

School of Communication

CATA Options for the Coding of Open-Ended Survey Data

Paul Skalski
Cleveland State University

Background

- 1960s: Phillip Stone and colleagues create the General Inquirer, which pioneered using computers for the content analysis of text.
- Initially a mainframe program but...
- ...now appears as a Java program on the Internet, for instant use, with 182 coding categories (dictionaries).

Background

- Skalski (2002) compiled a list of and information about all available computer assisted text analysis (CATA) programs.
- Initially: 20 programs identified, most for Windows (13), and most commercial (17).
- Updated list: [Content Analysis Guidebook Online](#) (30 programs, 24 currently active).

Which for open-ended survey data?

- Several functions to consider:
- 1. Frequency output
- 2. Alphabetical output
- 3. Multi-unit data file output
- 4. KWIC or concordance
- 5. Dictionary coding
- 6. Special analyses

Which for open-ended survey data?

- Several functions to consider:
- **1. Frequency output**
- 2. Alphabetical output
- **3. Multi-unit data file output**
- 4. KWIC or concordance
- **5. Dictionary coding**
- **6. Special analyses**

Important: Multi-unit data file output

- Displaying output in case-by-variable form, e.g.,

	Var 1	Var 2	Var 3	Var 4	Etc...
Case 1	3	4	0	0	
Case 2	2	0	2	1	
Etc....					

- Important for matching up computer coded open-ended data with closed-ended data.

Considerations: Dictionary Coding

- Issue of Measurement:
Conceptualization → Operationalization
- Two options:
 - 1. Standard dictionaries
 - 2. Custom dictionaries
- Third option: Emergent coding (does not require a dictionary)

Option 1: Standard Dictionaries

- These are measures built into a program, or, trusting someone else's operationalization of your concepts of interest.
- Some seem pretty impressive, but...
- **PROBLEM:** Most CATA programs do not reveal the full dictionary information, and those that go beyond simple counts do not reveal the full algorithm.
- Raises validity questions.

Example Standard Dictionary: “Sports” from WordStat includes...

- Aerobics
- Baseball
- Boxing
- Bowling
- Skating
- Skiing
- Soccer
- Sport
- Swimming.

Option 2: Custom Dictionaries

- This complicated process involves coming up with your own operationalization of concepts of interest.
- More control and confidence perhaps, but...
- PROBLEMS:
 - Disambiguation (e.g., “fine”)
 - Negation (e.g., “I am not patriotic”)
 - Colloquial speech
- These also apply to standard dictionaries.

Option 2: Custom Dictionaries

- Steps/advice for valid dictionary creation:
- STEP ONE—identify all words consistent with conceptual definitions of each concept.
- STEP TWO—Use dictionary building tool:
 - E.g., Wordstat is programmed to allow the addition to a base dictionary of antonyms, synonyms, similar terms, hypernyms, hyponyms, holonyms, and other word classes.
 - Also allows “wild card” specifications of root words (e.g., including “pleasur*”)
 - Also need to use [exclude list](#).

Option 3: Emergent Coding

- This is when dimensions or patterns of text are derived from the data at hand (i.e., the texts under investigation), without any pre-set dictionaries.
- Easy, but...
- **PROBLEM:** Less accepted due to deviation from positivist, a priori assumptions of C.A.
- May still be useful in early stages of study.
- Also can get better technologically (AI).

Which for open-ended survey data?

- Here are example analyses by three of my favorite CATAs programs, one for each type of coding previously discussed:
 - 1. CATPAC (emergent coding)
 - 2. Diction (standard dictionary)
 - 3. WordStat (custom dictionary)
- Note: Diction and Wordstat can do both types of dictionary coding.

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CATPAC

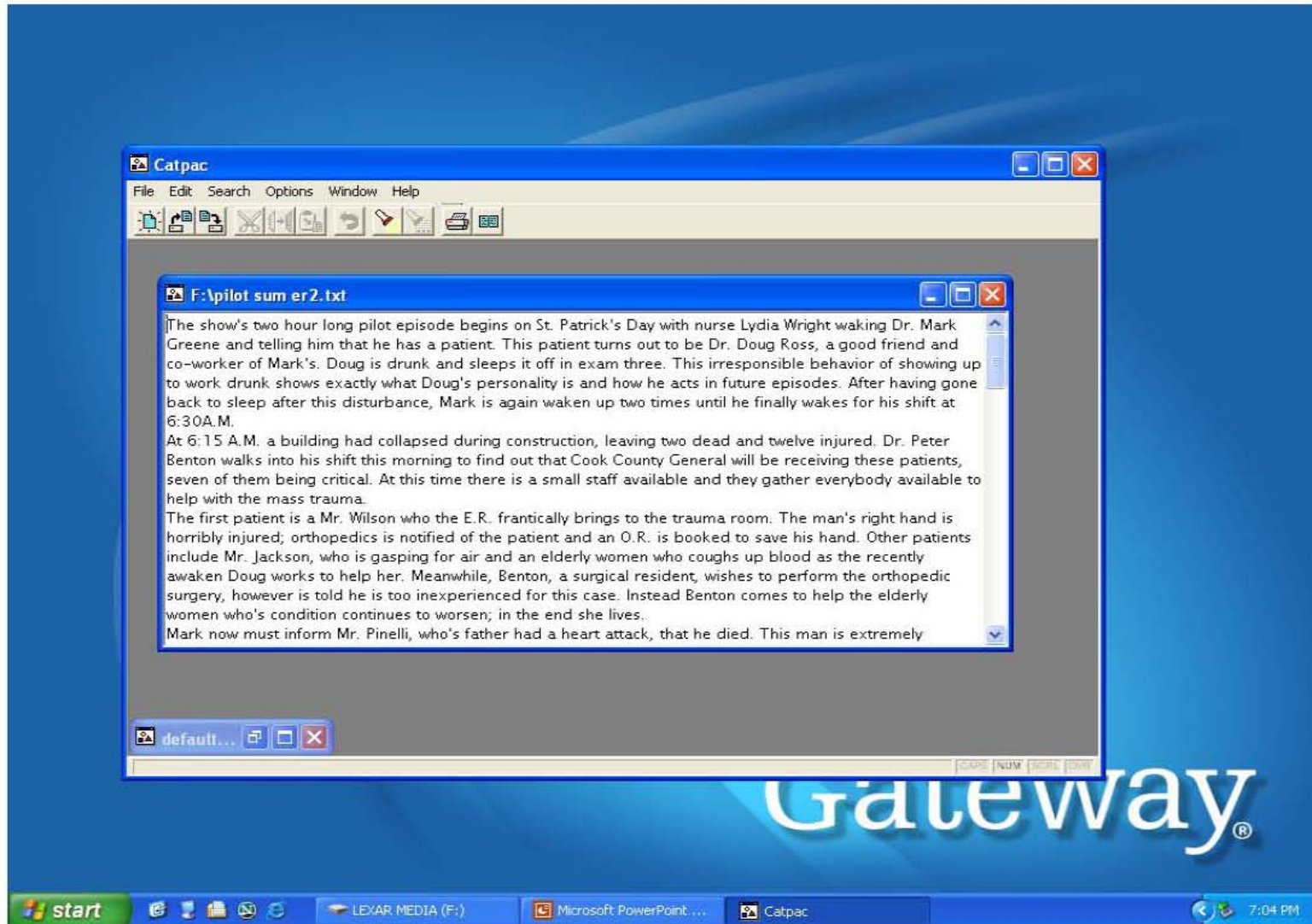
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About CATPAC

- Created by Joseph Woelfel (University of Buffalo)
- Part of the GALILEO suite of software that analyze and display various types of networks
- CATPAC uses a neural network approach, identifying the most frequent words and determining patterns of connection based on co-occurrence
- A scanning window is used to measure the association/co-occurrence
- Uses cluster analysis to present results of this co-occurrence procedure

The CATPAC Interface

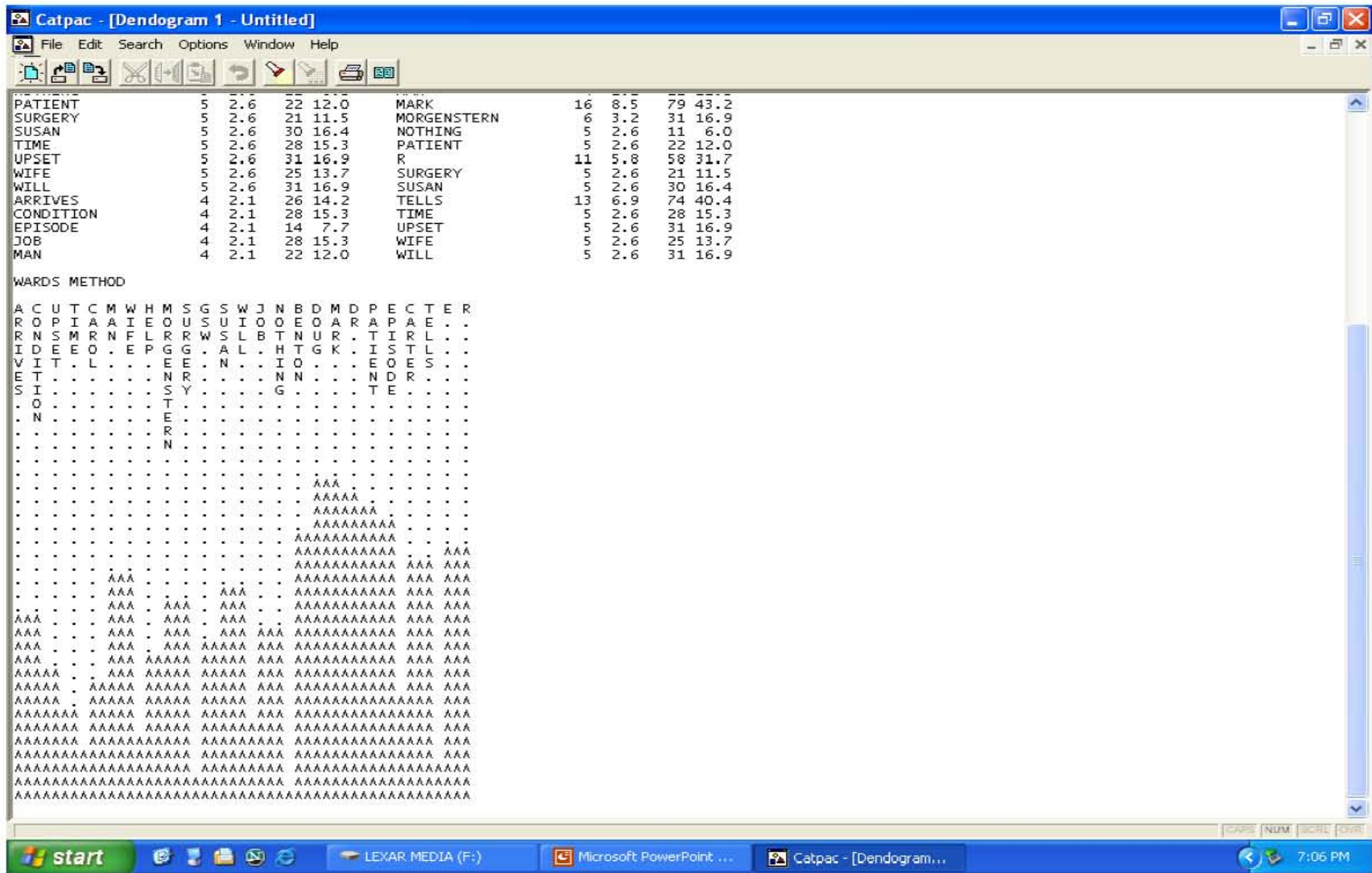


- Text input will appear in CATPAC main screen

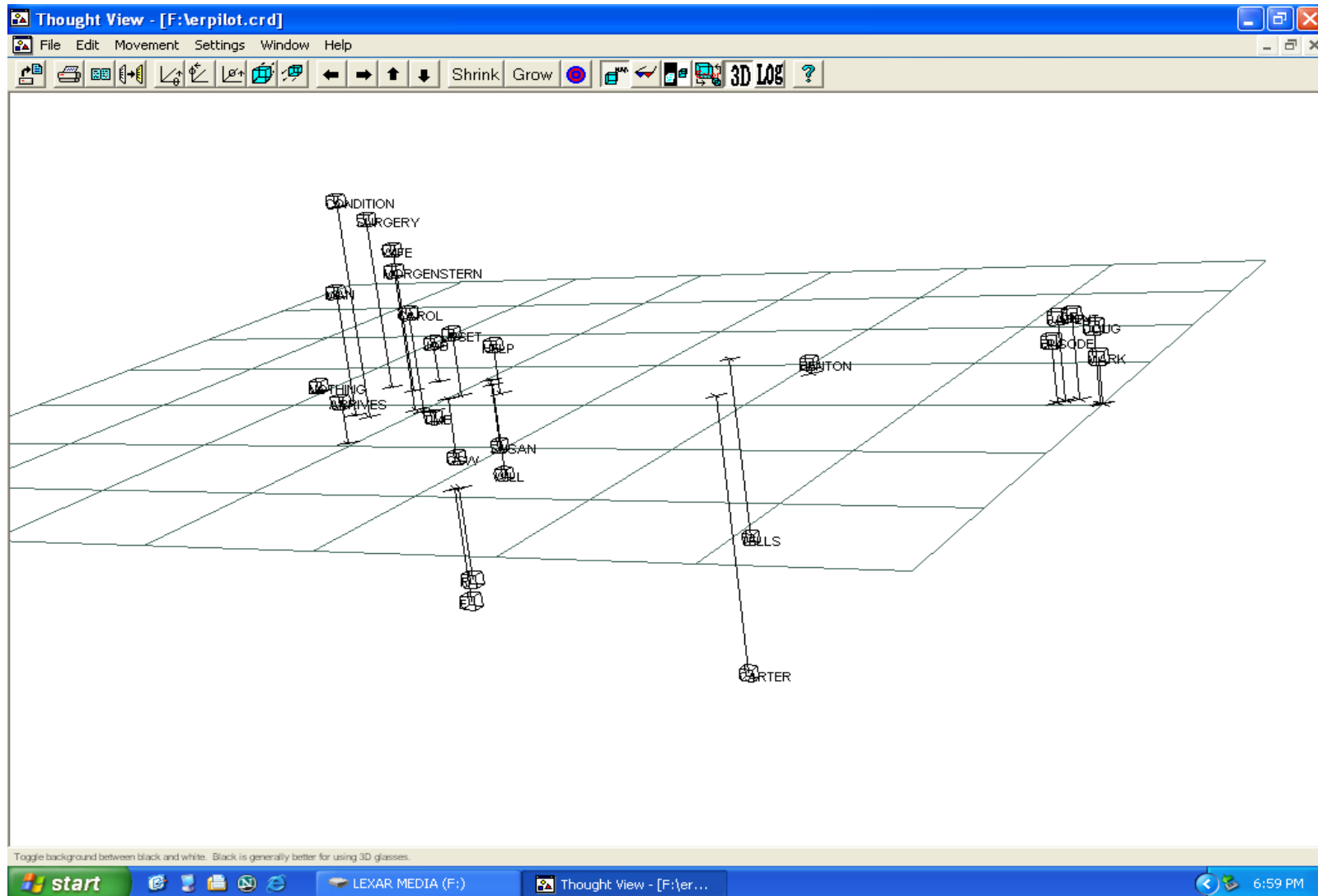
CATPAC Output: Descending Frequency List, Alphabetically Sorted List

[illegible]

CATPAC Output: Dendrogram



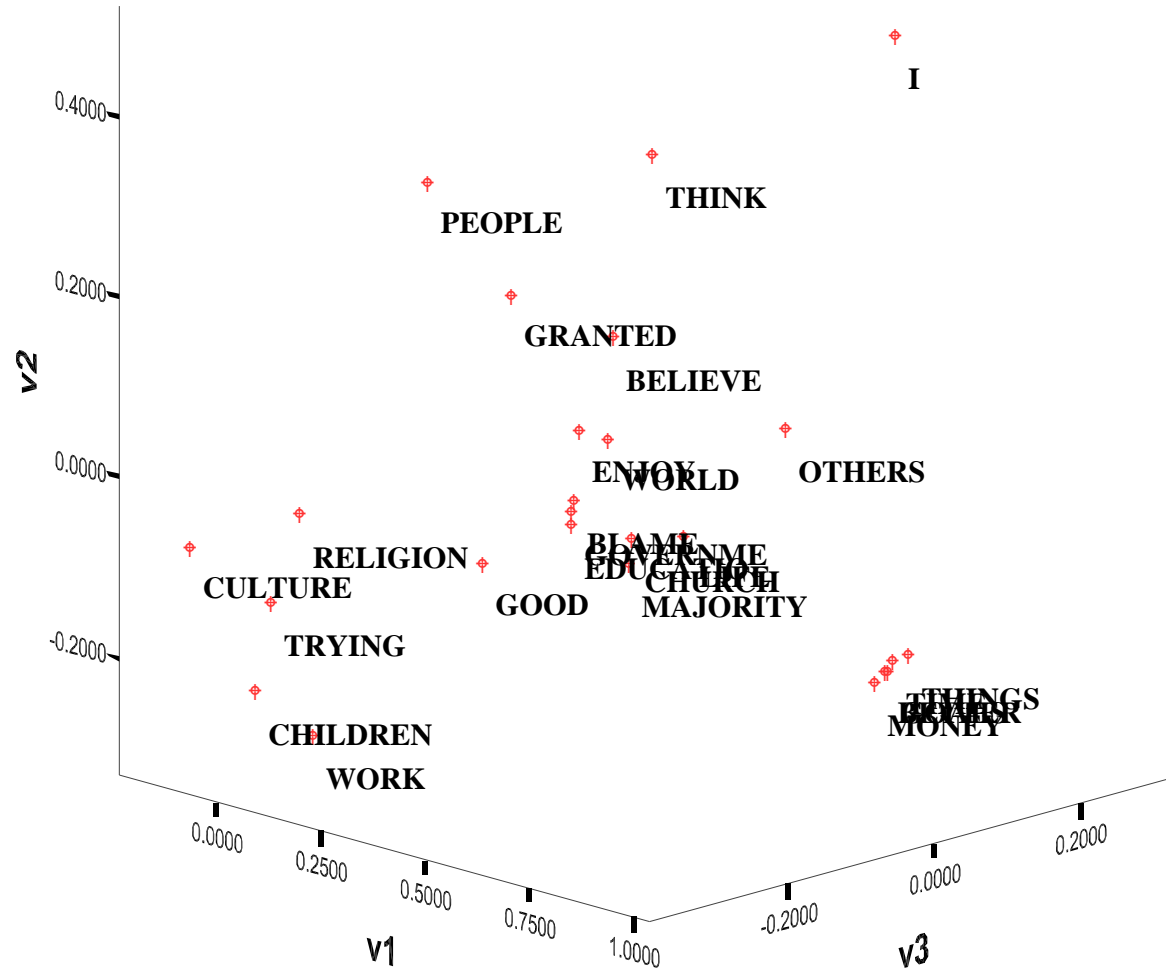
CATPAC Output: 3D Plot (using ThoughtView, another part of Galileo Suite)



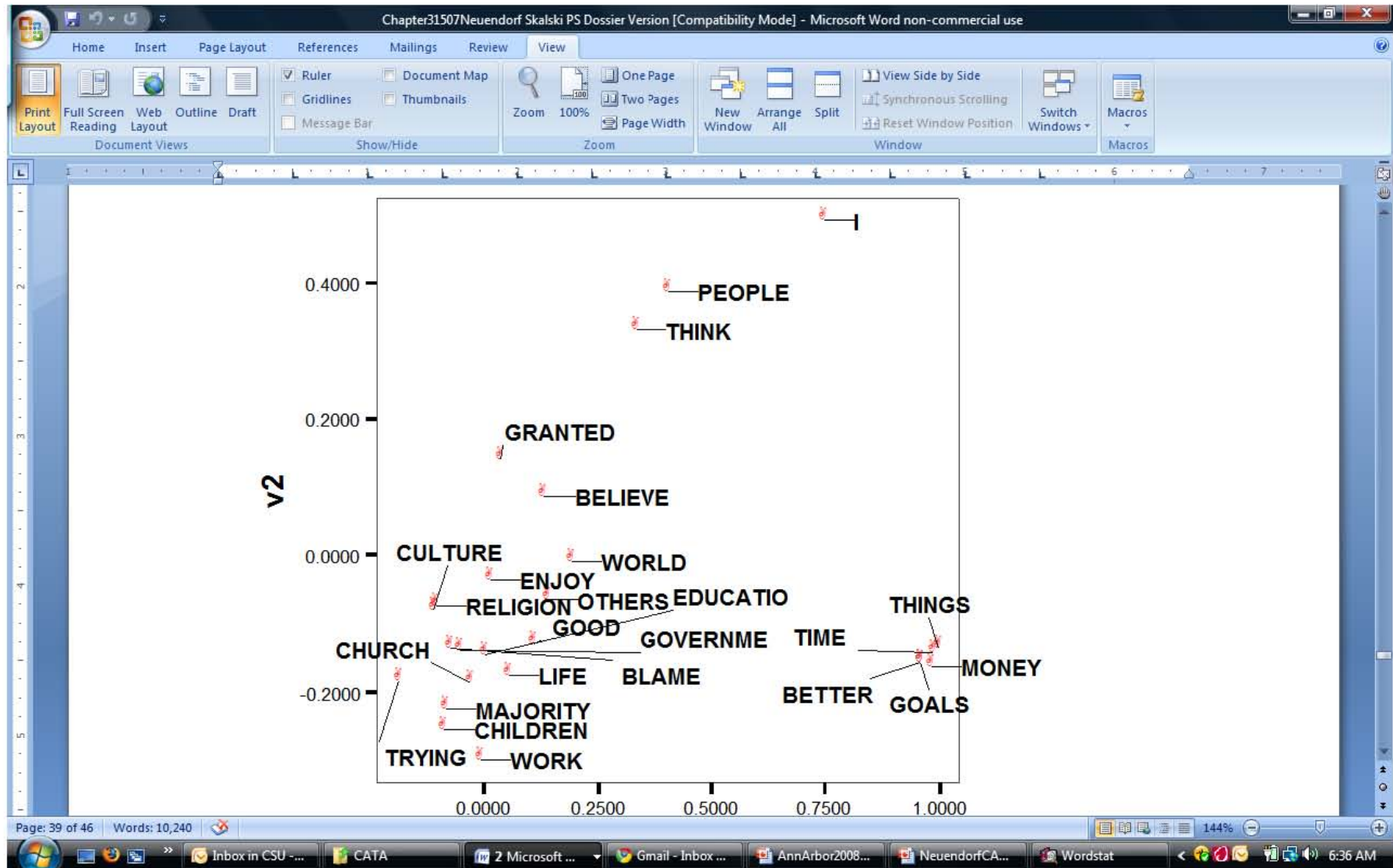
Sample Findings

- Neuendorf and Skalski (2008) analyzed open ended survey responses to question asking:
- Describe yourself as a typical American.
- All responses entered as one case delimited file.
- Results showed clustering of practical vs. other considerations, as in following:

CATPAC Output: 3D Plot (using SPSS)



CATPAC Output: 2D Plot (using SPSS)



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DICTION

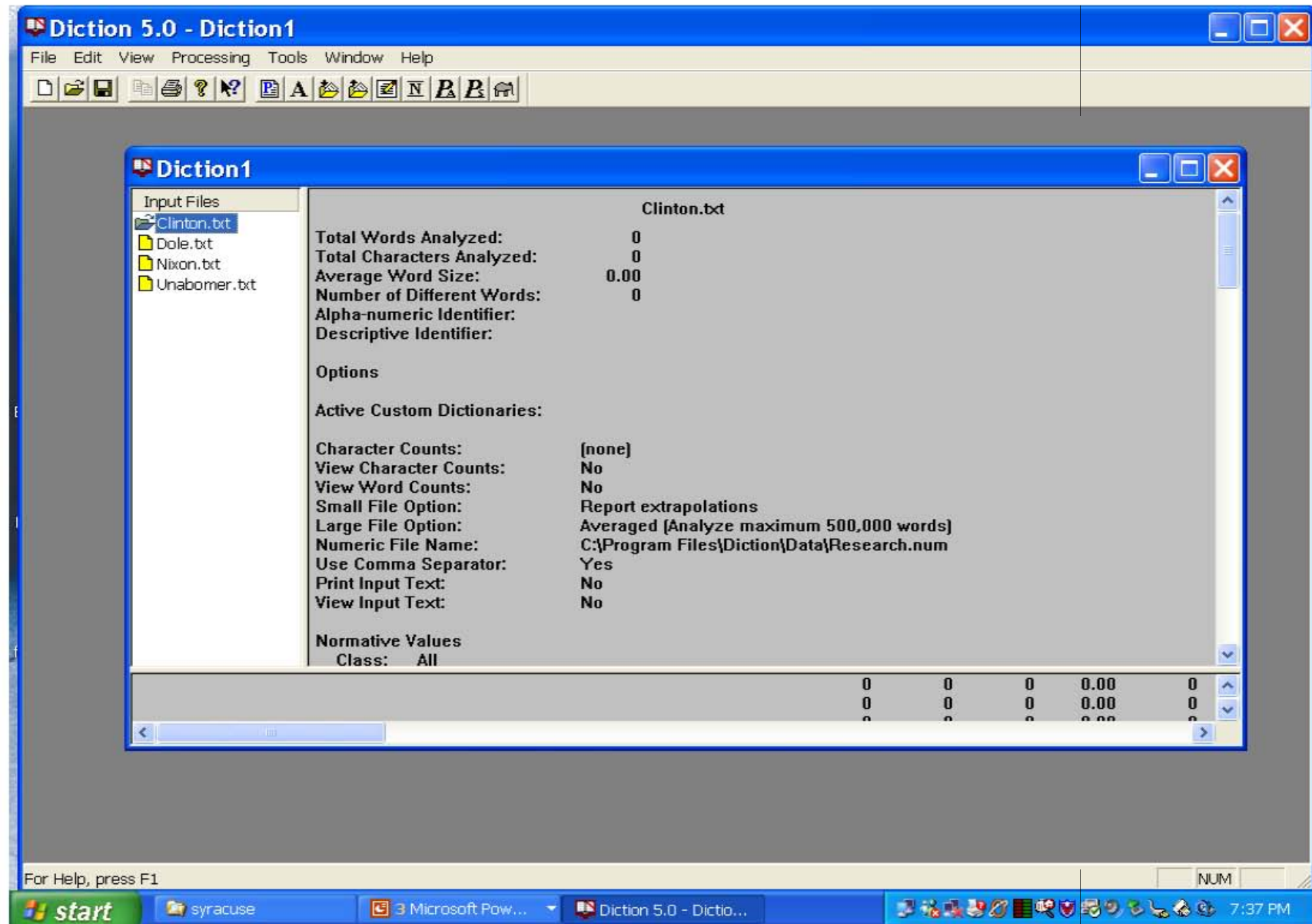
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About Diction

- Created by Roderick P. Hart (University of Texas) originally for the purpose of analyzing political discourse
- To measure “semantic features”, uses a series of 31 standard dictionaries and five “Master Variables” (scales constituted of combinations of the 31):
 - Activity
 - Optimism
 - Certainty
 - Realism
 - Commonality
- Users can create custom dictionaries in addition to standard dictionaries.
- The program can accept individual or multiple passages.

The Diction Interface



Diction Output: Calculated & Master Variables

Diction 5.0 - [Diction1]

File Edit View Processing Tools Window Help

Input Files
Nothing in the Dark ...

WAY	3
YOUNG	4

Calculated Variables

Variable	Frequency	Normal Range Low	Normal Range High	Standard Score	Out of Range
Insistence	44.97	6.00	31.97	-0.30	*
Embellishment	0.32	0.32	1.00	-0.67	
Variety	0.44	0.44	0.54	-1.33	*
Complexity	3.90	3.86	4.17	-2.35	

Master Variables

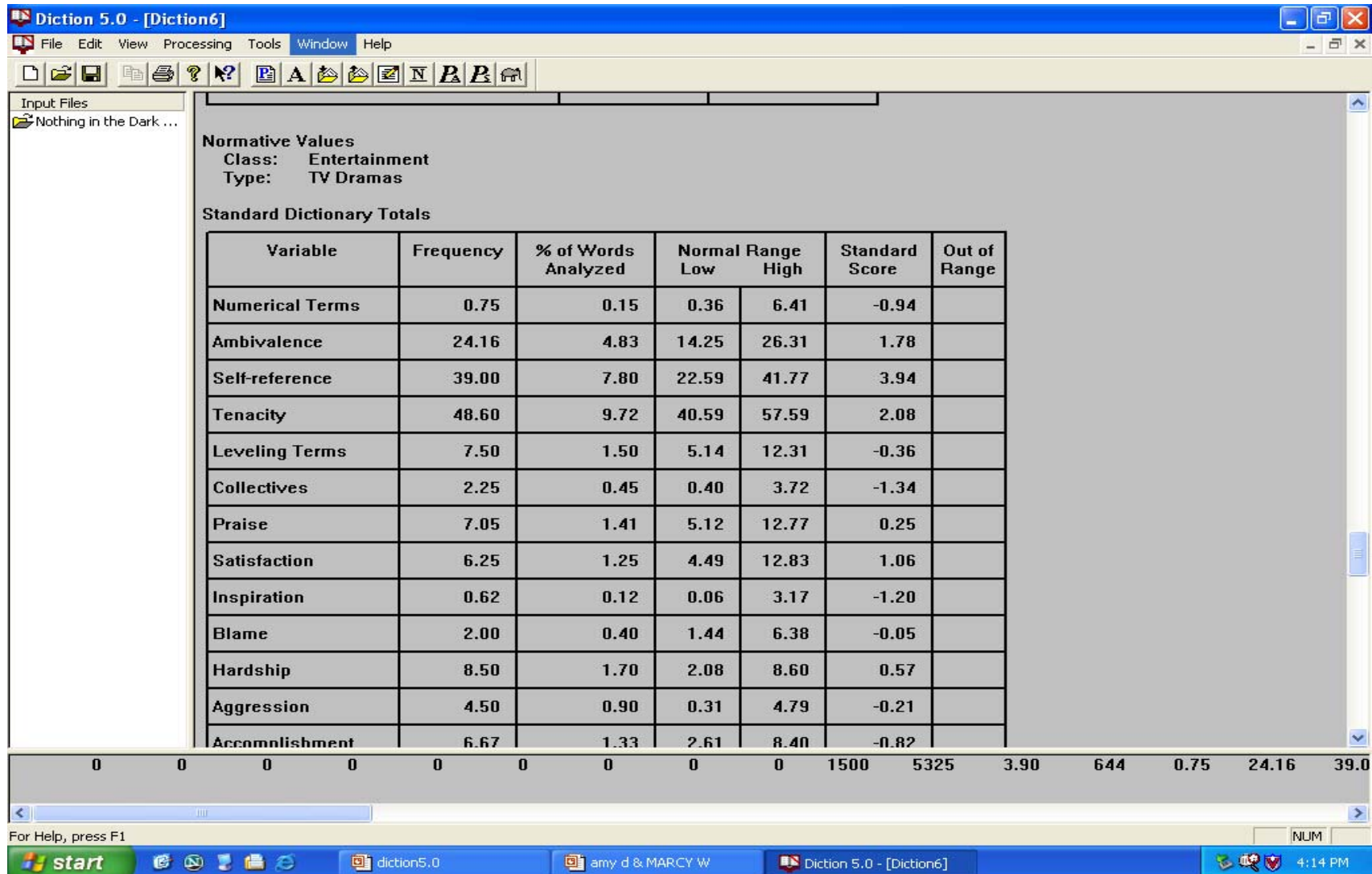
Variable	Score	Normal Range Low	Normal Range High	Out of Range
Activity	51.70	47.36	52.48	
Optimism	46.57	45.72	51.27	
Certainty	46.62	43.92	48.53	
Realism	50.05	47.29	51.62	
Commonality	49.12	48.02	50.40	

0 0 0 0 0 0 0 0 0 0 1500 5325 3.90 644 0.75 24.16 39.0

For Help, press F1

start Diction 5.0 - [Diction1] Diction 5.0 Microsoft PowerPoint ... 9:53 PM

Diction Output: Dictionary Totals with Normative Values



Diction Output: Interactively Changing Normative Values

Diction 5.0 - [Diction6]

File Edit View Processing Tools Window Help

Input Files
Nothing in the Dark ...

Normative Values
Class: Entertainment
Type: TV Dramas

Standard Dictionary Totals

Variable	Frequency	% of Words	Normal Score	Standard Score	Out of Range
Numerical Terms	0.75			-0.94	
Ambivalence	24.16			1.78	
Self-reference	39.00			3.94	
Tenacity	48.60			2.08	
Leveling Terms	7.50			-0.36	
Collectives	2.25			-1.34	
Praise	7.05			0.25	
Satisfaction	6.25			1.06	
Inspiration	0.62			-1.20	
Blame	2.00	0.40	1.44	6.38	-0.05
Hardship	8.50	1.70	2.08	8.60	0.57
Aggression	4.50	0.90	0.31	4.79	-0.21
Accomplishment	6.67	1.33	2.61	8.40	-0.82

Normative Values

Class: Entertainment

Entertainment
Journalism
Literature
Politics
Scholarship

OK Cancel

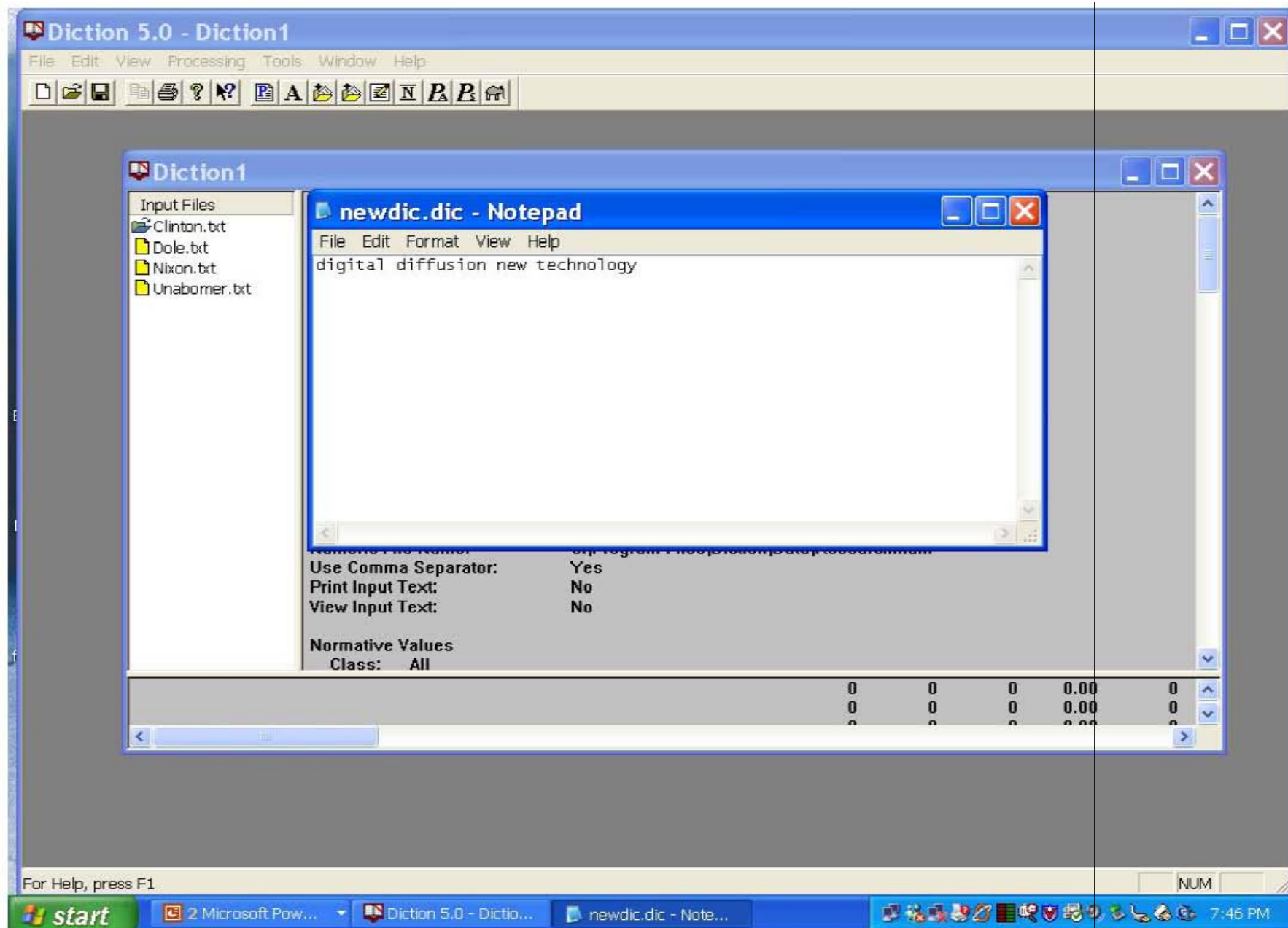
Changes made here affect only the selected files for the active project. The project must be saved to make the changes permanent. The current project Properties still apply to new files that are added.

0 0 0 0 0 0 0 0 0 0 1500 5325 3.90 644 0.75 24.16 39.0

For Help, press F1

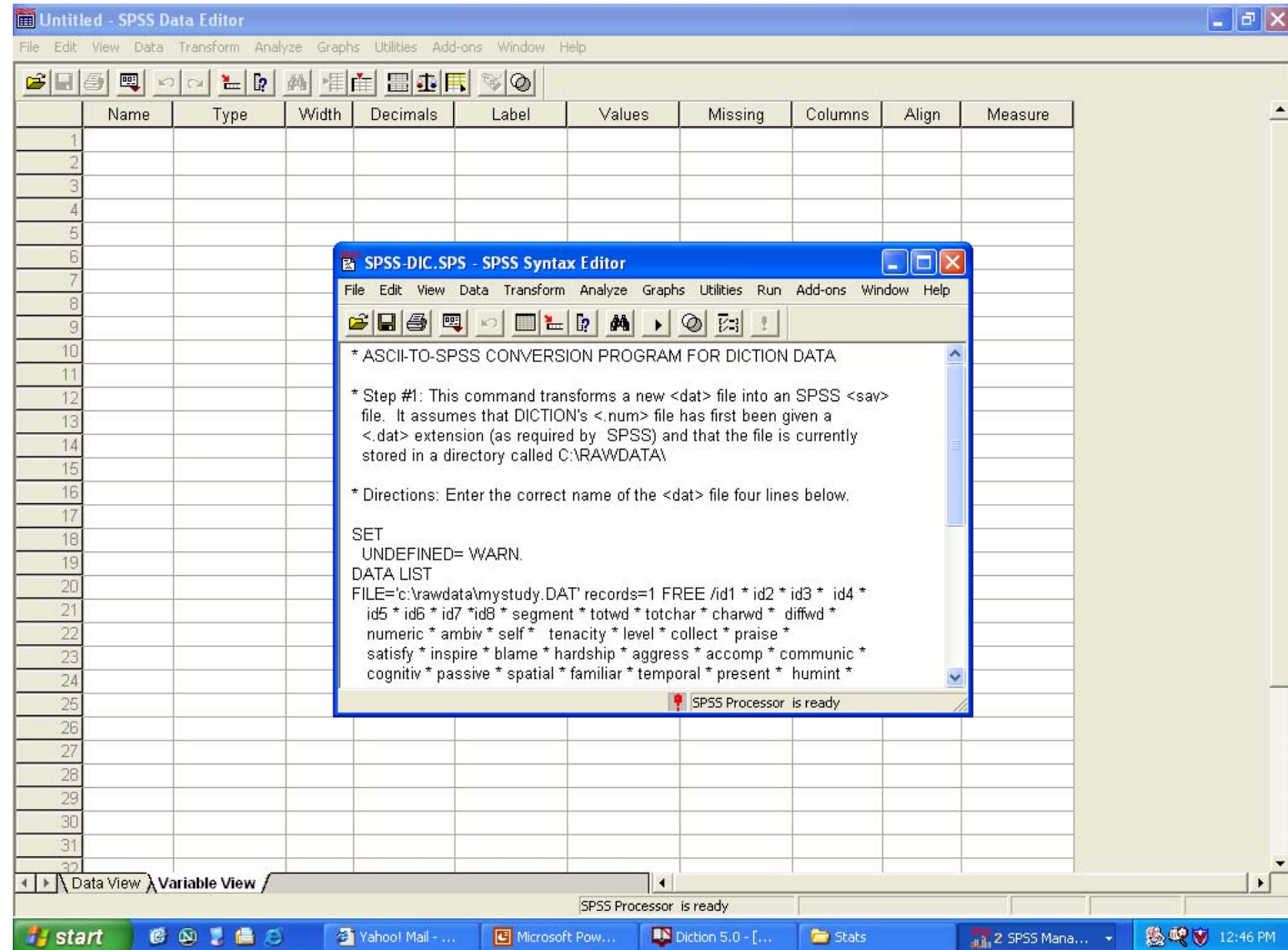
start diction5.0 amy d & MARCY W Diction 5.0 - [Diction6] 4:18 PM

Diction: Custom Dictionaries as Simple .txt Files



Diction Output: Data file may be exported to SPSS

SPSS
Syntax
Editor



Sample Findings

- Neuendorf and Skalski (2008) analyzed the first State of the Union address by each of the nine last Presidents (Eisenhower to Bush).
- Texts from online archive; had to be imported as separate files.
- Results of Bush's first State of the Union address vs. other political speeches follows:

Diction Output: Master Dictionary Scores and Comparisons

Variable	Frequency	% of Words Analyzed	Normal Low	Range High	Standard Score
Numerical Terms	6.42	1.28	0.3	15.04	-0.17
Ambivalence	7.57	1.51	6.49	19.21	-0.83
Self-reference	7.8	1.56	0	15.1	0.1
Tenacity	23.69	4.74	23.32	39.76	-0.95
Leveling Terms	7.69	1.54	5.02	12.76	-0.31
Collectives	13.57	2.71	4.04	14.46	0.83
Praise	8.99	1.8	2.77	9.59	0.83
Satisfaction	16.67	3.33	0.47	6.09	4.77
Inspiration	12.01	2.4	1.56	11.1	1.19
Blame	1.59	0.32	0.06	4.16	-0.25
Hardship	9	1.8	1.26	10.48	0.68
Aggression	8.59	1.72	1.07	9.79	0.73
Accomplishment	18.04	3.61	4.96	23.78	0.39
Communication	5.79	1.16	2.21	11.79	-0.25
Cognition	7.01	1.4	4.43	14.27	-0.48
Passivity	6.78	1.36	2.1	8.08	0.56
Spatial Terms	14.49	2.9	4.17	19.85	0.32
Familiarity	111.34	22.27	117.87	147.19	-1.45
Temporal Terms	18.45	3.69	8.36	21.82	0.5
Present Concern	9.33	1.87	7.02	16.6	-0.52
Human Interest	31.3	6.26	18.13	45.49	-0.04
Concreteness	27.52	5.5	10.7	28.5	0.89
Past Concern	1.8	0.36	0.97	6.19	-0.68
Centrality	3.17	0.63	1.19	7.54	-0.37
Rapport	2.84	0.57	0.42	4.26	0.26
Cooperation	8.73	1.75	0.36	8.44	1.07
Diversity	1.69	0.34	0.07	3.81	-0.14
Exclusion	0.72	0.14	0	4.31	-0.65
Liberation	3.62	0.72	0	4.72	0.57
Denial	3.09	0.62	2.57	10.35	-0.87
Motion	2.27	0.45	0.17	4.35	0

Diction Output: Master Dictionary Scores and Comparisons

Variable	Score	Normal Range		Out of Range
		Low	High	
Activity	50.1	46.74	55.48	
Optimism	57.22	46.37	52.25	*
Certainty	49.96	46.9	51.96	
Realism	49.75	46.1	52.62	
Commonality	51.18	46.86	52.28	

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WORDSTAT

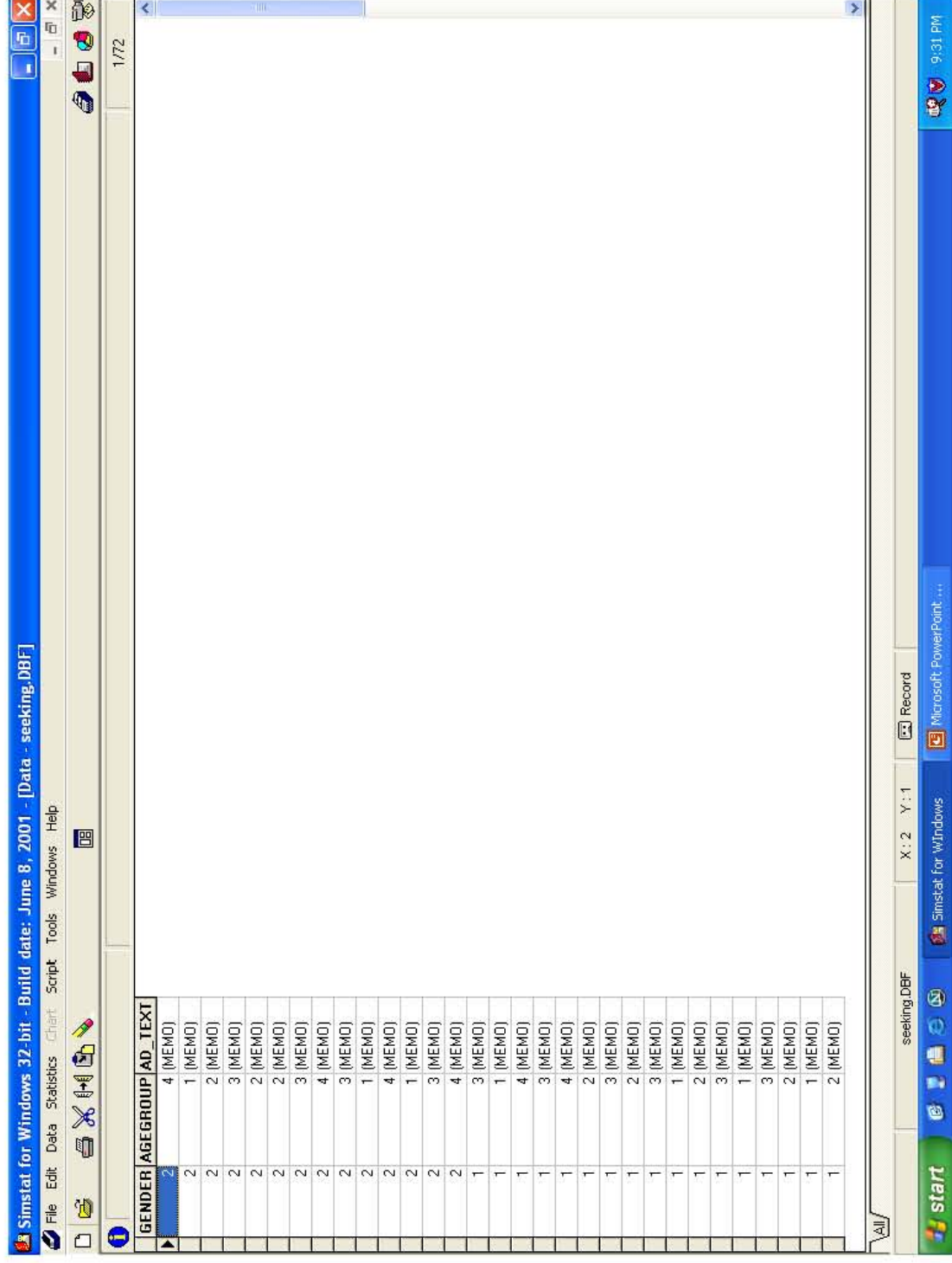
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About WordStat

- Created by Normand Peladeau, as part of the SimStat suite for quantitative data analysis (a counterpart to SPSS)
- Must be run as part of SimStat
- Particularly suited to analyzing open-ended responses, in that the data set may include both numeric and textual variables—which can immediately be crosstabulated
- The “standard” dictionaries that are included are incomplete and should be avoided
- Also includes KWIC

The WordStat Interface (within SimStat)





Script - UNTITLED

Notebook - UNTITLED

Data - seeking.DBF

i			6/72
GENDER	AGEGROUP	AD_TEXT	
2	4	(MEMO)	
2	1	(MEMO)	
2	2	(MEMO)	
2	3	(MEMO)	
2	2	(MEMO)	
2	2	(MEMO)	
2	3	(MEMO)	
2	4	(MEMO)	
2	3	(MEMO)	
2	1	(MEMO)	
2	4	(MEMO)	
2	1	(MEMO)	
2	3	(MEMO)	
2	4	(MEMO)	
1	3	(MEMO)	

I'm 5'8" tall, with long blonde hair, piercing blue eyes, beautiful white teeth, & a smile to die for. I'm considered sexy & attractive. The prospect of revealing your heart to someone is a scary one, isn't it? Are you willing to step on those fears in pursuit of happiness, fulfillment of body, mind & soul? Are you attractive, honest, & straight-forward? Do you like to share laughs, smiles, & much more with someone special? If you've answered yes, then we should talk. If you'd like to talk, please leave a message at Box 7635.

All

seeking.DBF

Record



CATApres.ppt

WordStat.ppt

LIWC - Linguisti...

Simstat for WI...

11:58 AM

Selection of Independent & Dependent Variables— Including Textual Variable

The screenshot displays the Simstat for Windows 32-bit interface. The main window shows a data table with three columns: GENDER, AGEGROUP, and AD_TEXT. The data is as follows:

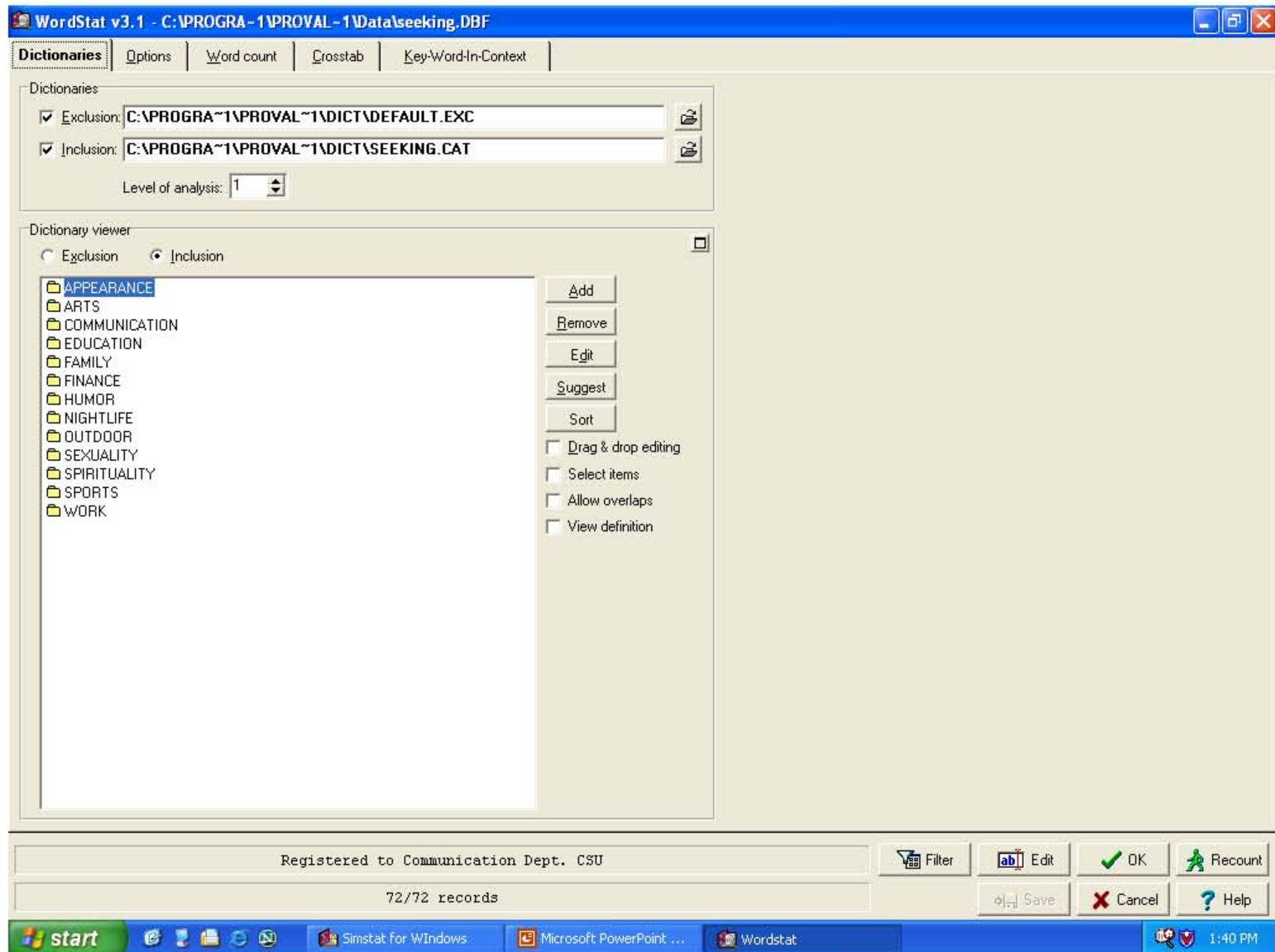
GENDER	AGEGROUP	AD_TEXT
2	4	(MEMO)
2	1	(MEMO)
2	2	(MEMO)
2	3	(MEMO)
2	2	(MEMO)
2	2	(MEMO)
2	3	(MEMO)
2	4	(MEMO)
2	3	(MEMO)
2	1	(MEMO)
2	4	(MEMO)
2	1	(MEMO)
2	3	(MEMO)
2	4	(MEMO)
1	3	(MEMO)
1	1	(MEMO)
1	4	(MEMO)
1	3	(MEMO)
1	4	(MEMO)
1	2	(MEMO)
1	3	(MEMO)
1	2	(MEMO)
1	3	(MEMO)
1	1	(MEMO)
1	2	(MEMO)
1	3	(MEMO)
1	1	(MEMO)
1	3	(MEMO)
1	2	(MEMO)
1	1	(MEMO)
1	2	(MEMO)

A "Choices Dialog" box is open in the center. It contains the following fields and buttons:

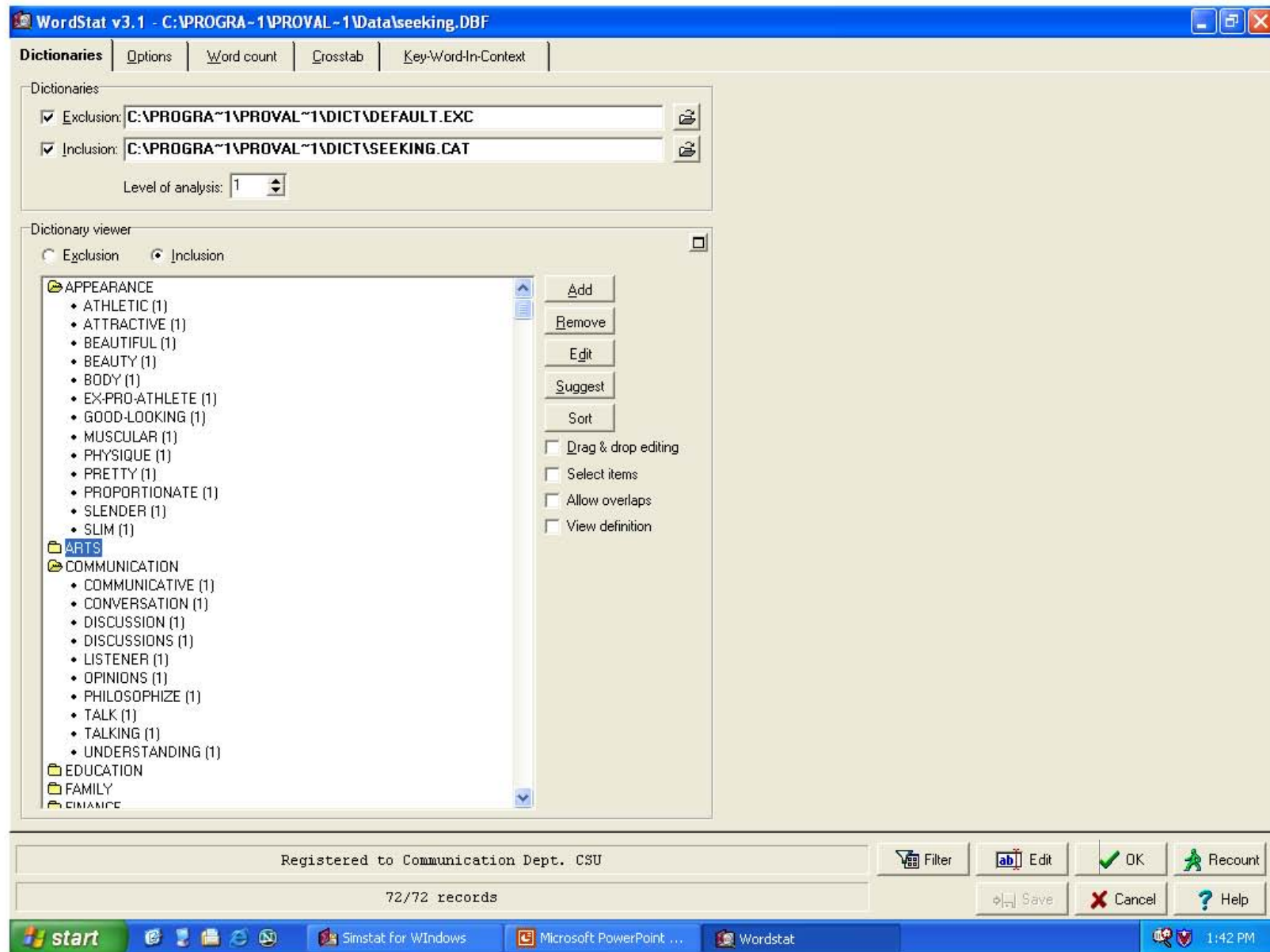
- Variable list:** A dropdown menu set to "All".
- Independent:** A list box containing "GENDER" and "AGEGROUP".
- Dependent:** A list box containing "AD_TEXT".
- Integer weight:** An empty input field.
- Buttons:** OK (green checkmark), Cancel (red X), Clear (red circle with slash), Exchange (circular arrows), and Help (question mark).
- Sorted:** A checkbox that is currently unchecked.

The Windows taskbar at the bottom shows the Start button, several application icons, and the system clock displaying 9:46 PM.

Standard WordStat “Dictionaries”



Breakdown of very limited WordStat “Dictionary”



WordStat Output: Word counts

WordStat v3.1 - C:\PROGRA-1\PROVAL-1\Data\seeking.DBF

Dictionary | Options | **Word count** | Crosstab | Key-Word-In-Context

Words to display: Included Sort by: Word List Tree/Map

	NB WORDS	% SHOWED	% PROCESSED	% TOTAL	NB RECORDS	% RECORD
APPEARANCE	79	23.1%	2.5%	1.7%	41	60.3%
ARTS	33	9.6%	1.0%	0.7%	21	30.9%
COMMUNICATION	26	7.6%	0.8%	0.6%	17	25.0%
EDUCATION	34	9.9%	1.1%	0.7%	21	30.9%
FAMILY	5	1.5%	0.2%	0.1%	4	5.9%
FINANCE	5	1.5%	0.2%	0.1%	5	7.4%
HUMOR	42	12.3%	1.3%	0.9%	29	42.6%
NIGHTLIFE	34	9.9%	1.1%	0.7%	23	33.8%
OUTDOOR	21	6.1%	0.7%	0.5%	14	20.6%
SEXUALITY	16	4.7%	0.5%	0.3%	13	19.1%
SPIRITUALITY	9	2.6%	0.3%	0.2%	5	7.4%
SPORTS	17	5.0%	0.5%	0.4%	12	17.6%
WORK	21	6.1%	0.7%	0.5%	16	23.5%

Shown: 13 Unique: 869/4658 Time: 0s

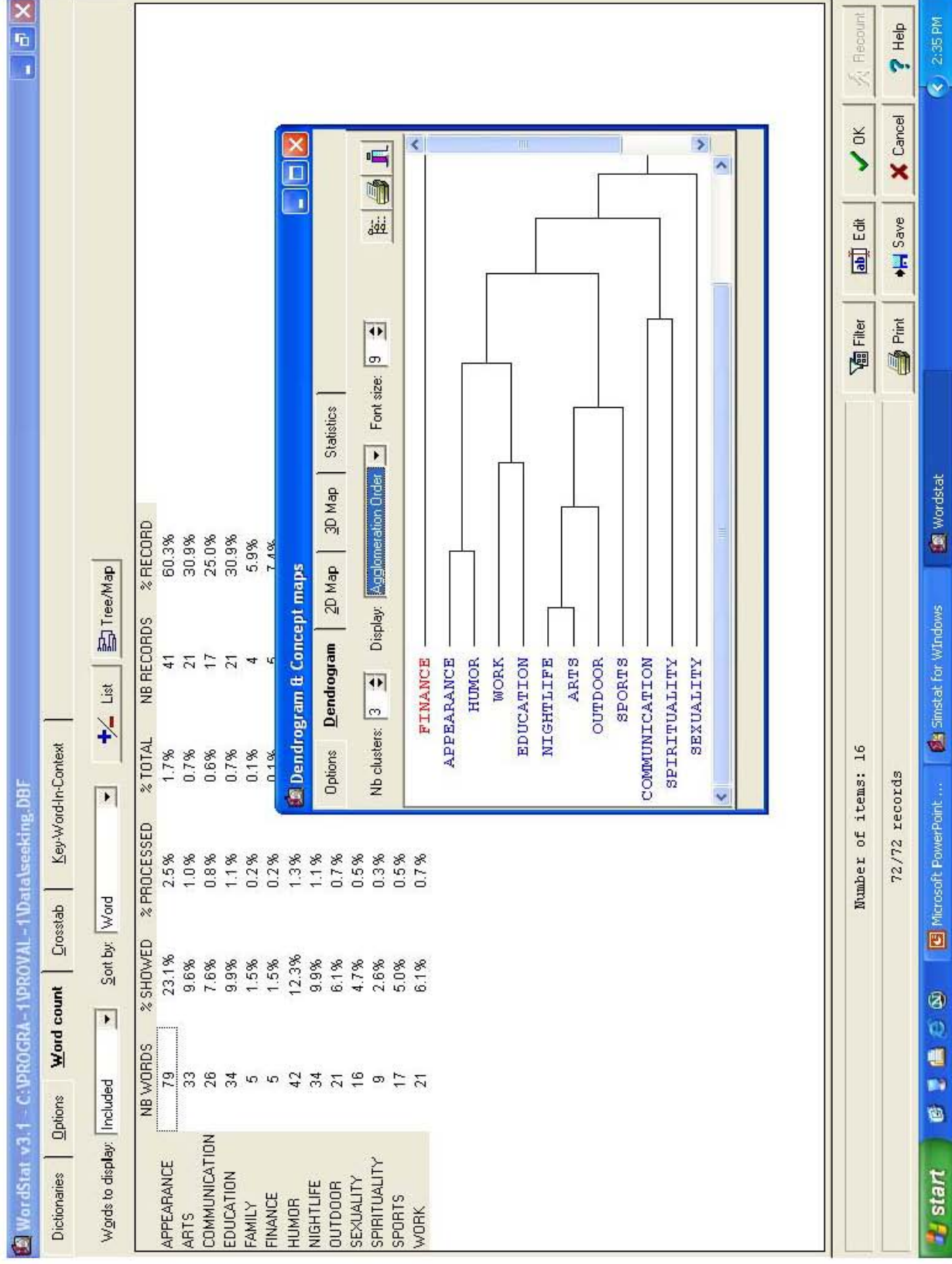
72/72 records

Filter Edit OK Recount

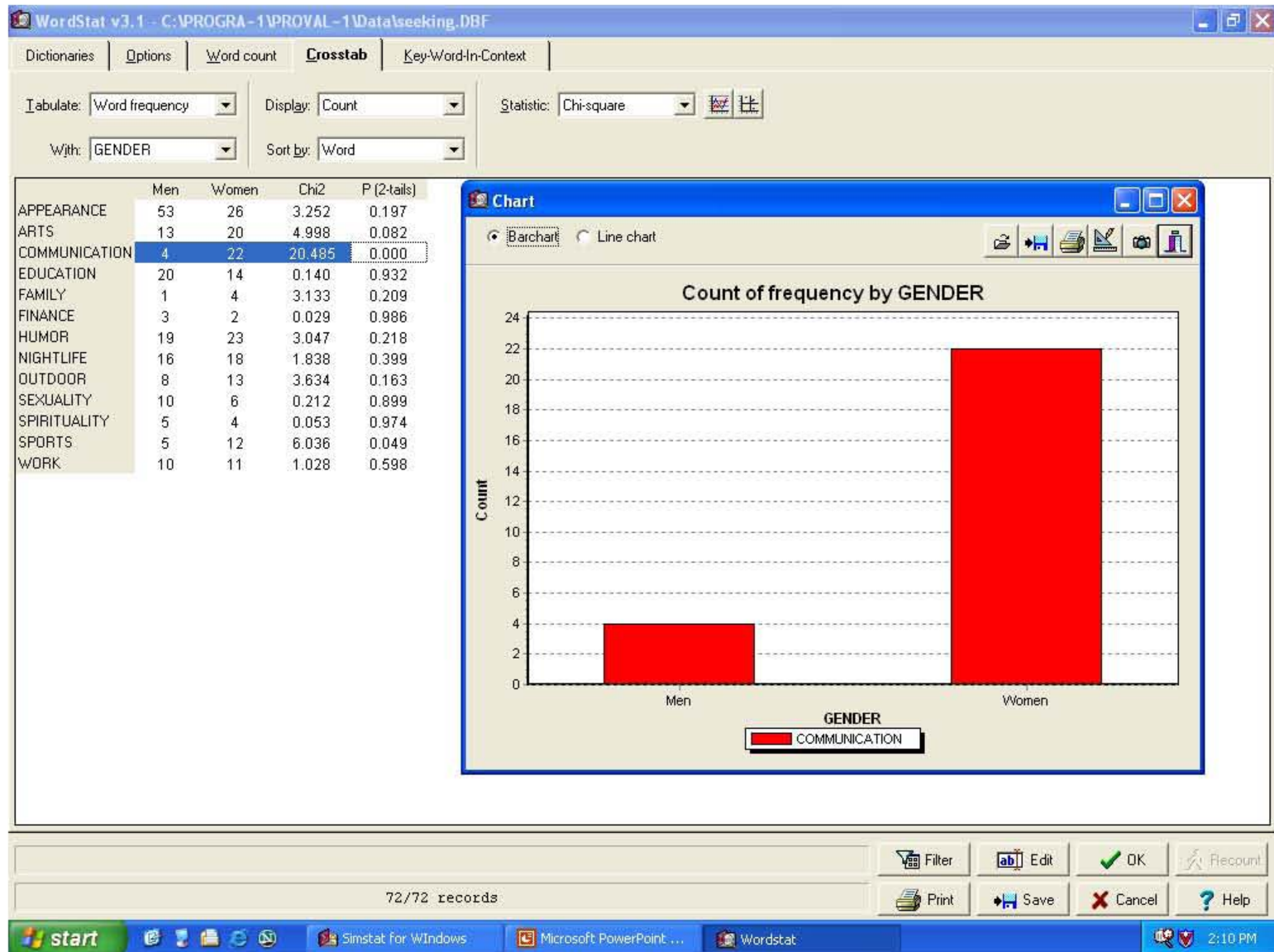
Print Save Cancel Help

start Simstat for Windows Microsoft PowerPoint ... Wordstat 1:50 PM

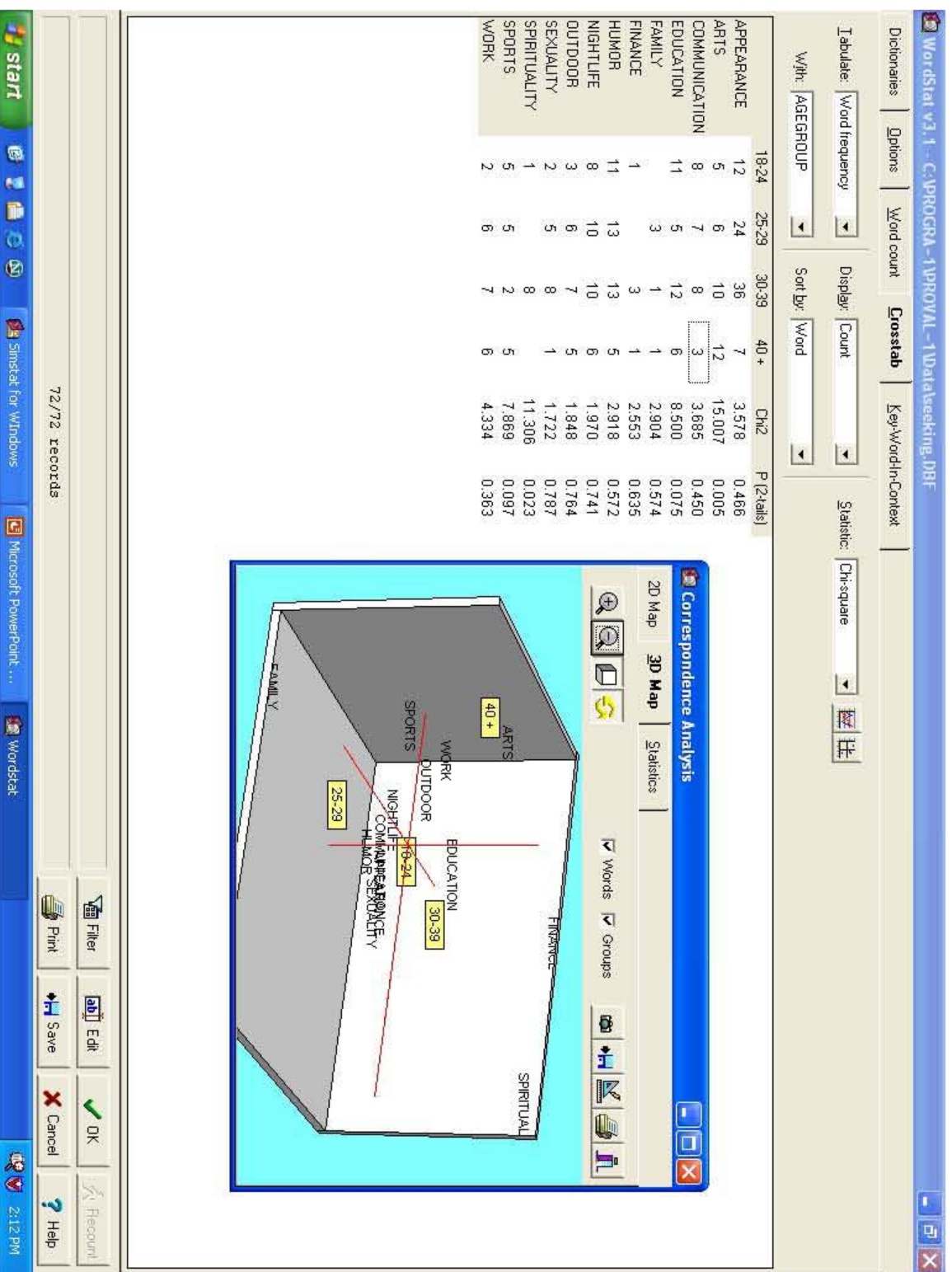
WordStat Output: Dendrogram



WordStat Output: Crosstab with bar graph



WordStat Output: Crosstab and 3D representation



WordStat Output: KWIC

WordStat v3.1 - C:\PROGRAM - 1\PROVAL - 1\Data\seeking.DBF

Dictionaries

Options

Word count

Crosstab

Key-Word-In-Context

ListIncluded

Sort byRecord number

Go

W/gldSEXUALITY

Context delimiterNone

Report

RECORDNO

KEYWORD

GENDER

AGE

3

with long, dark brown hair & green eyes. I like a tall man who's, slim, with long hair,

sexy

, confident, as I am, open, likes to have fun, party, & enjoy himself. If you recognize

Women

25

6

he hair, piercing blue eyes, beautiful white teeth, & a smile to die for. I'm considered

sexy

& attractive. The prospect of revealing your heart to someone is a scary one, isn't it

Women

25

11

rests & enjoy all types of music, dancing & dining with wine. You're affectionate &

passionate

, but only with the right person, serious, monogamous, & not looking for adventure.

Women

41

17

al. I'm 5'11" tall, 178 lbs. with short black hair, light brown eyes, a nice body & nice

legs

. I'm emotionally and financially secure. I'm looking for a woman, age & race open, th

Men

18

17

I see what happens from there. I think we all deserve happiness, after all. If you're

voluptuous

, or a little plump, it doesn't matter as long as you're beautiful, pretty & sophisticated

Men

18

19

I'm attractive, 36 yrs. old, single, 6' tall, 170 lbs. & slim. If you're interested in a

passionate

, romantic encounter, I promise you won't be disappointed if you respond to Box 89

Men

30

28

. I'm considered good-looking & polite, but also demanding. I'm looking for a tall, slim,

sexy

, attractive lady who's, preferably 24-30 yrs. old. If you're interested, leave a mess

Men

30

46

he fun as well. I'm a single mother of a beautiful little boy. If you're attractive, funny,

sexy

, fun-loving with a good sense of humor & you think you can have either a casual c

Women

25

53

I'm looking for a friend, maybe a

lover

, who knows. I'm 30 yrs. old, with red hair & green eyes. I work in alternative medic

Women

30

53

30 yrs. old, with red hair & green eyes. I work in alternative medicine & therapeutic

massage

. I'm looking for something different, someone who has inner beauty, inner strength

Women

30

54

or she com'y in a pair of sweats at home. She's 25-32 yrs. old, outgoing, caring &

passionate

, with a good sense of humor. No head games, please. Box 1020.

Men

30

55

ent relationship. She can be my best friend, with whom I can be romantic, fill all her

fantasies

, & spending quality time together. If you're interested, leave a message at Box 546.

Men

25

63

3 fun to be with. I'm seeking someone who's pretty with a nice body & great pair of

legs

. She likes to have fun & a really good time. You won't regret it if you leave a mess

Men

25

64

3y who's also laid-back, easy-going, 24-45 yrs. old who, like me, can be sensual &

passionate

at the right times & moments. You'd like to start as

Men

30

64

ng for a lady who's also laid-back, easy-going, 24-45 yrs. old who, like me, can be

sensual

& passionate at the right times & moments. You'd like to start as

Men

30

72

tall, 180 lbs. with a full head of thick, dark brown hair, deep dark brown eyes & full

lips

. My interests are too many to list, but I'm no couch potato. Box 2576.

Men

30

Number of items: 16

72/72 records

Filter

Edit

OK

Cancel

Help

Sample Findings

- Skalski (last night) did some basic analyses using the 1992 ANES open-ended data.
- Q: What do you think is the most important problem facing this country?
- Fairly easy to import responses into the program.
- Results as follows (with sample dictionary):

WordStat Output: Word Count

WordStat v3.1 - C:\Users\PS\DOCUME~1\CATA\1992MIP.dbf

Dictionaries | Options | **Word count** | Crosstab | Key-Word-In-Context

Words to display: All | Sort by: Word frequency | List | Tree/Map

	NB WORDS	% SHOWED	% PROCESSED	% TOTAL	NB RECORDS	% RECORD
ECONOMY	369	7.0%	7.0%	3.8%	359	21.4%
JOBS	230	4.4%	4.4%	2.4%	203	12.1%
DEFICIT	202	3.8%	3.8%	2.1%	198	11.8%
PEOPLE	137	2.6%	2.6%	1.4%	131	7.8%
UNEMPLOYMENT	126	2.4%	2.4%	1.3%	126	7.5%
HEALTH	94	1.8%	1.8%	1.0%	91	5.4%
CARE	93	1.8%	1.8%	1.0%	90	5.4%
I	75	1.4%	1.4%	0.8%	61	3.6%
WE	65	1.2%	1.2%	0.7%	60	3.6%
DEBT	54	1.0%	1.0%	0.6%	54	3.2%
_EDUCATION	50	1.0%	1.0%	0.5%	48	2.9%
OUT	49	0.9%	0.9%	0.5%	48	2.9%
LACK	47	0.9%	0.9%	0.5%	47	2.8%
_WORK	45	0.9%	0.9%	0.5%	43	2.6%
CRIME	45	0.9%	0.9%	0.5%	45	2.7%
HOMELESS	44	0.8%	0.8%	0.5%	44	2.6%
NATIONAL	44	0.8%	0.8%	0.5%	44	2.6%
BUDGET	42	0.8%	0.8%	0.4%	42	2.5%
NEED	41	0.8%	0.8%	0.4%	39	2.3%
AE	40	0.8%	0.8%	0.4%	39	2.3%
GETTING	39	0.7%	0.7%	0.4%	37	2.2%
PROBLEM	37	0.7%	0.7%	0.4%	36	2.1%
DRUGS	35	0.7%	0.7%	0.4%	35	2.1%
PROBLEMS	34	0.6%	0.6%	0.4%	33	2.0%
WOULD	31	0.6%	0.6%	0.3%	30	1.8%
IT'S	30	0.6%	0.6%	0.3%	28	1.7%
INSURANCE	28	0.5%	0.5%	0.3%	24	1.4%
BACK	27	0.5%	0.5%	0.3%	26	1.6%
COUNTRY	27	0.5%	0.5%	0.3%	27	1.6%
IMPORTANT	27	0.5%	0.5%	0.3%	25	1.5%
WELFARE	27	0.5%	0.5%	0.3%	27	1.6%
ECONOMIC	26	0.5%	0.5%	0.3%	24	1.4%
WORK	26	0.5%	0.5%	0.3%	24	1.4%
MANY	25	0.5%	0.5%	0.3%	22	1.3%

1675/1675 records

Filter | Print

Windows Taskbar: Wordstat, Captur..., Rhapso..., 2 Mic..., Simstat..., 2 Mic..., Yahoo!, CATA, Inbox i...

WordStat Output: KWIC

WordStat v3.1 - C:\Users\PS\DOCUME~1\CATA\1992MIP.dbf

Dictionaries | Options | Word count | Crosstab | **Key-Word-In-Context**

List: Included | Sort by: Record number | Go

Wgrd: WORK | Context delimiter: None | Report

RECORDNO	KEYWORD	FILEN
45	Jobs (WM) lack of employment .	1
62	Employment .	1
70	Employment . (TM) Not enough employment and not only than the japanese are taking too many jobs from us.	1
70	Employment . and not only than the japanese are taking too many jobs from us.	1
104	Employment .	1
287	"Jobs, get people working ."	1
404	"The economy. If everyone is working , everyone is happy."	1
420	Employment .	1
445	Employment .	1
464	"Don't know (wt) High Unemployment, I feel if more people were working there would be less poverty, therefore crime probably won't be as high."	1
486	"Welfare. If we can get people working , the health care system would improve."	1
496	Jobs (WM) Employed people get the unemployed back to work. (AE) no	1
783	Economy. Everything hopefully would fall into place if we can get the economy working right.	1
957	The economy, getting it back on an even keel, where import and export ae on a continued balance with employment . (AE) no"	1
996	"Economy, more people working , more taxes come in. I think it would help."	1
1022	Jobs. Employment .	1
1080	Employment .	1
1141	"Employment and a living wage, particularly. There are people who are employed but they are still living in poverty. Their wages are too low."	1
1141	" Employment and a living wage, particularly. There are people who are employed but they are still living in pove	1
1193	Finding employment for our people.	1
1217	The employment problem.	1
1328	"The economy, I think, we need to get people working ."	1
1424	Employment of the people.	1
1447	Unemployment. It makes the deficit. It would help the deficit if we had more employment .	1
1470	Lack of employment .	1
1567	Full employment .	1

Number of items: 26

1675/1675 records

Filter | Edit | OK | Recount
 Print | Save | Cancel | Help

Windows Taskbar: 1:38 AM

WordStat Output: Back to Data File

[illegible]

Final Points and Advice

- Strengths of CATA:
 - Quick (data preparation takes longest usually).
 - Can process large amounts of text with ease.
- Weaknesses of CATA:
 - Still not as good as human coding.
 - Computer cannot recognize certain message features, introducing measurement error.
 - Other validity concerns (e.g., dictionaries).

Final Points and Advice

- **RECOMMENDATION:** Use CATA at early analysis stages for exploratory purposes and data reduction.
- May also be used for automatic coding with good dictionaries and algorithms (?)
- Cross validation needed for confidence.
- Certain research Qs/data better suited.

Final Points and Advice

- Be wary of standard dictionaries.
 - Only trust those with full disclosure of details or other evidence of validity/effectiveness.
- Price matters:
 - Freeware: VBPro, General Inquirer, MCCALite
 - Relatively inexpensive (\$100-\$200): Student CATPAC, Diction, LIWC.
 - Expensive (\$1000+): Full CATPAC, Wordstat.

In the Future....

- Datasets made available to encourage use and development of CATa programs.
- Programs with the ability to go beyond just words and examine larger units of analysis (e.g., sentences, paragraphs).
- Also machine learning from human coding examples (e.g., VCS) or combo programs.
- Coding of audio/visual information.

THE END

- Special thanks to Kim Neuendorf.
- Website:
<http://academic.csuohio.edu/kneuendorf/content/>
- Questions?
Email: p.skalski@csuohio.edu
- Thanks!