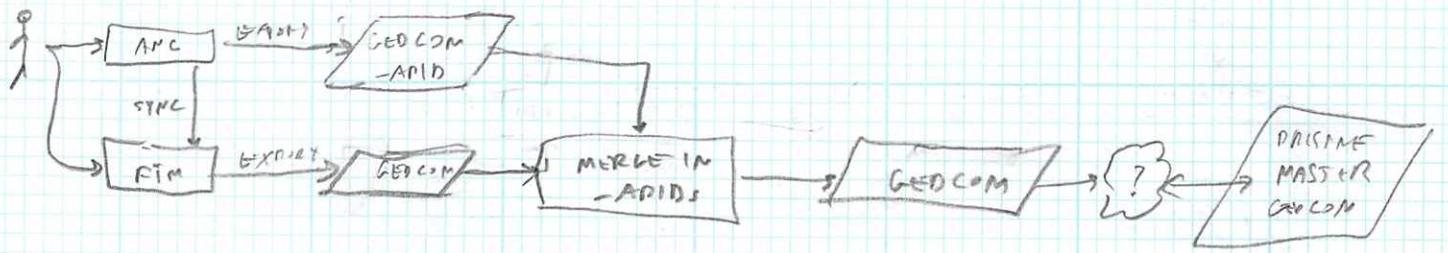
level, id, tag, n ~~to~~ level, id, NOTE, -- GEDCOM-- tag n -- GEDCOM--

level, NOTE, n  
 tag, n

convert  $\Rightarrow$  level, id, NOTE, -- GEDCOM-- tag n -- GEDCOM-- m  
 $\rightarrow$  [unchanged]

pre-import / post-export





45 11

46 E

GEDCOM

SOUR -- TAG: n

import  
→ FTM

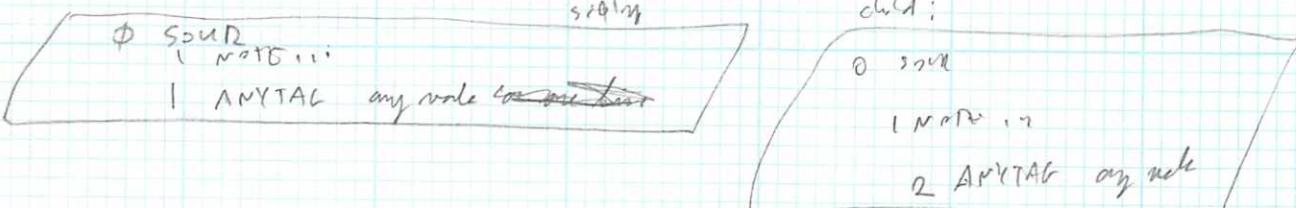
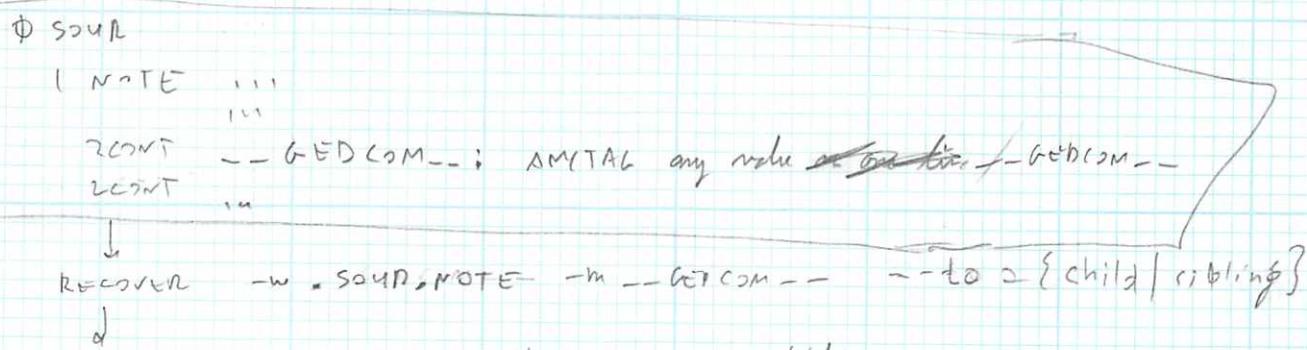
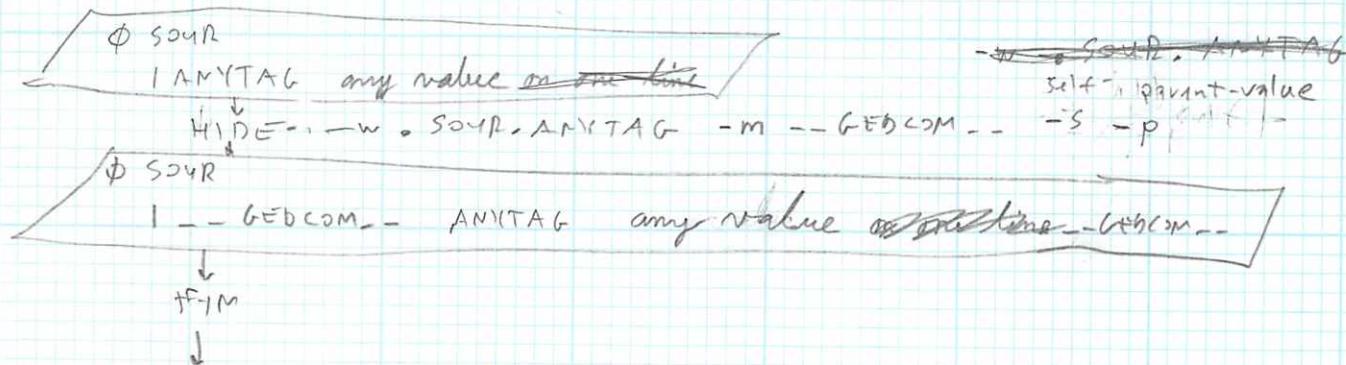
export GEDCOM

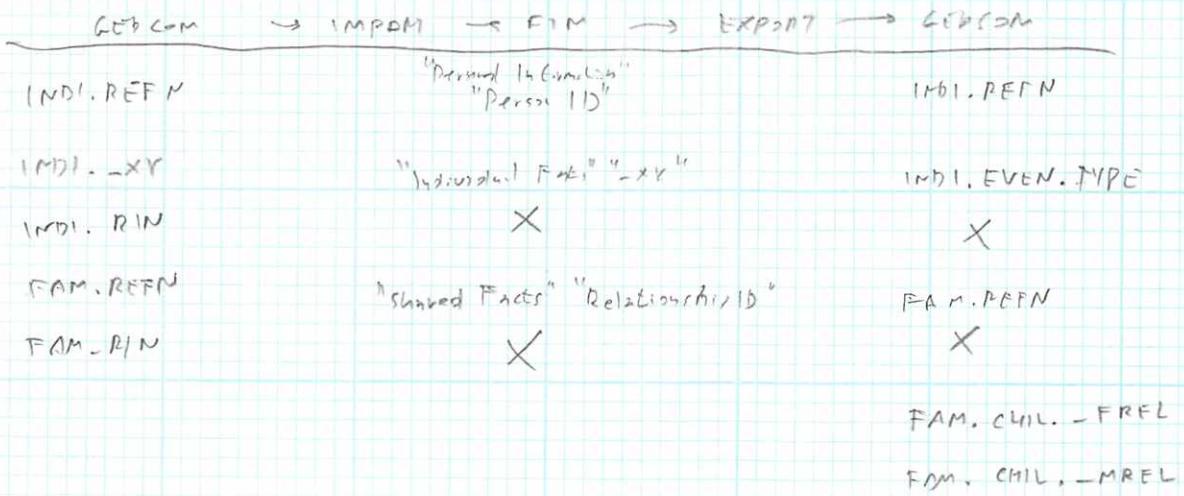
SOUR.NOTE -- TAG: n

When importing GEDCOM to FTM, SOUR.TEXT, SOUR.NOTE, and SOUR.CUSTOM are combined into one SOUR.NOTE.

We can't pull TEXT vs. NOTE out again.

But we can hide tags in NOTES, and pull them out again with something like this:





☆ SONY.RETNA

X

Soun-nin

X

 SOUND.TEXT }  
 SOUND.MOTE }

Source window, Comments SOURCE, NOTE  
(appended together with newlines)

★ NOTE, REFM  
NOTE, RIN

X

~~OBJE.~~, RIN  
~~OBJE.~~, NOTE

5

X [But, can enter notes  
in the zap]

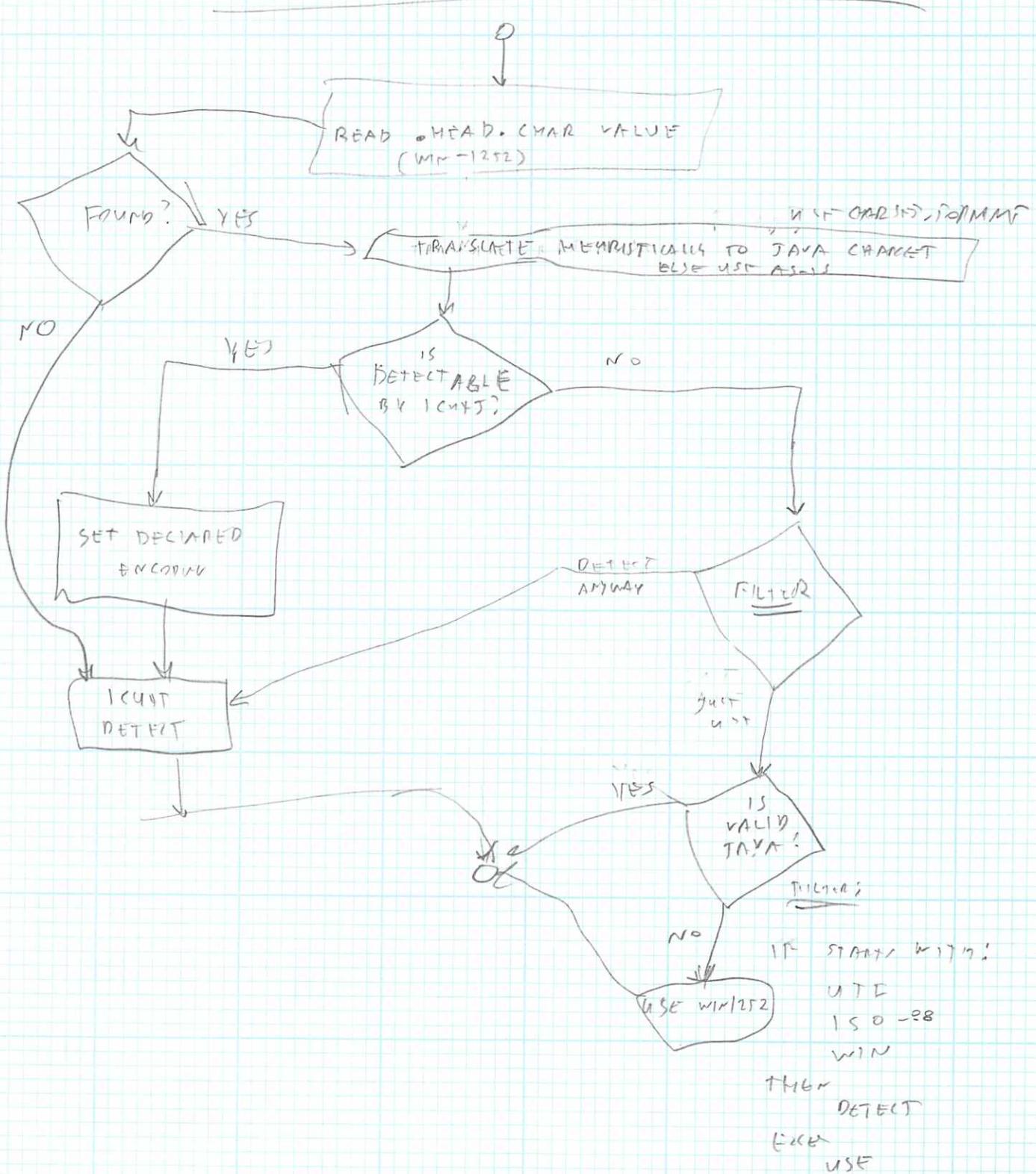
OBJE. NOTE > .16

OK if  $f \circ \text{HEAD} = \text{SOUR}$   
OK if  $f \circ \text{FTM} = \text{FTM}$

# DETERMINE GEDCOM

FILE CLASSTY

(IN JAVA, USING ICU4J LIBRARY)



OP16  
GEDCOM

IMPORT

ANCESTRY.COM

FILE

NEW TREE

NOTE

LOSES NOTE RECORDS

LOSES IN-PERSON DATES

LOSES UNKNOWN LIVES

LOSES APPENDIX

NOTES

LOSES

PREVIOUSLY SAVED NOTES

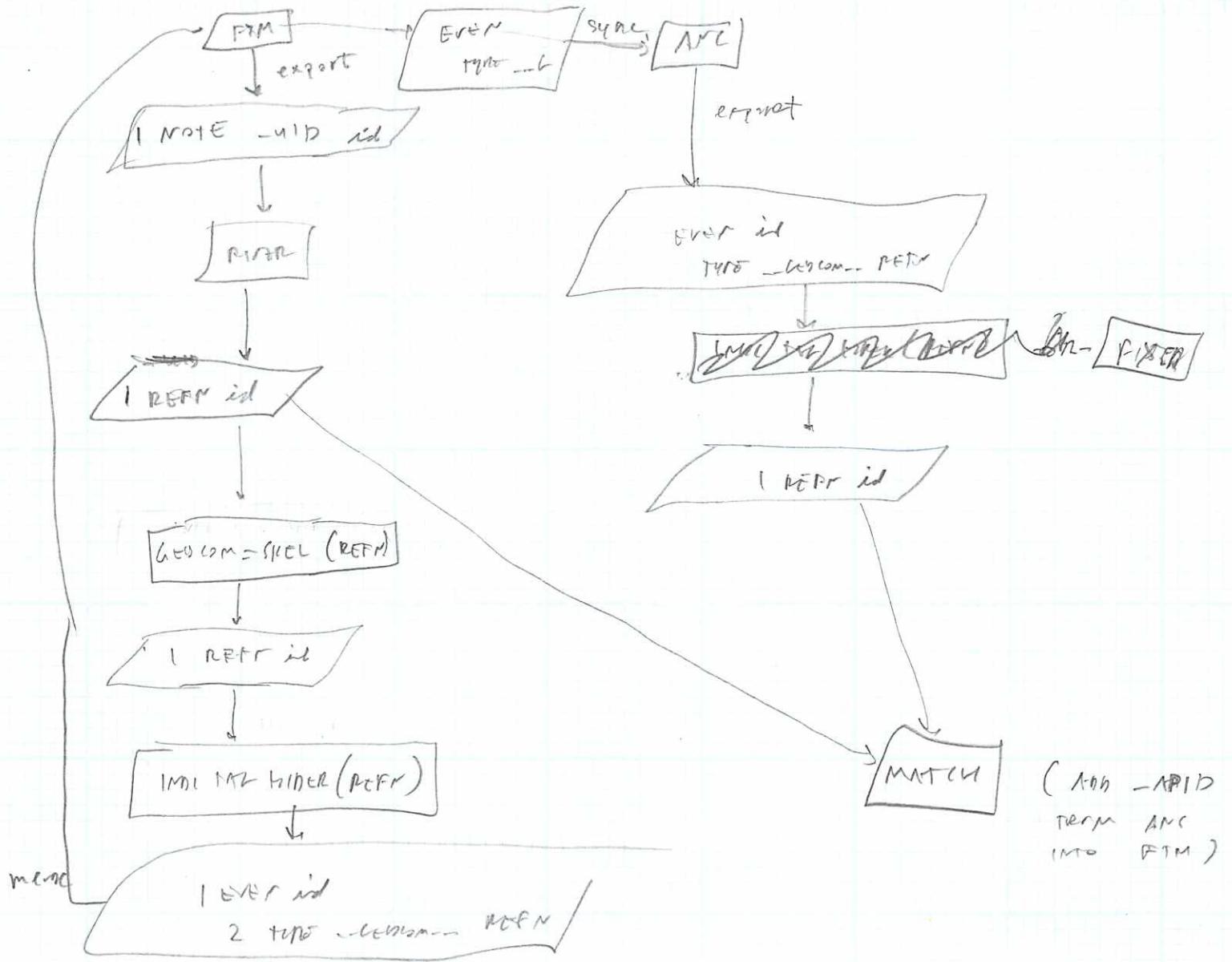
EXCEPTION

-MILT

BABY MONITOR

LINKS

FAMILY  
PERSPECTIVE



ITEM:  
MOTHER ON  
DAD & builder

todo (Gedcom program to write)

sharded event processing

add REFNs where needed

write layout algorithm in java?

and/or layout algorithm and drop-line view in python

when reading Gedcom (in Gedcom.lib) if have ref level,

then skip to the next ~~n~~ level record, and continue

and generate new records for pointers to missing IDs

~~make GPO preserve existing IDs and use PersonID as random ID for new~~

~~make GPO allow asymmetric same-sex marriages~~

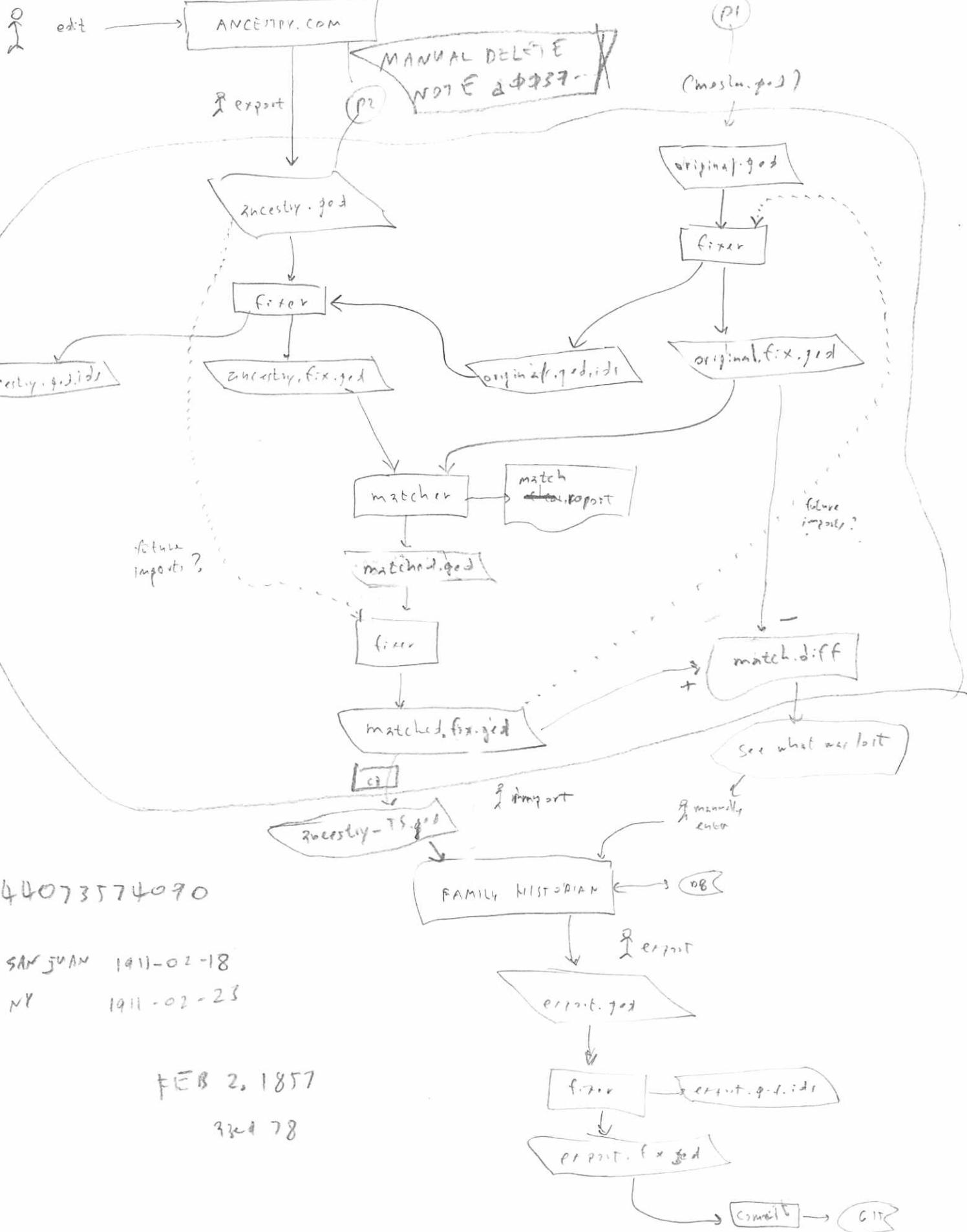
YATOS

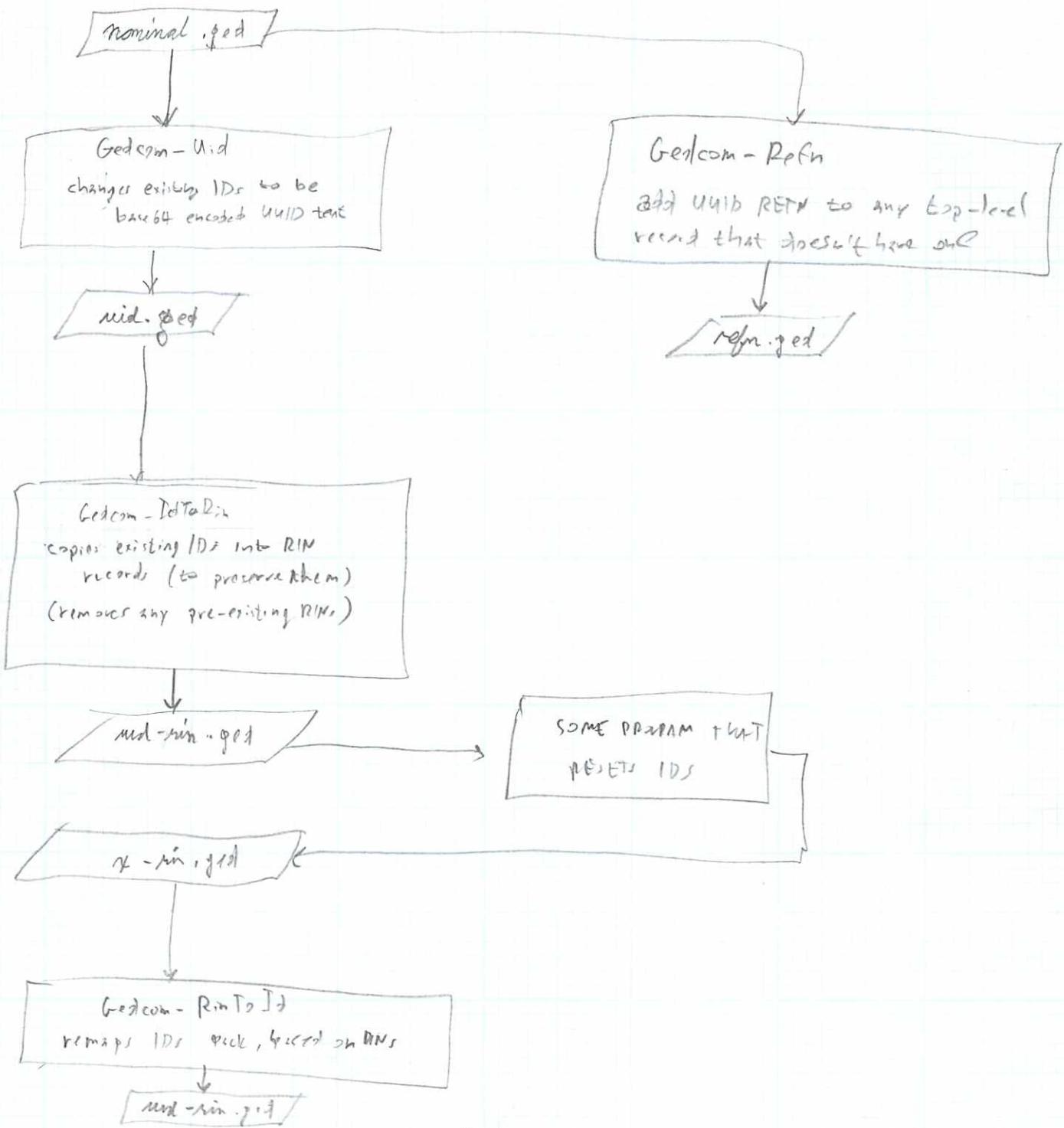
~14.)

22.01.1974

.150)

6467





FAM

IND 1

SOURCE - REPOS

INFO:

→ NAME DATA  
→ SEX

→ EVENTS:

TYPE  
DATE  
PLACE

CATA  
NOTE

CATA  
SPEC  
TERM  
PLACE

QUALITY

— USE TO DETERMINE IF SHOULD  
SPLIT UP (INTO MULTIPLE  
PERSONAL IMPORT)

→ ATTRIBUTES:

TYPE  
VALUE  
DATE  
PLACE

CATA  
NOTE

→ NOTE

FAMILY

→ EVENTS

TYPE  
— USE MARRIAGE EVENT "MARRIED" OF HUSBAND OR WIFE

→ MARRIED  
WIFE  
CHILD  
— USE BIRTH EVENT "BORN" OF CHILD, WIFE, OR HUSBAND

to do

~~ADD NEW ATTRIBUTES~~

1bno ATTR (TYPE SUBTOKEN TO ATTR)

OPTIONAL TAGS TO ADD:

SOUR.ABRR

EVEN.ADDR

.CAMS

.AGNC

CITA.DATA-DATE

.EVEN

.EVEN.ROLE

~~VALIDITY~~

~~VALIDITY OF DATES~~

MERGE FAMILIES?

ARRANGE EVENTS / SPOUSES / CHILDREN ATTRIBUTES

SORT HEADERS

~~FROM FORM UNTIL OPEN READER~~

DURATION READING: MAIN PROG JUST STATUS "PENDING"

THREAD - BECAUSE THREAD MULTIPLES

MAIN PROG WHERE NAME.

HOLIDAYS: FIND OUT WHAT YEARS THEY ARE VALID FOR

~~FIND HOLIDAYS~~

OPTIONS FOR DISPLAYING DATES:

SHOW HOLIDAYS

GUT ALL TO JULIAN OR GREGORIAN

SHOW WEEKDAY NAMES

SHOW BIRTH YEARS ~~1952-1996~~ 1952-1996's

SHOW JULIAN DAY NUMBER

COUNT OF INPI'S, FAMILIES, ...

TYPE INDI INDEX: IN FIRST NAME WITH THE LAST NAME

TYPE INDEX TO GET PARENTS CTRL

!! ~~TYPE IS DB CLICK~~

CHECK FOR MAXIMUM LENGTH

<u>New Year</u>	(JAN 1)
<u>President</u>	(3RD MON FEB)
<u>Easter / East Friday</u>	(EASTER MONDAY)
<u>Memorial</u>	(LAST MON MAY)
<u>Labour</u>	(1ST MON SEP)
<u>Thanks</u>	(4TH THU NOV)
<u>Christmas</u>	(DEC 25)
<u>Martin Luther King</u>	(3RD MON JAN)
<u>Victoria Day</u>	(1ST FEB)
<u>Week</u>	
<u>1st SEP</u>	(1ST 4)
<u>1st OCT</u>	(MON 1)
<u>COLUMBUS DAY</u>	(2ND MON OCT)
<u>ELECTION DAY</u>	(1ST MON NOV PLUS 1)

CENSUS DAY

1770-1820	1ST MON APR
1830-1900	JUN 1
1910	APR 15
1920	JAN 1
1930-1940	APR 1

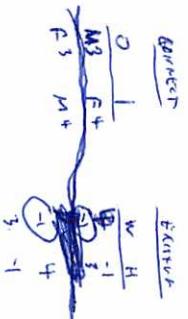
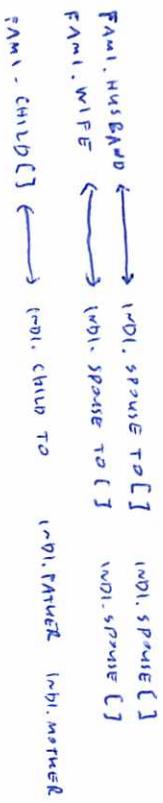
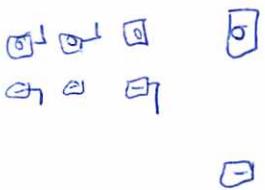
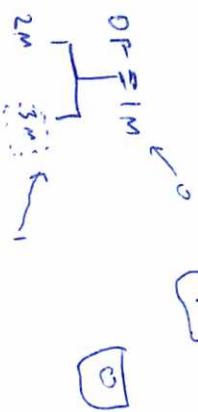
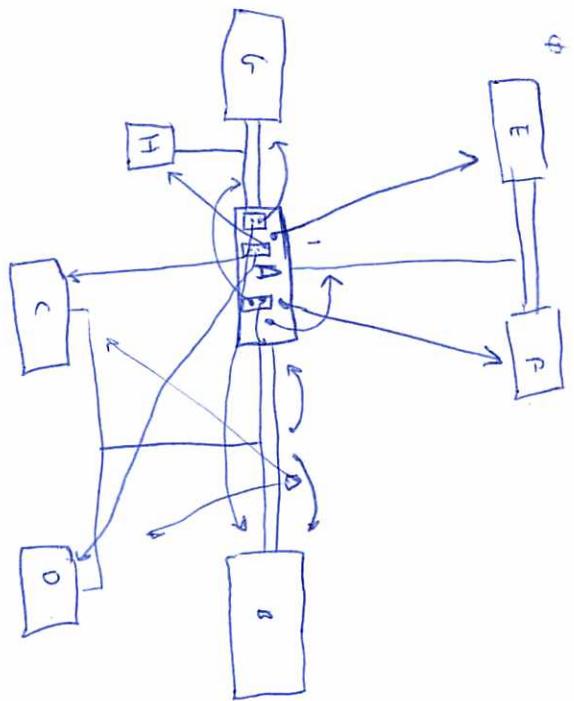
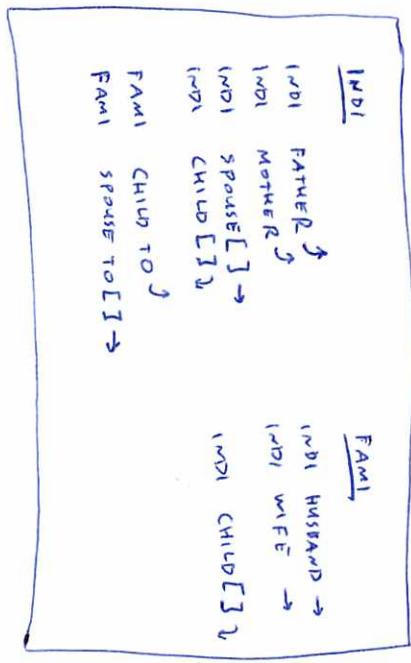
S.M.T.W.T.F.S					1ST QUARTER (4 MONTHS)		
①	②	Y	IPM	IPM	IPM	IPM	IPM
		6	5	2	T	6	
		5	4	3	W	5	
		4	3	8	T	8	
		3	2	5	F	2	
		2	1	5	S	2	
		1	0	0	S	1	
		0	L	1	M	0	

$$D = \frac{N}{M} \times (Y - M) \quad (Y, M, N, M)$$

$w = \text{getWeekday}(Y, M, 1)$

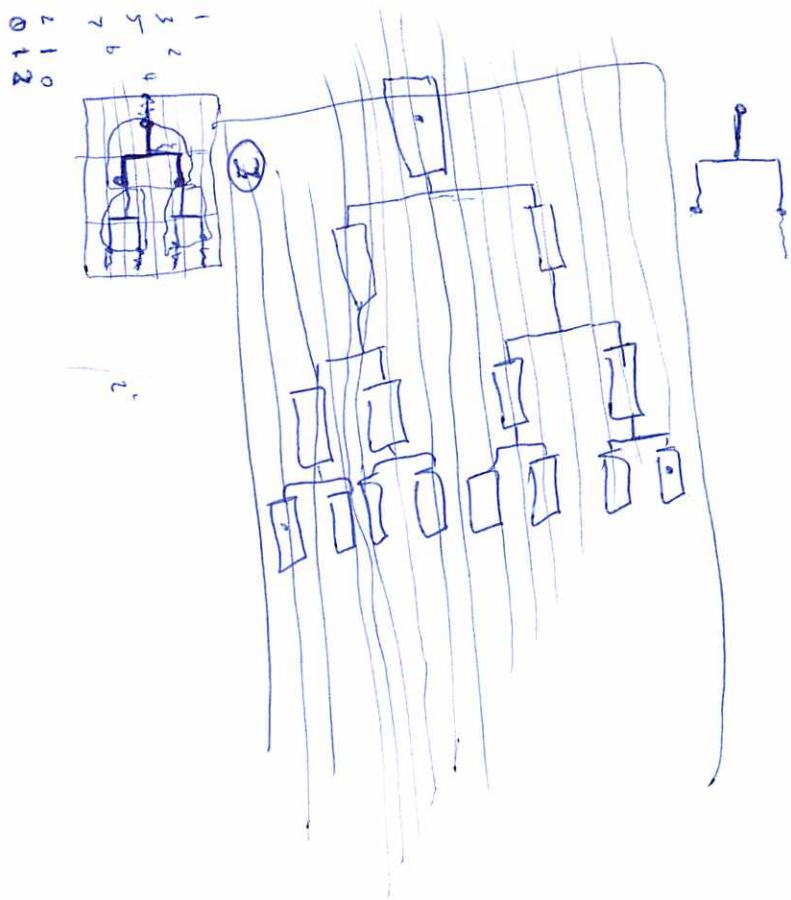
$$D = ((7-w) + w) \cdot 7$$

$$D = (7 - m^{(n)}) / 7 + 7 \times (n - 1)$$



HEAD SUBM  
SUBN SUBM  
 SUBM SUBM  
 FAM . HUSB  
 . WIFE  
 . CHIL  
 .  
 SUBM SUBM  
 INBL - SUBM SUBM  
 . ALIA INBL  
 . ANC1 SUBM  
 . DES1 SUBM  
 OBJE - OBJE

ASSO LWT  
 FAM FAM  
 . OBSE DBJE  
 . NOTE NOTE  
 . S7412 SOURCE  
 . REPO REPO  
 LEADS FAM  
 . SUBM SUBM  
 . S48 SUBM  
 . ANC1 CHIL  
 . DES1 PPT  
 . CHIL PPT  
 . AWA PPT  
 . ANC1 SURA  
 . DES1 SUBM



MIE  
TEXT  
CIT

NAME  
PREFIX  
GIVEN  
MIDDLENAME  
SURNAMEPREFIX  
SURNAME  
SUFFIX  
CIT  
NOTE PTR

CITATION:  
SOURCE) PTR  
PAGE  
SMAY  
DATA  
TEXT (FROM SOURCE)  
MIE PTR

SOURCE:  
AUTH (one)

TITL (E)

PUBL

REPO

PTR

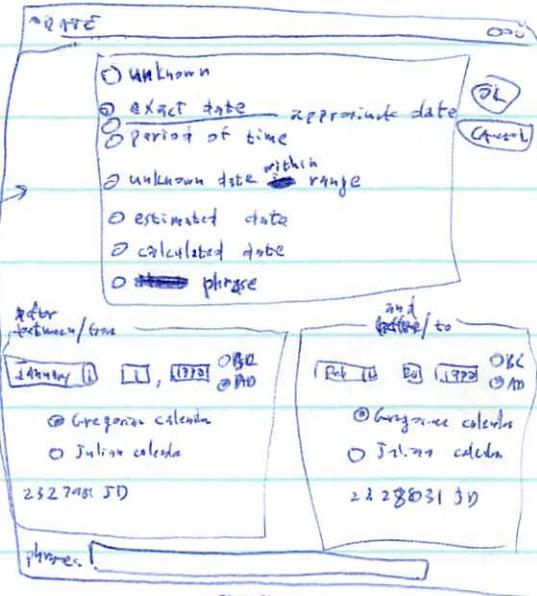
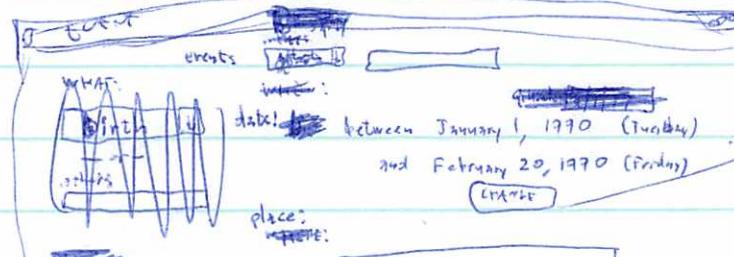
DATA

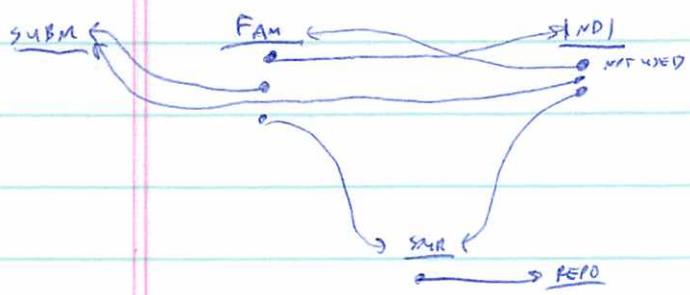
NOTE PTR

REPOSITORY:  
NAME  
NOTE PTR

EVENT:  
TYPE TBC  
TYPE STA  
DATE

PLACE STR  
CIT  
NOTE PTR





Source

Author [ ]

Title [ ]

Publisher [ ]

Repository [ ]

~~Page(s):~~

~~(1-100)~~

Get from source:

New

Cancel

Christopher Alan Mosher (227)

Gender: Male

Sex: Female

Unknown

Relationships:

- Christopher Alan Mosher
- └─ Berry Barbara Mosher
- └─ Linda Marilyn Mosher

Partnerships & Children

Relationship	Spouse	Event	Date	Place	Notes
married	Berry Barbara Mosher	married	1948-12-01	New York, NY	<input checked="" type="checkbox"/> New <input type="checkbox"/> Edit <input type="checkbox"/> Delete
divorced		divorced	1948-07-01	Vermont, USA	
born		born	1948-06-29	Bethesda, MD	
death		death	1973-02-28	Bethesda, MD	
married	Nancy Lynn Mosher	married	1973-02-28	Bethesda, MD	
birth	Darren Ray Fazz	birth	1973-03-01	Bethesda, MD	
	Craig Elizabeth Fazz				

Events

Event	Description	Location	Notes
birth	September 1948, 1948	Randolph, Virginia	<input checked="" type="checkbox"/> New <input type="checkbox"/> Edit <input type="checkbox"/> Delete
death			
rebirth			

OTHER-TREES

HEADER

SUBMISSION

TRLR

LOS-RELATED

(cont) core

FAMILY

INDIVIDUAL

MULTIMEDIA

NOTE

REPOSITORY

SOURCE

SUBMITTER

SUBM

SOURCEREF

MM-L

NOTE-SOURCE

REFN

SUB-MANY-PERS

CHILD-TO-FAM-LINK. PERS

SOURCE-CITATION. DATA-TEXT

SOURCEREF-REF

#

(MANY RELATIONS)

FAMILY

→ FAMILY-EVENT ✓

→ CHILD-INDI ? KINDI \*

(RELATION)

SUBM

(ASSOCIATION)

(FAMIL)

(NOTE-SPE)

(REFN)

L1

PERS NAME ✓

NAME BUT ✓

INDI ATTRIB ✓  
CHILD TO FAM X

SPOUSE TO FAM L

XFAMILY \*

(SUBM)

ASSOC

AUA

ANDI-SUBM

DESI-SUBM

(SUBM)

(NOTE)

(REFN)

MM

(NOTE)

→ BLOB ✓

(REFN)

NAME

NOT-FAM

NOTE

(SOURCE-CT)

(NOTE)

REPO

(NOTE)

(REFN)

SOUR

→ DATA-EVENT ✓  
(NOTE)

(NOTE)

(NOTE)

(REFN)

SUBMITTER

(NOTE)

BLOB

NOT-FAM

BOOKS:  
AUTHOR, TITLE, EDITION, PLACE: PUBL., DATE, PAGE.  
→(CITATION)

AUTHOR: FULL NAME OR NAME OF CORP.

MULTIPLE: FIRST AND SECOND

ANONYMOUS

# ENTRY, COMPILER / PUBLISHER

TITLE: FULL TITLE FROM TITLE PAGE

PUBL.: EDITION; IF NOT FIRST (3rd ed.)

PLACE: ~~CITY~~ CITY (AND STATE IF NOT OBVIOUS)

N.B. IF NOT KNOWN

PUBLISHER: FULL NAME

n. pub. IF NOT KNOWN

DATE n. IF IF NOT KNOWN

(IF MULTIVOLUME WORK, DATE REFERS TO ACTUAL VOL. USED)

NOTE REPRINT

PAGE #s p. or pp. →(CITATION)

SERIALS: PERIODICALS: TITLE:

"ARTICLE TITLE," PERIODICAL TITLE, VOL (DATE) ~~ISSUE~~

NEWSPAPERS: NEWSPAPER TITLE (PLACE) DATE, PAGE; LOCATION

INCLUDE SECTION / COLUMN

UNPUBLISHED:

"TITLE," DATE, LOCATION, PAGE, FORM.

(DOC. WRITER)

→(CITATION) →(REPOSITORY)  
→(AUTHOR?)

25 8/15/13

SPECIFIC UNPUBLISHED EXAMPLES:

title

CENSUS: 1850 U.S. Census (Free Schedule), Paulding, Jasper, MS, p. 403, fam #, dwelt ~~in~~

NAME

LETTER: Letter, (From) to (To), date, ~~in~~

family tree  
person  
event  
date/time  
place  
source/page  
family  
relation  
name  
pedigree chart  
pedigree chart  
reference list  
personinfo chart

application  
document  
page  
command  
view  
~~archive~~

presenting

display

view

edit

display family

display

display people

display

display events

display

display relations

display

display date/time

display

display place

display

display source/page

display

display family

display

display name

display

display pedigree chart

display

display pedigree chart

display

display reference list

display

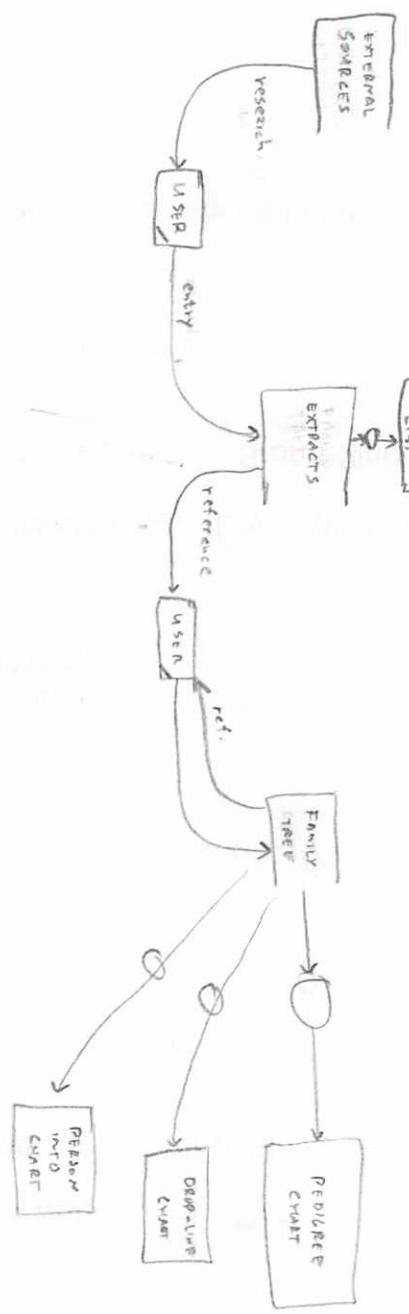
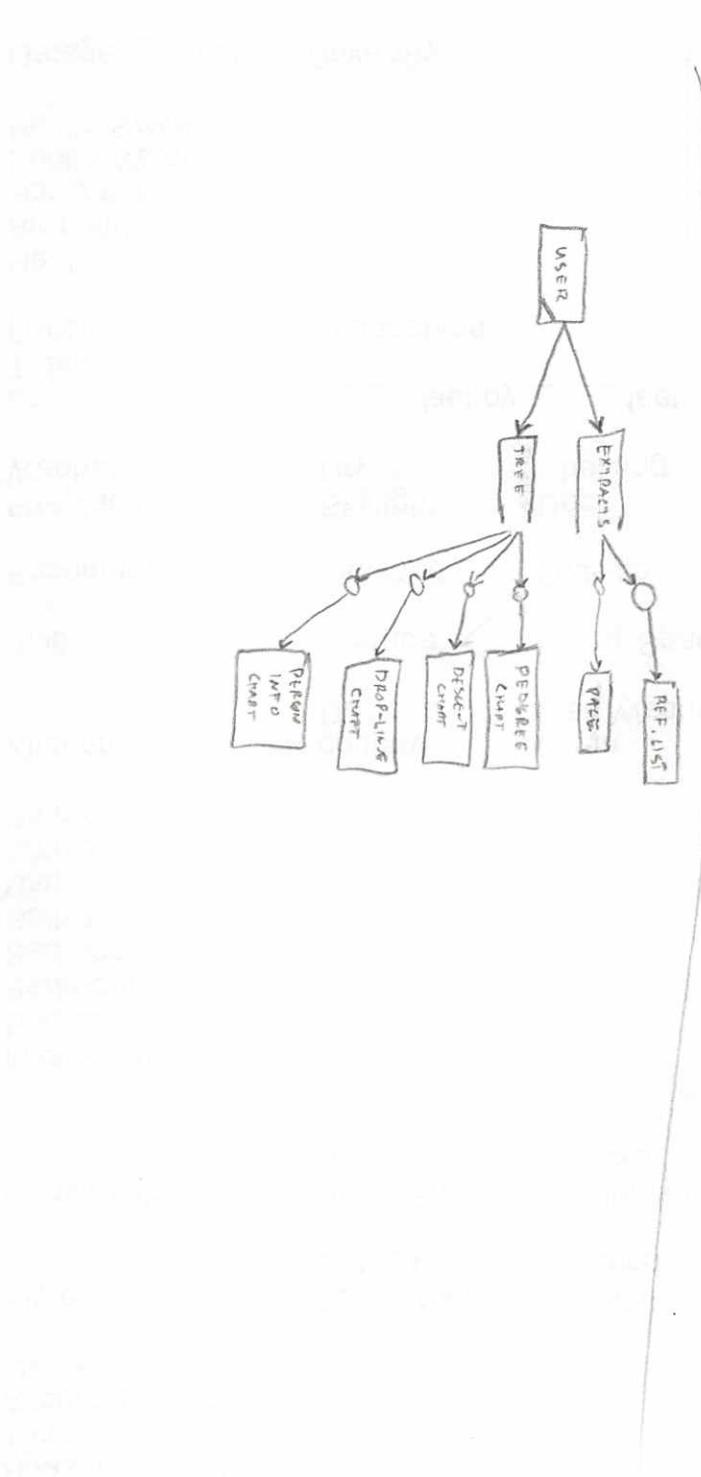
display personinfo chart

display

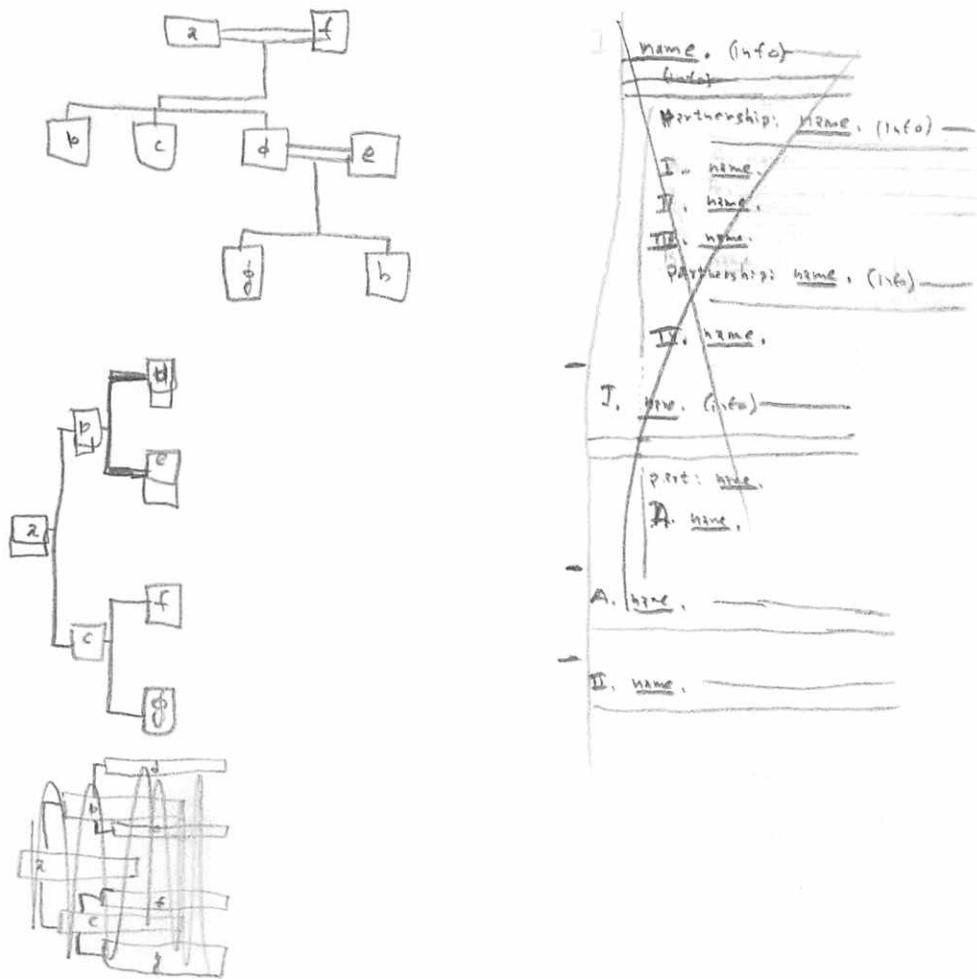
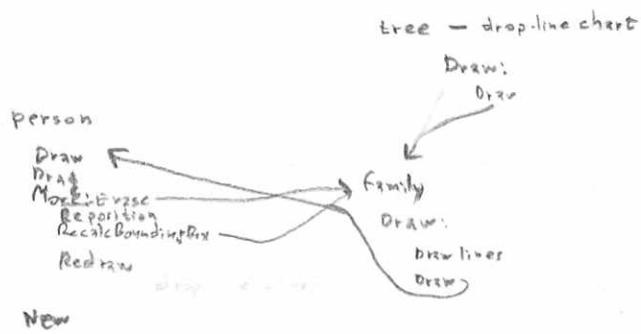
display pedigree chart

display

+ 76.99



## Graphical Edit / Operations



MACBROMajor Design Decisions

System 7.0-dependent.

Worldwide-compatible.

User cannot print.

User cannot change fonts.

FeaturesVersion

elite 7.0 back compat.

~~N~~

script compat.

1

printing

2

user font switching

2

font size specifying

1

features (after-interface)this version

Sys 7-dependent

~~multiple windows~~  
~~multiple fonts~~  
~~multiple colors~~

printing:

source list

people info pages

One script per field

} uses default small font & size  
 for chosen script  
 (user chooses script by choosing  
 keyboard)

later version

User-change of fonts/size

~~multiple windows~~

publish/subscribe

printing:

sources  
drop-line chart

Source

[Required] Author: [Text Box]  
Title: [Text Box]

[for Location] City: [Text Box] Year: [Text Box]  
Publisher: [Text Box]

Published Reliability: Eyewitness [Text Box]

Page: [Text Box] [Up Arrow] [Down Arrow] [New] [Delete]

Info:

Charlotte Alia Mabu Birth cert  
Being recorded under Entry of Charlotte Alia Mabu

(Don't use Microsoft!)



Source



I:607  
D:325  
II:67

[Received]

→ Title:

New Shoreham Land  
Evidence Records

City:

Block Island, RI

☒ Published  
Year: 1673

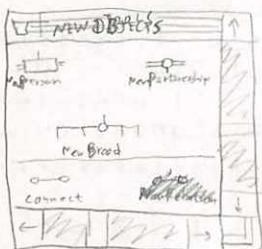
Publisher: Town Hall  
Or Location

Reliability: [7]

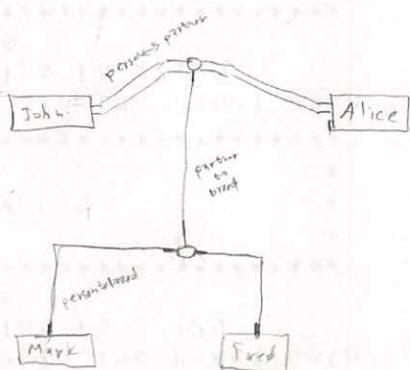
Date: I:607

I:607

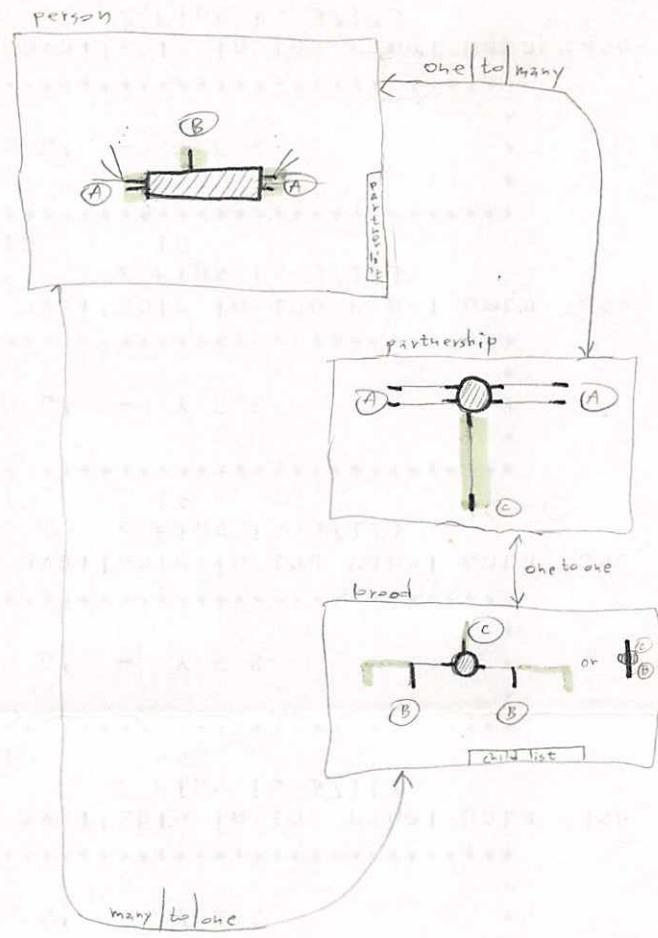
F



①②



# objects



class a Person

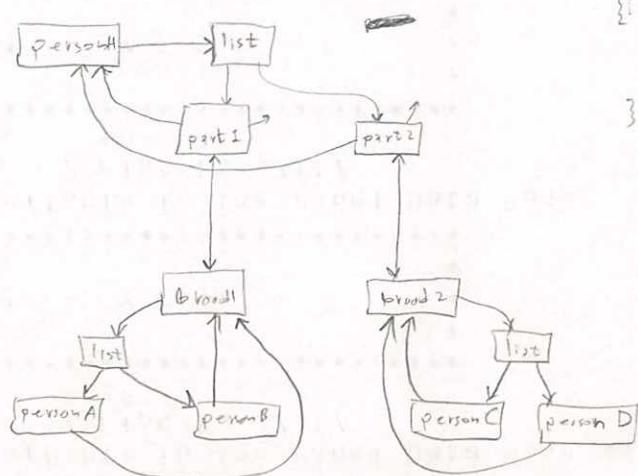
```
{
    a List
    a Brood
    int partner-count
    int any-brood
}
```

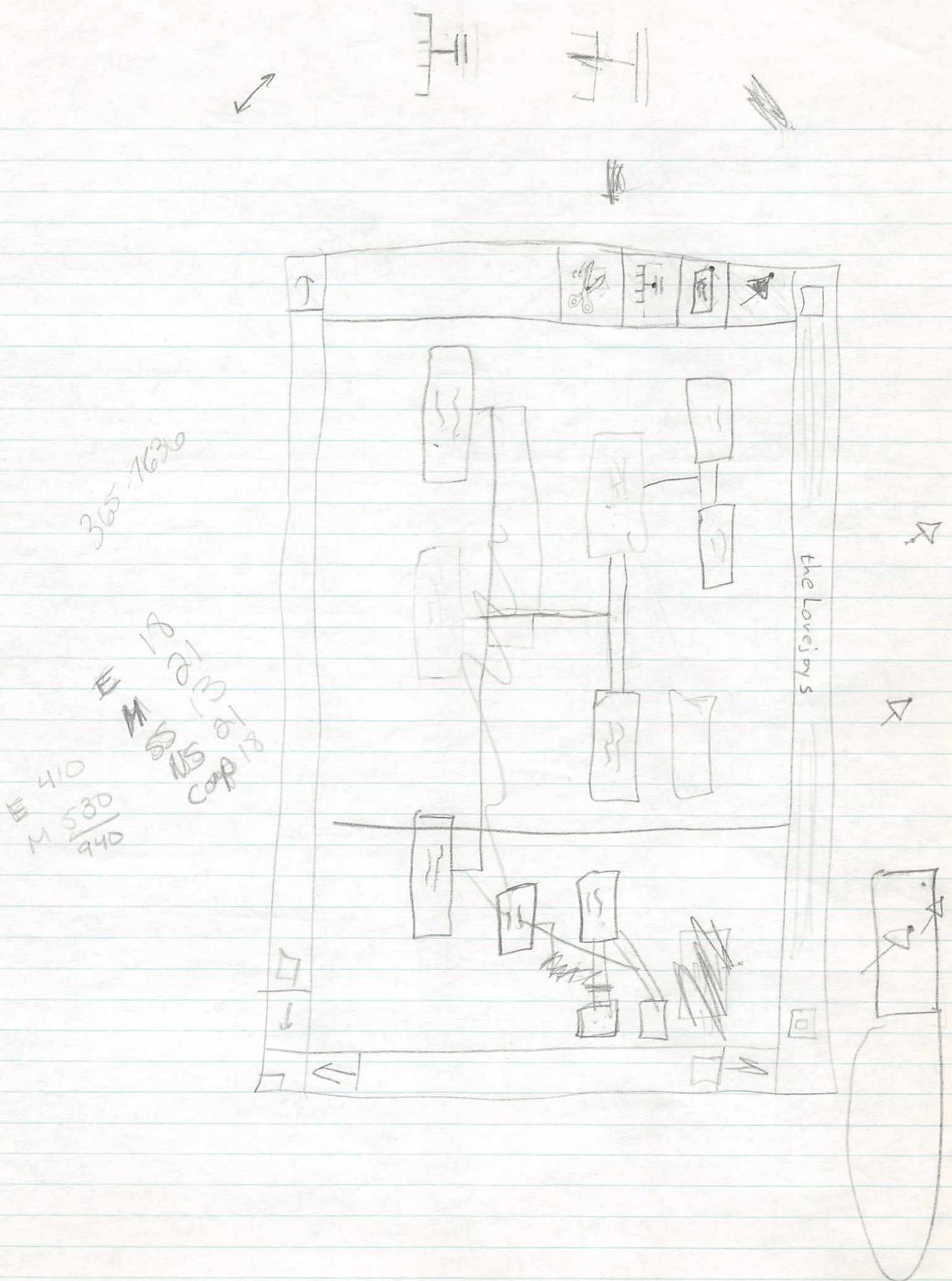
class a Partnership

```
{
    a Person
    a Brood
    int any-children; AT, F, I}
```

class a Brood

```
{
    a Partnership
    a List
    int person-count; AT, F, I
    int any-parents?}
```





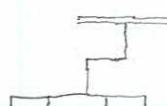
Serv 12 Co, Lnd:

(831-3)  
1812  
756

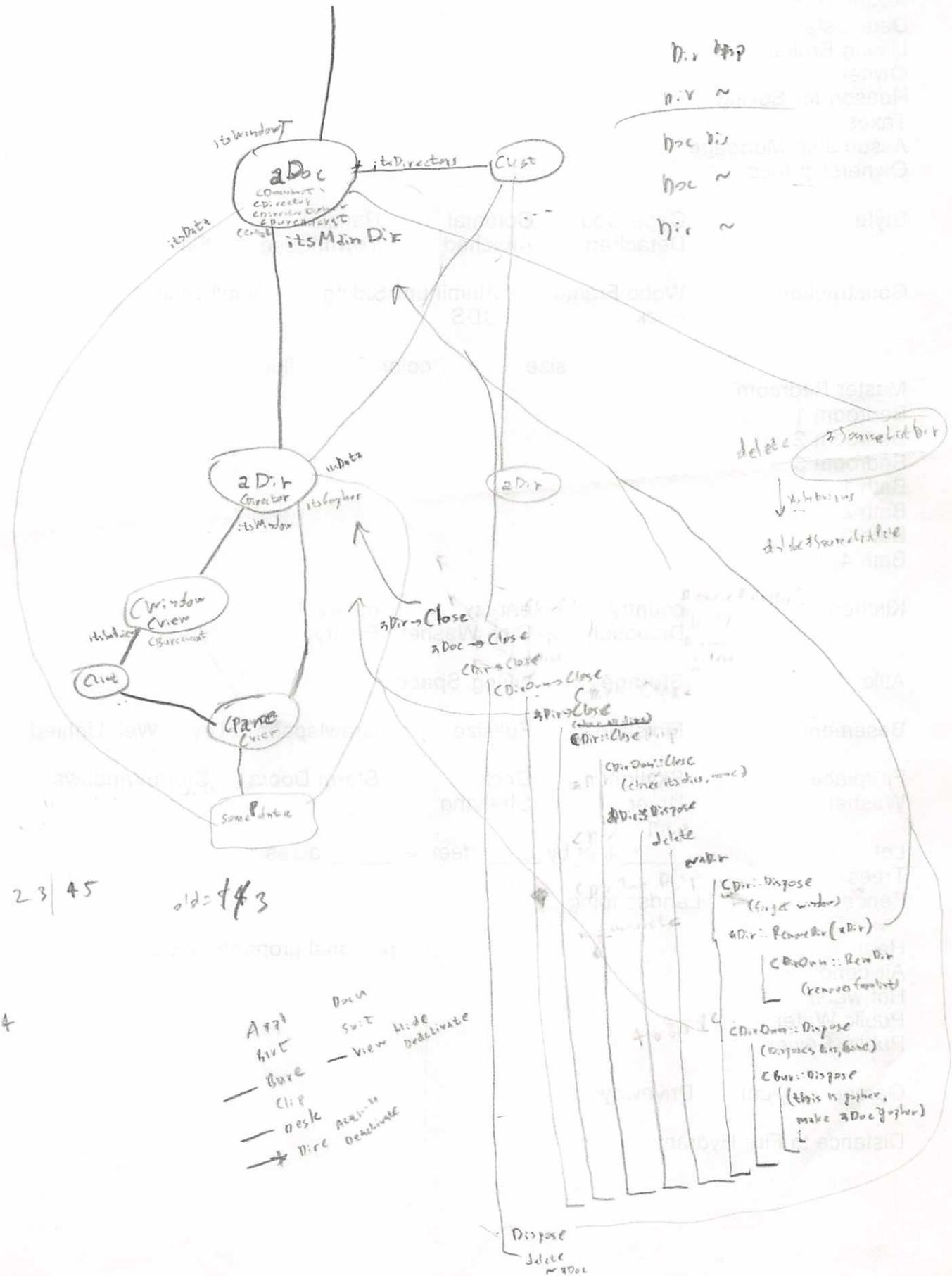
73: 487 Hurry Sands 1816 10564

A ==  B

4+25xx

  
50 =  
64  $\frac{1}{4} \pm 67$   
02 1  
00 -  
L - 7 T 0C, 14, 18, 10  
T + 2C, 34





## 2 Source Entry

2 Source

(207, 114)

(191, 66)



5  
4

→

0

→

GetAuthor()

GetAuthorScript()

GetTitle()

GetTitleScript()

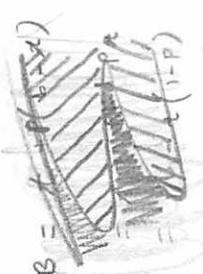
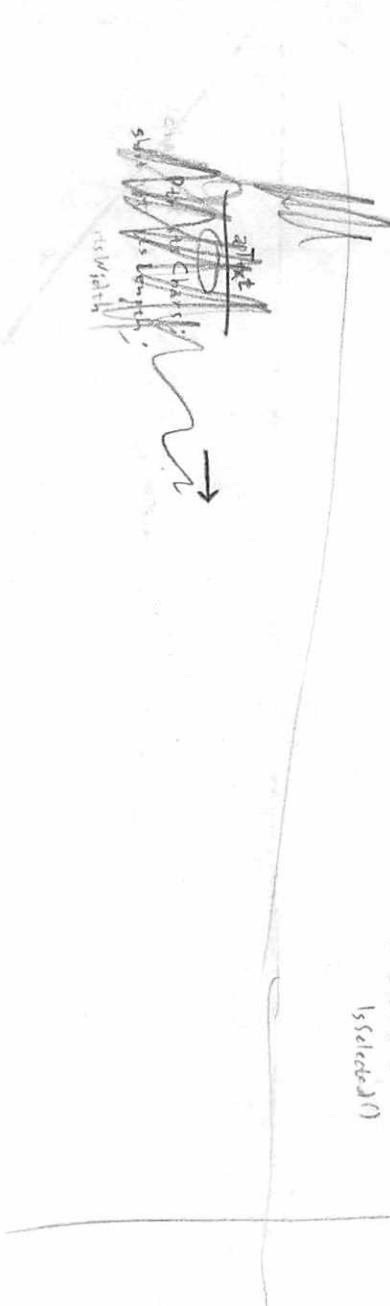
GetPublisher()

GetPublisherScript()

GetCity()

GetYear()

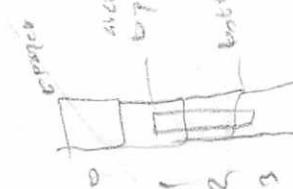
Calculate()  
 Draw()  
 Select()  
 Deselect()  
 Type(~~Select~~)  
 Invert()  
 DoesHit()  
 IsSelected()



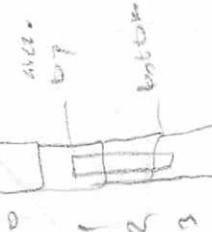
(204, 4)

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z

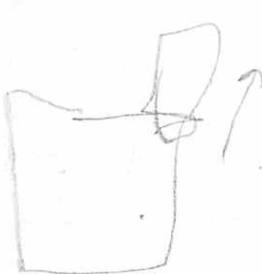
$$\frac{d}{t} = \frac{d}{t}$$



1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



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20



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100

shift:

find anchor

begin tracking:

forget selection  
Select from anchor to curr

if anchor < curr      low = anchor      high = curr  
else                  low = curr      high = anchor

keep tracking:

select curr

if low = high

if curr = low, low++ → select curr  
else if curr = high, high++  
else [ deselect low, high, level, low  
      if curr = low, low++  
      else curr = high, high++  
              level, high ]

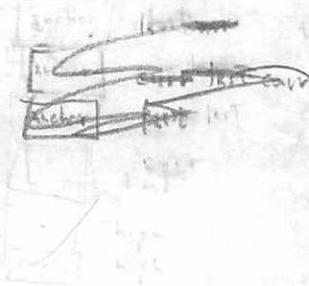


cmd:

begin tracking:  
select = !selected(curr entry)  
↳ toggle curr entry

keep tracking:

if select  
    select curr  
else  
    deselect curr



begin:

find anchor  
forget selection  
select from curr to anchor  
list = curr



keep:

if anchor < list:  
    if curr = list + 1,

(A C B D E → (A B C))

    select curr  
    list ←

else (curr = list - 1)

deselect curr  
list ←

end if

else if anchor > list)

if curr = list - 1

    select curr  
    list ←

else (curr = list + 1)

    deselect curr  
    list ←

(A B C D E → (A B C))

else

    curr ←  
    select curr  
    list = curr

fixed anchor:

anchor = search from 1 to curr - 1 for selected

if !found

and search from last down to curr for selected

if !found

    curr ← curr

curr ←

end if

end if

## Since ListPlane

~~double-click~~

if double-click  
open selected entries  
else

if shift-click

select from ~~anchor-point~~ through current entry

else if cmd-click

select

reflection

## Mouseclicks:

2 → open selected entries

1 → ~~forget selection; select entry; trackmouse (decellist, select curr)~~

1s → ~~if entry not selected, toggle from anchor to entry~~

1c → ~~curr~~ ~~toggle entry; trackmouse (set curr close to state applied-to)~~

if dbl  
- 2  
else if shift & noctrl  
- 2s  
else if cmd & noctrl  
- 2c  
else - 1  
endif

## Keypresses:

↑ ←

↓ →

↑ Pg

↓ Pg

Home

End

↑ ↓

↑ ↓

search from first entry to curr entry  
(not incl.)  
for 1st selected item

if found

set anchor to first  
(forget selection)  
(select from anchor to curr)

else

search from last entry down to curr  
entry for 1st selected item

if found

set anchor to first  
(forget selection)  
(select from anchor to curr)

else

set anchor to curr  
(forget selection)

select curr

endif

endif

forget sel

sel from anchor to curr

trackmouse (sel from anchor to curr)

# 29/03/2020 - Shift Selection

Shift click -> select multiple elements

Shift click example - <div>

```
begin
    if shiftClick
        anchor = findAnchor
    else
        anchor = curr
    endif
    targetSelection
    from anchor to curr select(isSelect)
    last = curr
end if
```

```
selection select
anchor select select(select)
last = anchor
start = target
end = curr
if end < start dir = toBegin else toEnd
i = start
while (i < end)
    example() select select(select)
    if dir = toBegin i += 1
    endif
end while
```

keep

```
if anchor == last
    if !shift
        if !end select(last, false)
        anchor = curr
    endif
    select(cursor, select) for i = last to curr

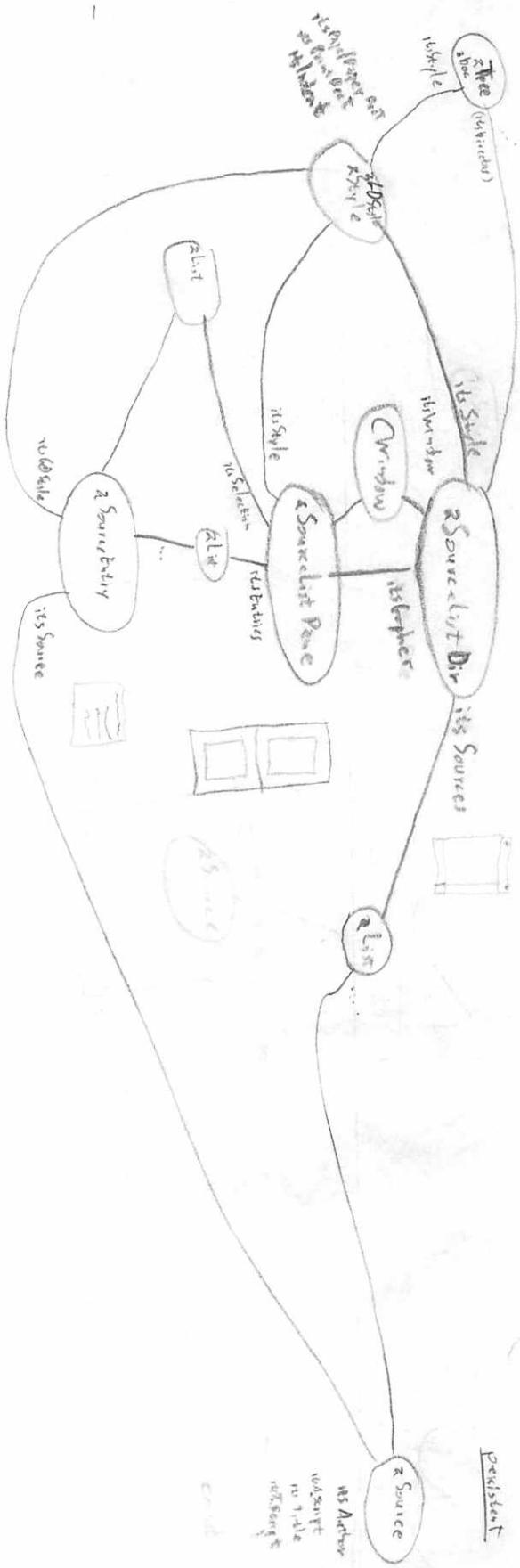
```

```
if end < start dir = toBegin else dir = toEnd
start = last end = curr
if dir = toBegin
    if start < anchor start++
    if end > anchor end++
else
    if end < anchor end--
    if start < anchor start++
endif
i = start
while (i <= end)
    if !i == anchor entry(i) → toggle()
    if dir = toBegin i-- else i++
end while
```

```
if cursor < last
    select(cursor, select)
else (curr = last - 1)
    select(curr, select)
```

```
(anchor != last) != (curr < last)
    select(cursor, select)
else
    select(last, false)
```

last = curr



calculate

numArray \* lines;  
 $i = 1$

for each source:

create entry

set line count  $\neq L$

lines->insert value ( $i, S, L$ )

$i += L$

:

end

~~using~~ EntryAtPoint

set pt to line#

return EntryAtLine(line#)

Draw

first = EntryAtPoint  
~~(area, top, point, left)~~

last = EntryAtPoint (area, bottom, point)

for first to last

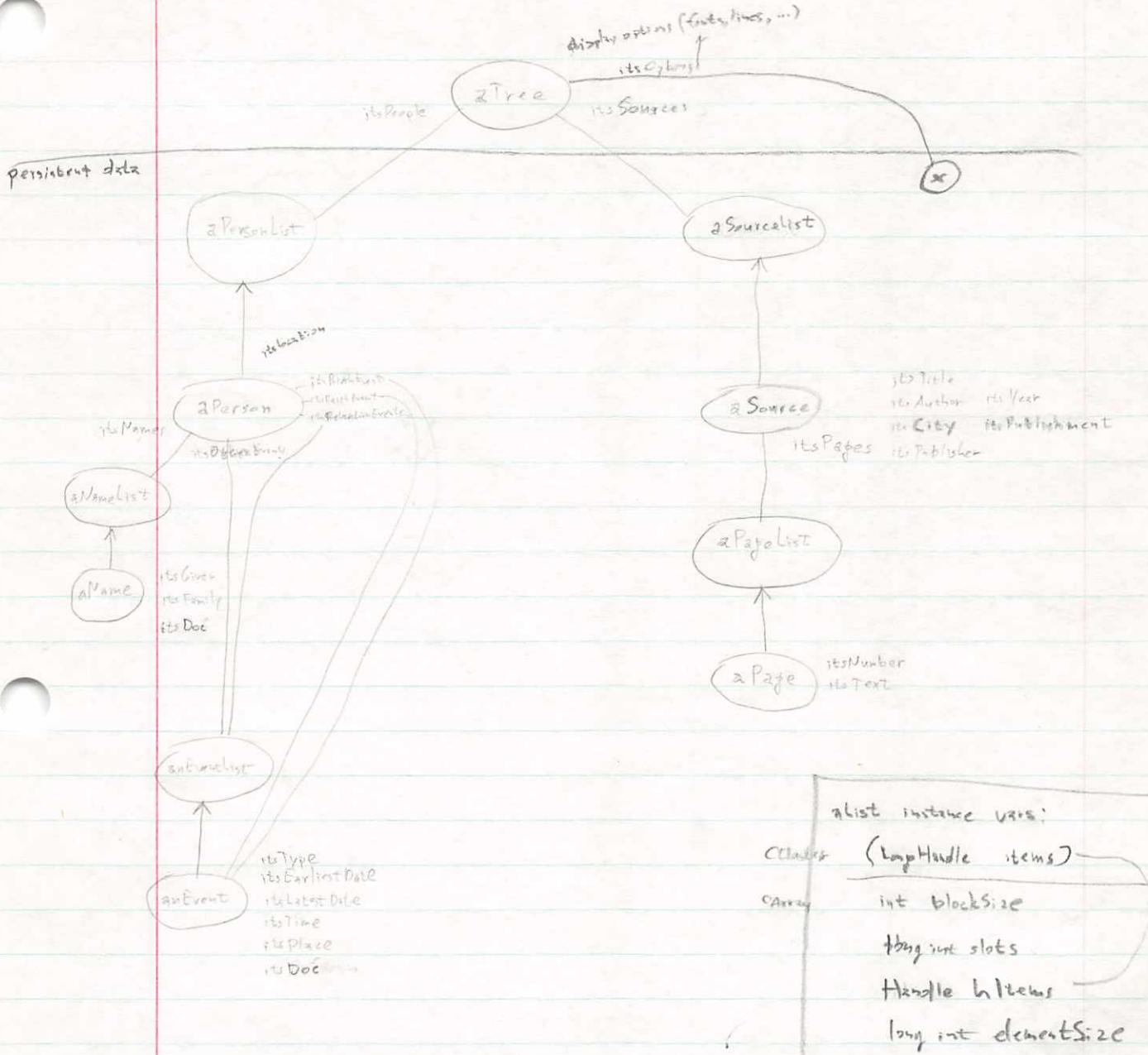
Draw

EntryAtLine (#)

GetValue (#)

return lines->~~value~~

selectEntry(e)



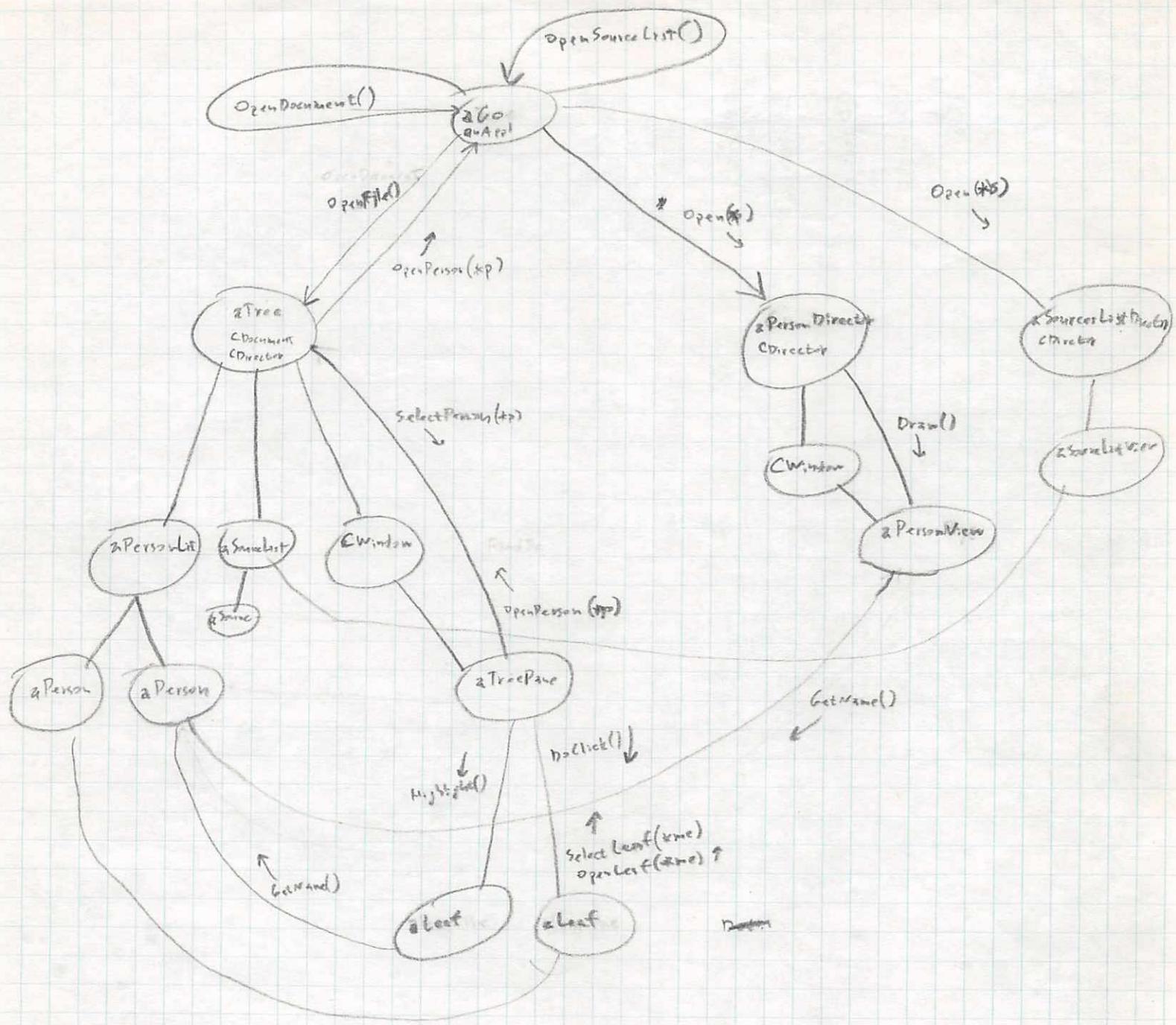
alist instance vars:	
Class	(emptyHandle items)
Array	int blockSize
	long int slots
Handle	int items
	long int elementSize
Boolean	lockChanges
Boolean	usingTemporary
Collection	long int numItems
Collaborator	set behavior options
CList	itsProviders
CList	itsDependents

~~other persistent data:~~

~~positions of people on the screen~~

~~tree-wide:~~

~~fonts, linestyles, other display options~~



```

void DrawPedigree(int n, rect frame, PrintPerson printperson)
{
    FillPedigree(n, p);
    -2n = Power(2, n);
    dw = (frame.right - frame.left) / n;
    dh = (frame.bottom - frame.top) / -2n;
    // all vertices
    // fill v[] with φ
    bx = frame.left;
    y = frame.top;
    for (i = φ; i < -2n - 1; i++)
    {
        x1 = bx + (φ[i] * dw);
        x2 = x1 + dw;
        // DrawLine(x1, y → x2, y)
        for (v = φ; v < n - k; v++)
        {
            if (v[i])
            {
                x1 = bx + (φ[v]) *
                // DrawLine(x1, y → x1, y + h)
            }
        }
    }
}

```

# pedigrees of 4-generations back



$m = \# \text{ of frags}$  ~~is const~~

$f = \text{array to be filled with generations}$   
(with  $2^{n-1}$  elements)

void FillPedigree(int m, int f[])

```

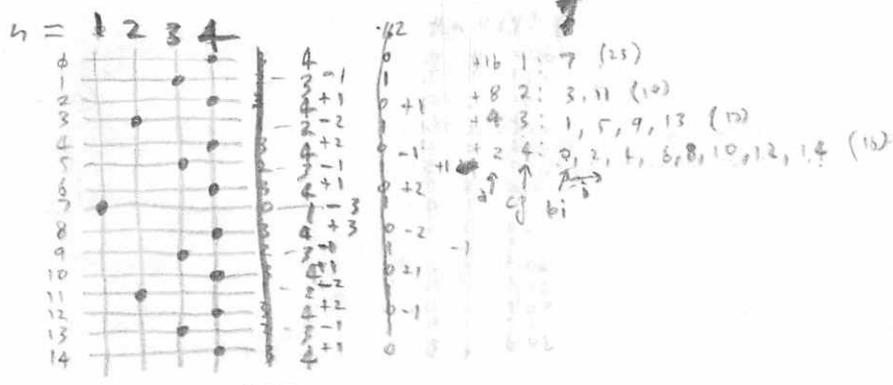
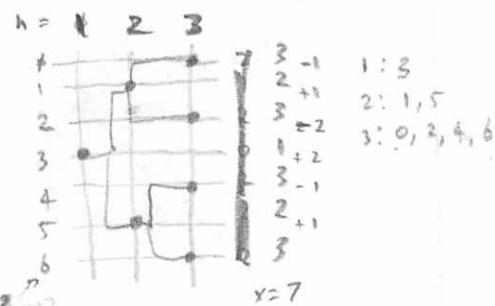
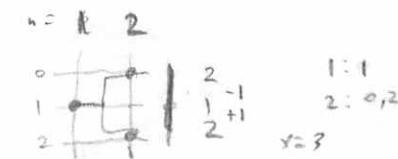
for (int i = 0; i < m; i++) {
    for (int j = 0; j < m; j++) {
        if (f[i] == -1) {
            f[i] = f[j];
        }
    }
}

```

$x = \text{power}(2, n) - 1$

for ( $c_d = m; c_d > 0; c_d--$ )  
{  
 $d += 2;$   
 for ( $i = b_i; i < x; i += d$ )  
 {  
 $f[i] = c_d;$   
 }
}

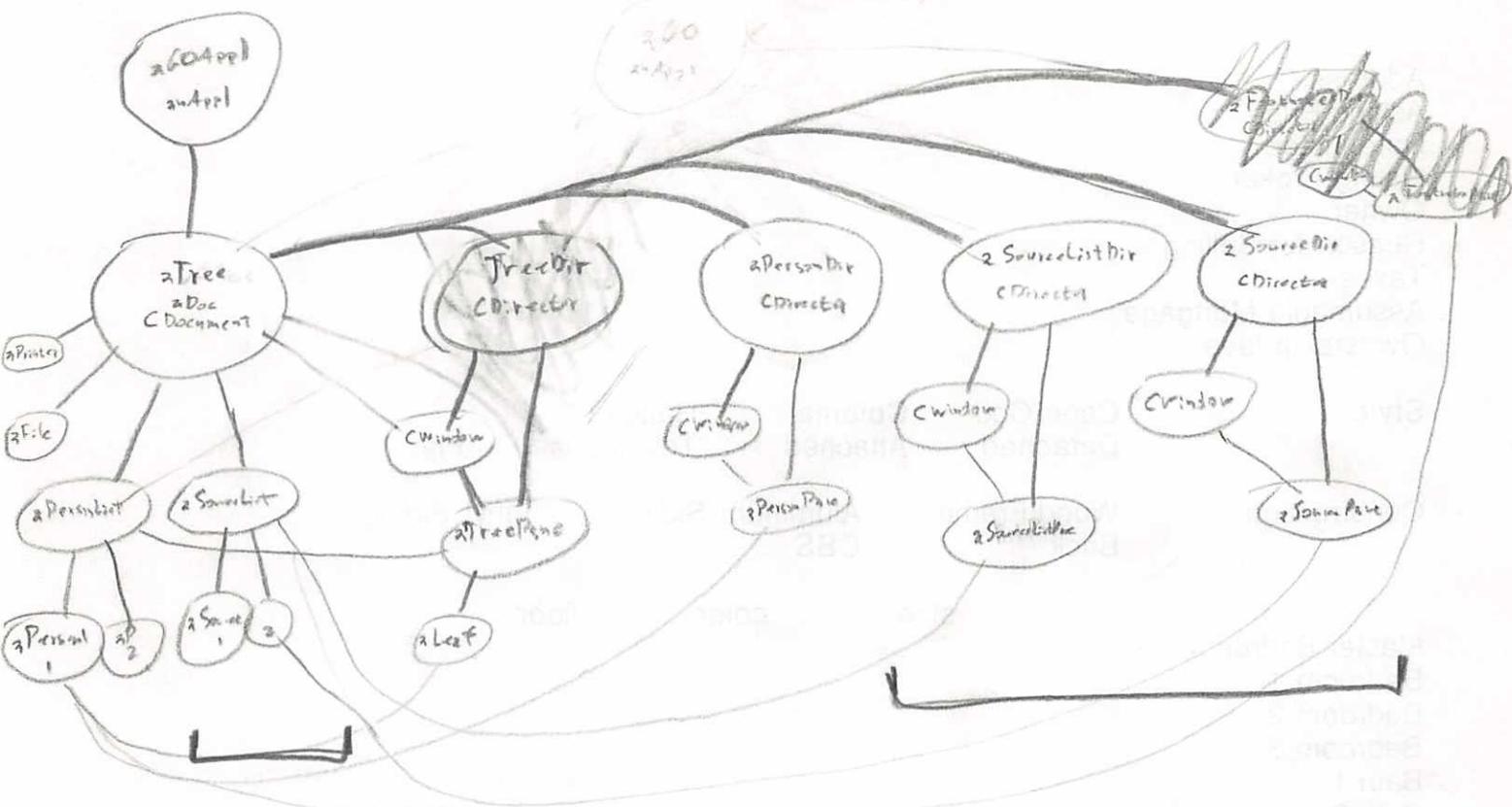
$b_i = 2 * b_{i+1};$



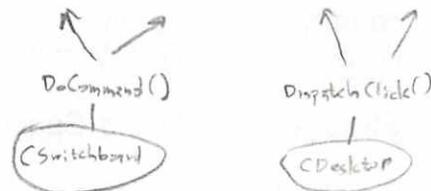
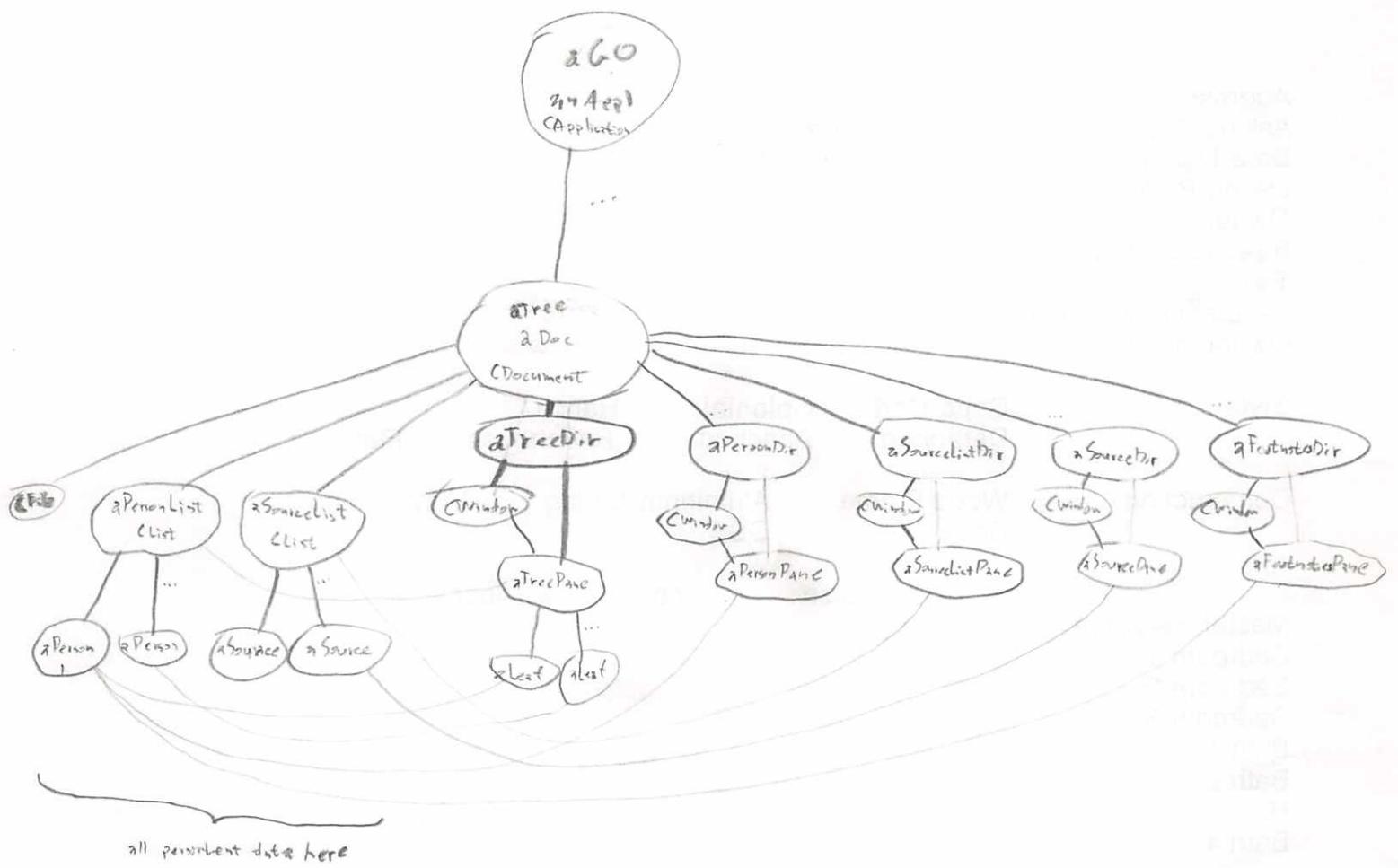
$n=4: 4342434143424340434243414342434$

$= 1 + 1 - 2 + 2 - 1 + 1 - 3 + 3 - 1 + 1 - 2 + 2 - 1 + 1 - 4 + 4 - 1 + 1 - 2 + 2 - 1 + 1 - 8 + 3 - 1 + 1 - 2 + 2 - 1 + 1$   
 $+ 1 - 1 + 2 - 2 + 1 - 1 + 3 - 3 + 1 - 1 + 2 - 2 + 1 - 1$   
 $+ 1 - 1 + 2 - 2 + 1 - 1$

0 1 3 2 15  
0 1 2 3 4



## objects

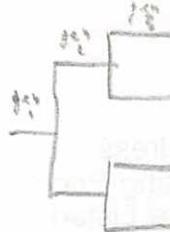


$n = \# \text{ of pens} =$

$p[] = \text{array of pens' penetrations}$   
( $2^h + 1$  elements)

$n = 3$

$p[0] = 3$   
1 2  
2 3  
3 1  
4 3  
5 2  
6 3



void fillPedigree (int n, int p[3]) {

```

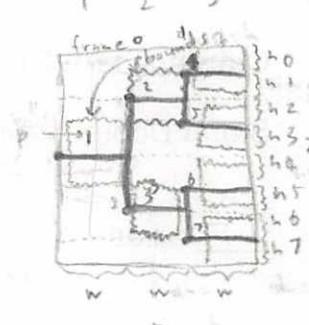
{
    int i, x, bi = 0, d = 1;
    x = power(2, n) - 1;
    while (n)
    {
        d *= 2;
        i = bi;
        while (i < x)
        {
            p[i] = n;
            i += d;
        }
        bi = 2 * bi + 1;
        n--;
    }
}
  
```

~~Fill pedigree (n)~~

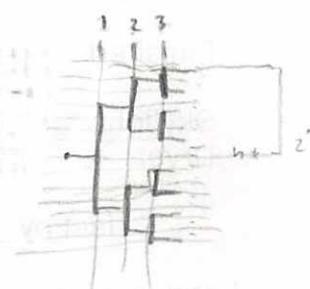
$n = 2$



$n = \# \text{ of pens} (= 3)$



$n = 4$

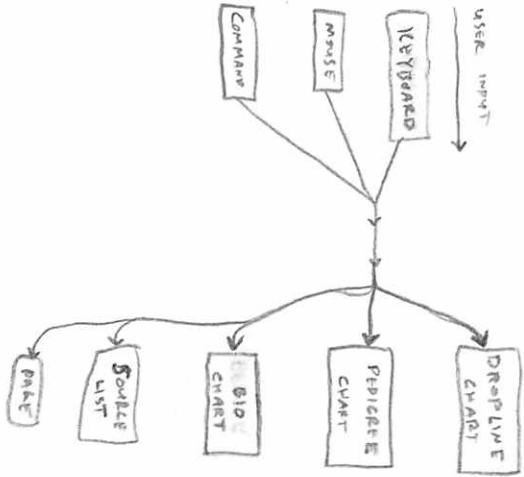


0 0 0	0	0	0
0 0 1	1	0	0
0 1 1	3	4	2
0 1 0	2	-1	3
1 1 0	b	+4	3
1 1 1	7	+1	
1 0 1	5	-2	1
1 0 0	4	-1	
1 0 0	4	0	
1 0 1	5	-1	1
1 1 1	7	+2	
1 1 0	b	-1	3
0 1 0	2	-4	1
0 1 1	3	+1	
0 0 1	1	-2	
0 0 0	0	0	0

typedef void PrintPerson() (int p, ~~int~~ rect bounds);

void DrawPedigree (int n, rect frame, PrintPerson printperson)

}



## DATE FORMAT DETERMINATION Heuristics:

A | B | C

where | is some delimiter

A, B, and C are strings

test(x)

if x is letters :

	Y	M	D
F	T	F	

$x \leq 0$

T	F	F
---	---	---

$x > 31$

T	F	F
---	---	---

$x > 12$

?	F	?
---	---	---

$x \geq 100$

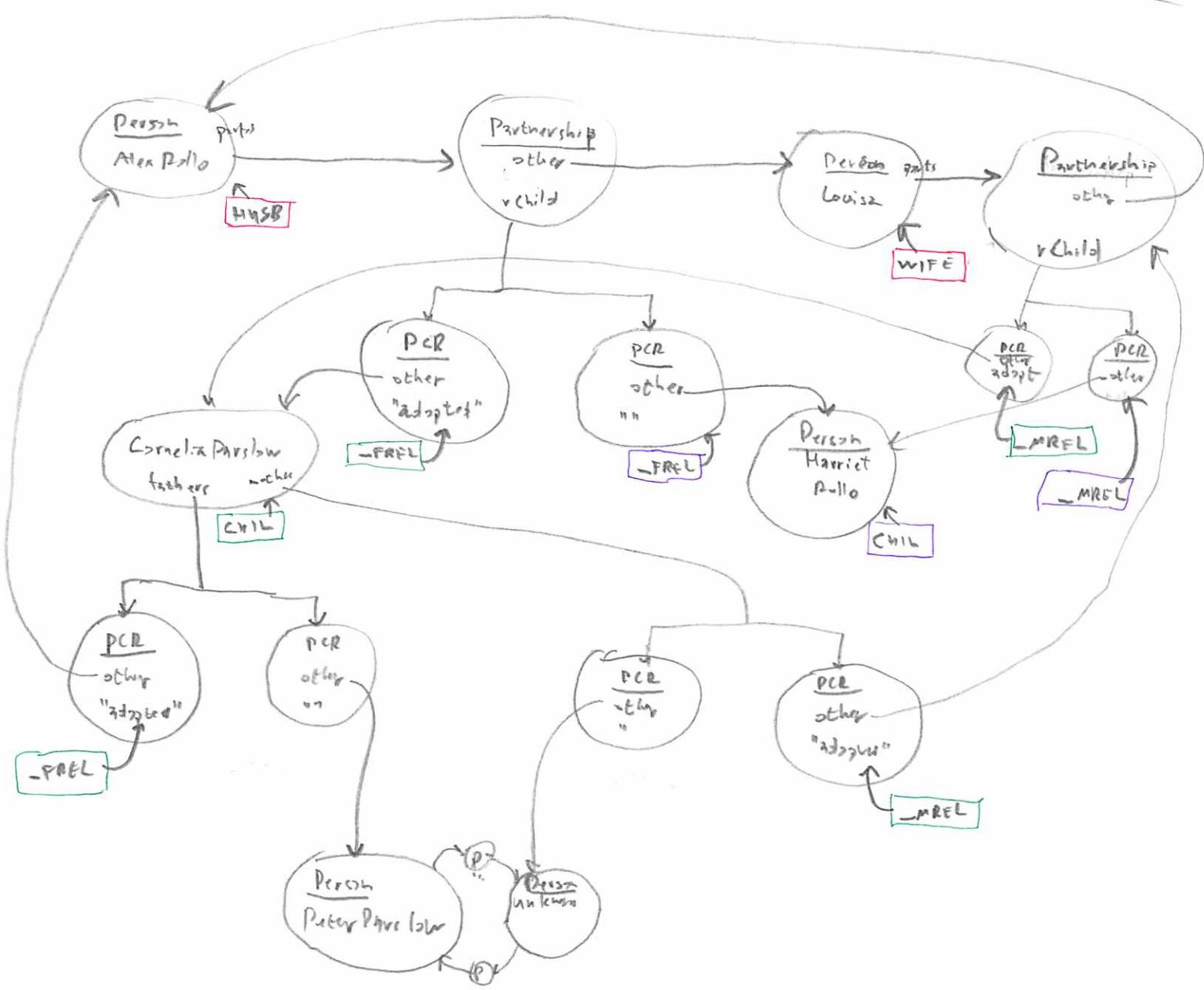
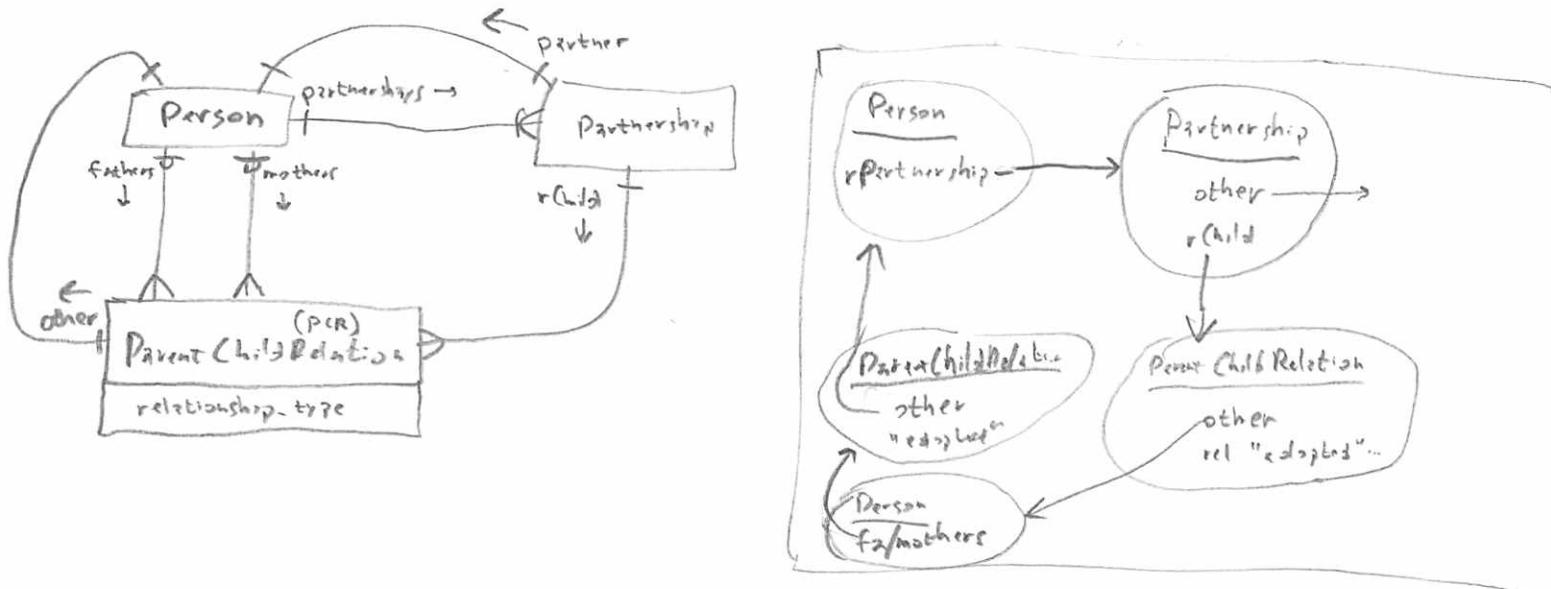
T	F	F
---	---	---

Y/M/D

D/M/Y

M/D/Y

# adding support for adoptions, two Gedcom-Lib



$$720 \downarrow 10^{11} \quad \begin{matrix} 8'' \\ \leftarrow \rightarrow \\ 576 \end{matrix}$$

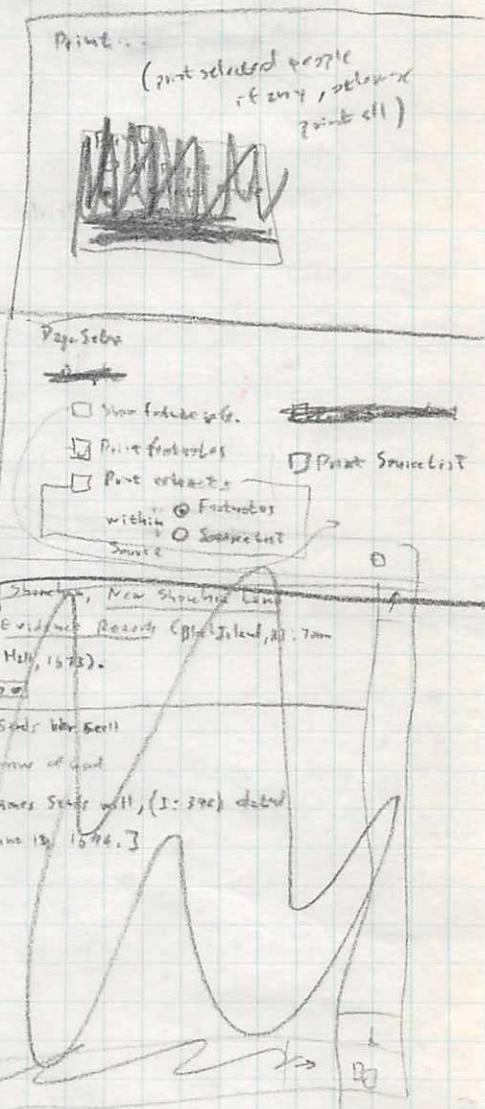
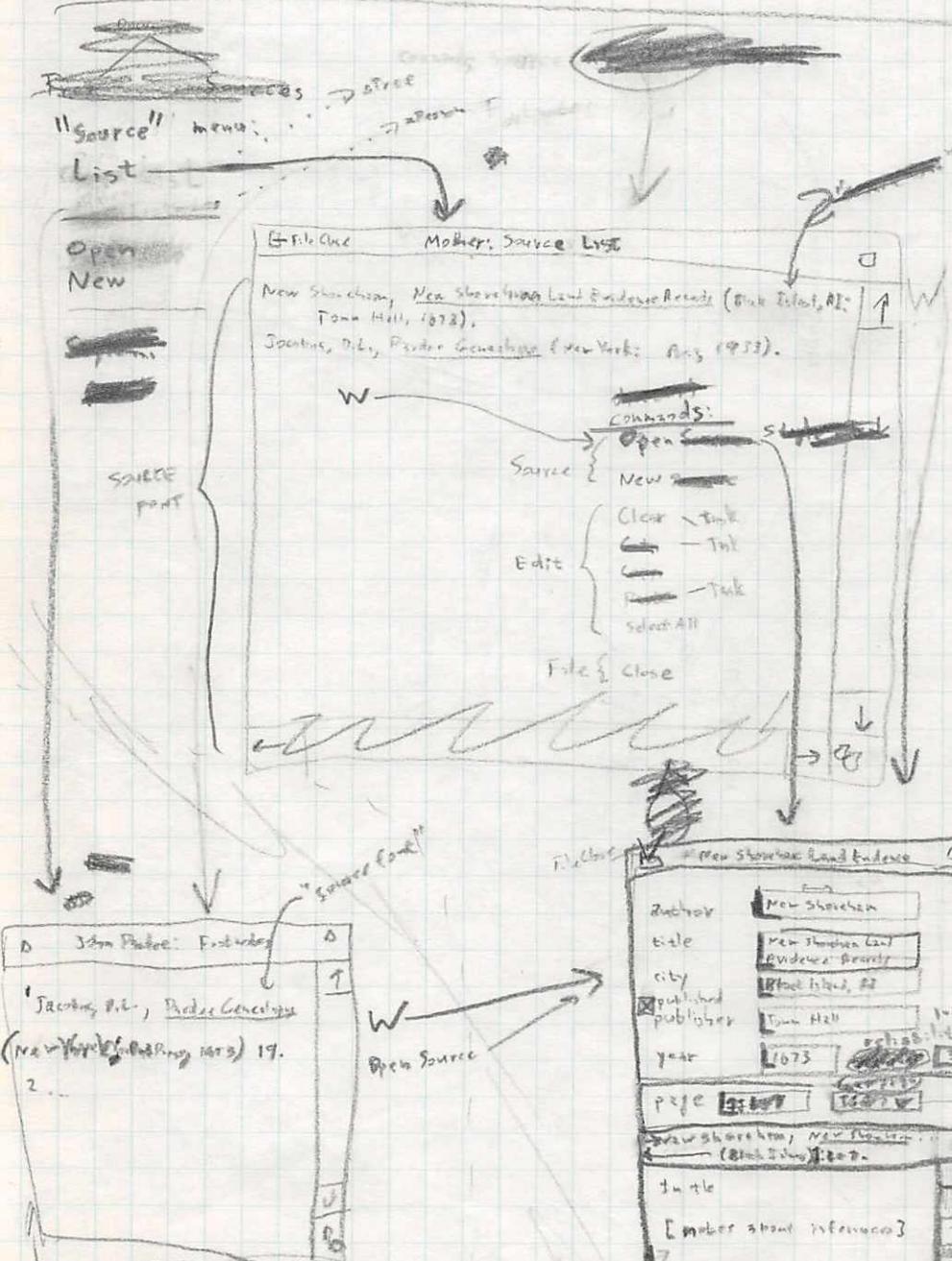
$$8\frac{1}{2} = 612 \quad 6\frac{1}{2} = 468$$

$$1 = T_2 \quad Y_2 = 36$$

DISPLAY FORMAT FOR ~~A DOCUMENTATION~~  
AND ~~A SOURCE~~

SOURCE: [author, ]title (city: publisher, year).  
DOCUMENTATION: [author, ]title (city: publisher, year) [Page].

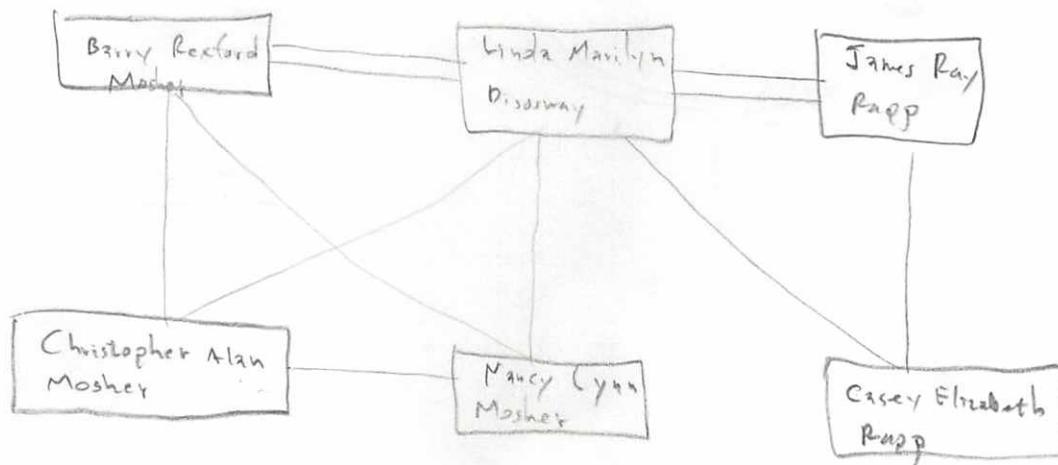
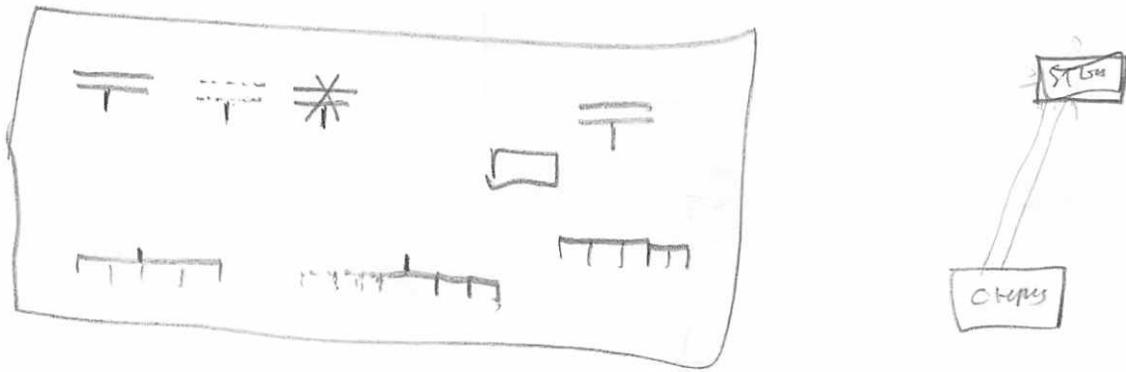
## reliability

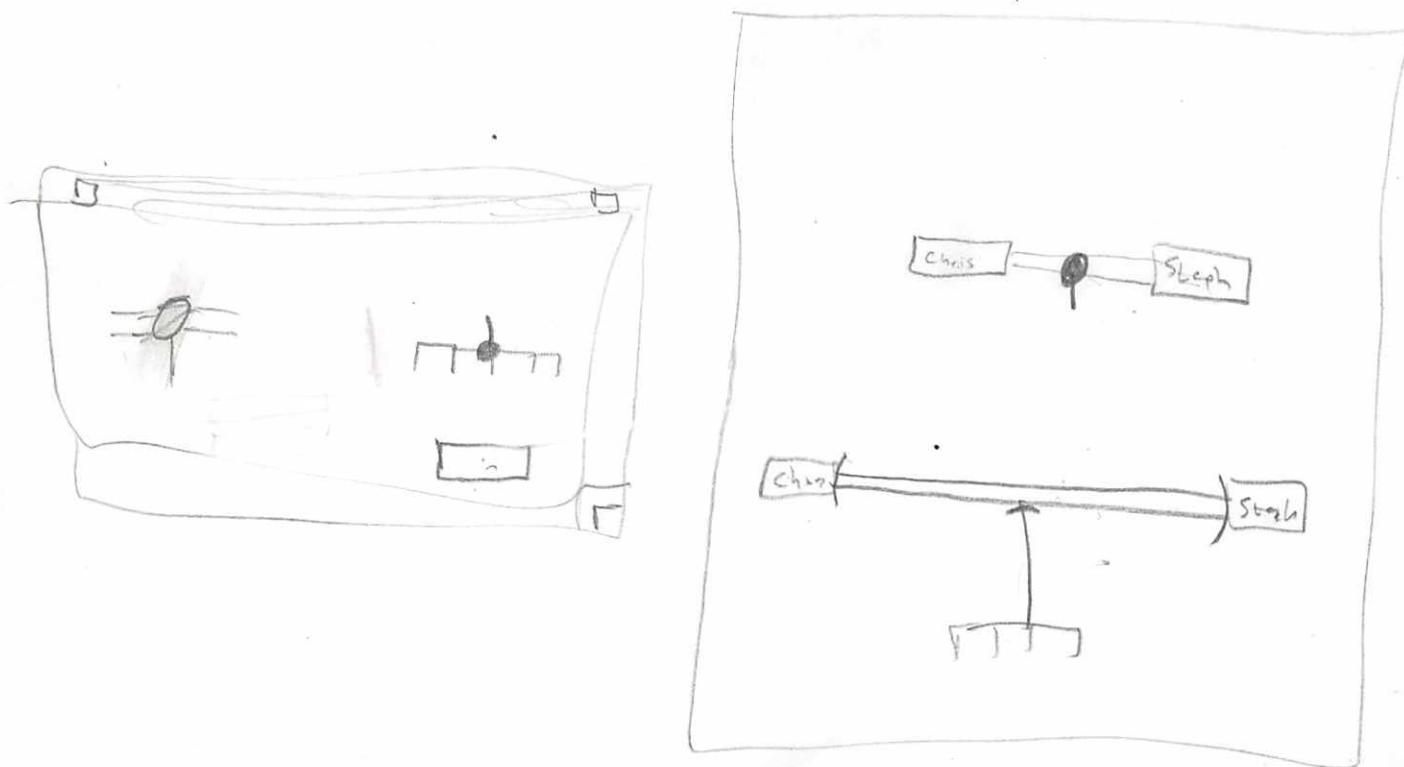
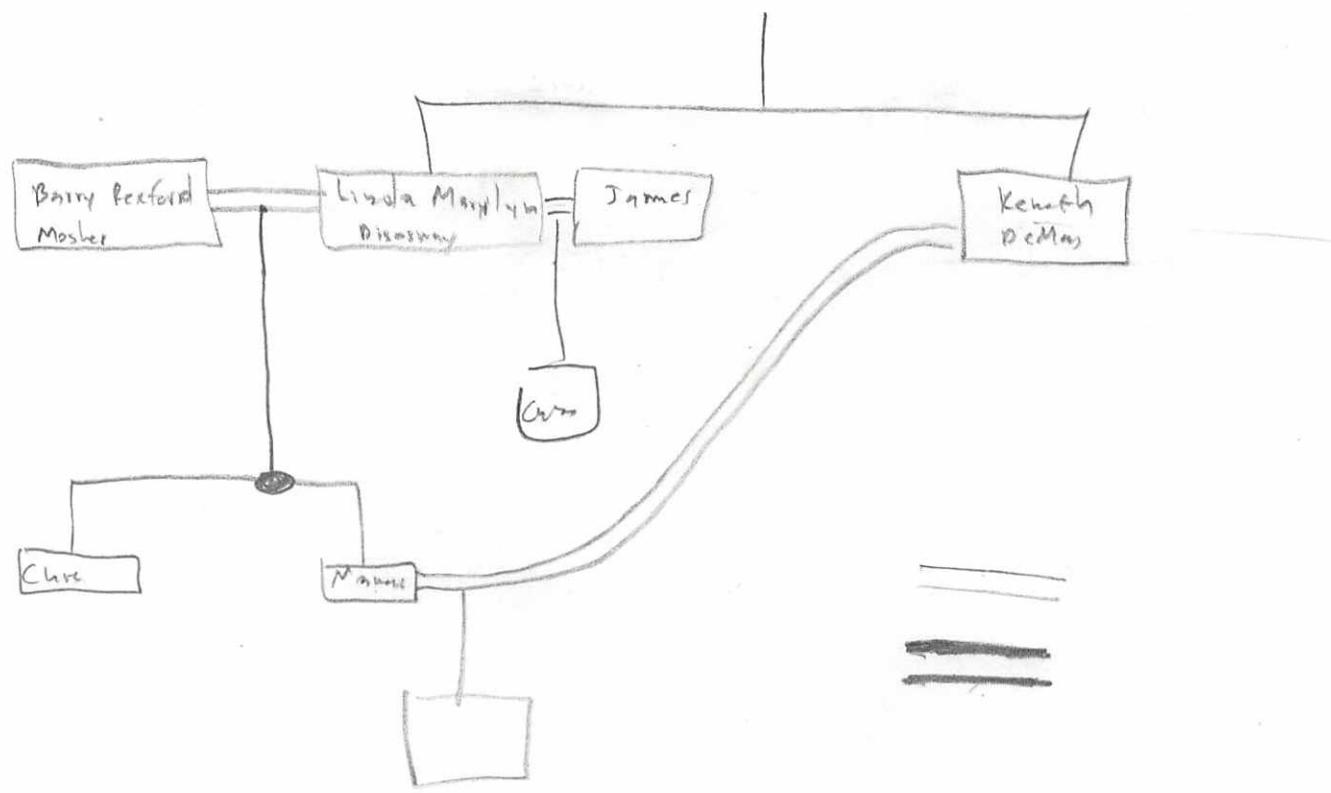
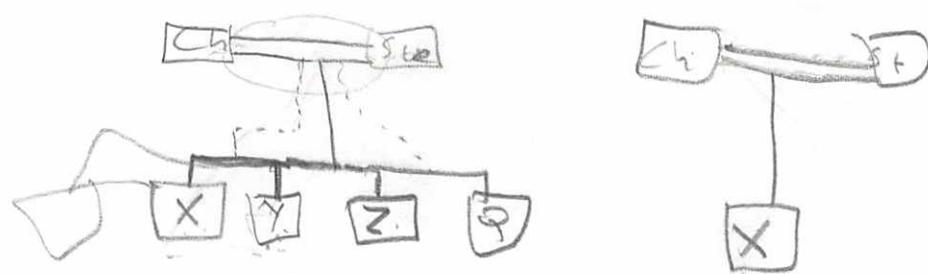


Geographical  
Colonization:

File Close  
Edit clear Task  
cut Task  
copy each  
Paste Task  
Select

A pipe icon with three options: New, Edit, and Delete.





a Tree  
is People  
document  
is MainPage  
is Window

Click

Person

Window

ScrollBar

Client

Its Subview

Tree

ScrollPane

resizable