

**National Longitudinal Study of Adolescent to Adult Health (Add Health), 1994-2008 [Public Use]**

ICPSR 21600

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Wave I: Network Variables Codebook/Questionnaire

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# ICPSR 21600

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# Wave I: Network Variables Original P.I. Documentation

*National Longitudinal Study of Adolescent Health*

*Network Variables Code Book*

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### Add Health Network Variables Code Book

**PART I: Introduction**

#### Data Collection

**Technical Details of Add Health Network Data**

Response Rates

Valid Nomination Data

#### Definitions and Conventions

Definitions

Coding of Race and Ethnicity Mathematical Conventions

Missing Data

### PART II: Summary List of Add Health Network Variables PART III: Construction of Add Health Network Variables

#### Individual-level Measures

Basic Network Descriptors

Ego-centered Network Measures

Sociometric characteristics of ego-networks

Ego-network heterogeneity measures for grade, race, and age

Ego-network behavior/attribute means for in-school questionnaire items

#### School-level Measures

Measures of Global Network Structure

Measures of Segregation and Group Salience for Grade, Race, and Sex

### PART IV: References

**Appendix: Ordered SAS *Proc Contents* Output**

### Additional Information about the Constructed Network Variables

**PART I: Introduction**

A primary aim of the Add Health study is to carefully measure the major social contexts affecting the health and well-being of adolescents. Unlike many other large-scale demographic studies, Add Health rests on a clustered design, in part to facilitate the collection of extensive social network data. Social networks are a direct link between individuals and the social structure in which they are embedded; for adolescents, networks of peers and friends are one of the most important social contexts. Because the Add Health study collected network data from all students who attended each participating school, both individual and school-level networks can be examined. This unique design enables us to comprehensively measure the structure of the extended friendship network in which each respondent is embedded, as well as to describe the overall social structure of the respondent’s particular school.

In order to facilitate the use of Add Health network data, we have constructed a wide array of network variables from responses to the friendship nomination section of the Add Health in- school questionnaire. These variables measure network characteristics at both the individual and school levels.

#### Data Collection

The Add Health in-school questionnaire was administered to 90,118 students attending 145 schools in 80 communities. Details about the overall sample and design of the Add Health study are provided in Bearman, Jones, and Udry (1997). In the friendship section of the Add Health in- school questionnaire, the respondent was asked to nominate up to five male and five female friends from the roster of all students enrolled in the respondent’s school and in the sister school. Once friends were nominated, the respondent entered each friend’s identification number on the questionnaire. If the friend was not found on the roster, the respondent was asked to indicate if

(1) the friend went to the school; (2) the friend went to the sister school; or (3) the friend did not go to either the respondent’s school or the sister school.

#### Technical details of Add Health Network Data

**Response rates**

Because we wish to provide substantively useful variables, only schools in which more than 50 percent of the student body completed the questionnaire are used to calculate the network measures described here. Relying on global network characteristics from schools with incomplete data would provide misleading images of the school’s social structure.

#### Valid nomination data

To construct a friendship social network, it is necessary to uniquely identify both the respondent and the alters that he or she nominates as a friend. All students who completed the in-school questionnaire were assigned a unique identification number, and were provided with a roster that identified all enrolled students in their school and the sister school. However, not all respondents’ names appeared on the roster from which friends were identified (rosters were sometimes incomplete or contained errors), and not all students whose names were on the rosters completed the questionnaire (students were absent or did not participate in the study).

Considering only those students who completed questionnaires, we define respondents whose names appeared on the school roster as *uniquely nominatable*, and respondents whose names did not appear on a school roster are defined as *uniquely non-nominatable*. For the purposes of constructing friendship networks, all friendship nominations made by both the *uniquely nominatable* and the *uniquely non-nominatable* respondents fell into one of four nomination statuses:

1. Nominations to friends whose name appeared on the respondent’s school roster and who also completed the in-school questionnaire
2. Nominations to friends whose name appeared on the roster of the respondent's sister school and who also completed the in-school questionnaire.
3. Nominations to friends identified by the respondent with a special code, specifically
   1. Friends who attended the respondent's school but whose names were not on the school roster (special code 9999)
   2. Friends attending the sister school but whose names were not on the school roster (special code 8888)
   3. Friends who did not attend the respondent’s school or sister school, (special code 7777)
4. Nominations to friends whose names appeared on one of the school rosters but who did not fill out the questionnaire.

The cross-classification of friendship nominations from nominator type to nomination status is summarized in Table 1. This table shows that the vast majority of all friendship nominations are to other students enrolled in the same school as the respondent. Approximately 15 percent of all respondents’ friends did not attend either their school or their sister school. Approximately 8 percent of all friendship nominations were to individuals whose names were not on the school rosters. These nominations may be to students new to the school, or to students known only by nicknames. Because these nominations do not uniquely identify an individual, they are not included in the construction of the friendship networks on which most of the network measures described in this code book are based.

In general, the network measures described in this code book consider only those nominations in which both the sender and receiver of the friendship nomination are uniquely identifiable students who completed an in-school questionnaire. Exceptions to this rule are identified when specific measures are described.

#### Table 1: Distribution of friendship nominations by nominator and nomination status

##### *To Nomination Status*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***From Nominator*** | Uniquely  Nominatable Same School | Uniquely Nominatable  Sister School | Special Codes | Unmatched Nominations | Total N of  Nominations Sent |
| Uniquely Nominatable Respondent  *Respondent’s name was on the roster*  (N = 75,871  *respondents)*  ROW %  COLUMN % | 314,938 | 5,481 | 124,689 | 64,835 | 509,943 |
| *62%* | *1%* | *24%* | *13%* | *100%* |
| *96%* | *94%* | *91%* | *94%* |  |
| Uniquely Non- Nominatable Respondent  *Respondent’s name was not on the roster* (N = 6,758  respondents)  Row % Column % | 13,527 | 354 | 12,674 | 4,141 | 30,696 |
| *44%* | *1%* | *41%* | *14%* | *100%* |
| *4%* | *6%* | *9%* | *6%* |  |
| Total  N = 82,629  respondents | *100%*  328,465 | *100%*  5,835 | *100%*  137,363 | *100%*  68,976 | 540,639 |

For further information about the distribution of nominations in the Add Health network data, see Bearman and Moody 1997.

#### Definitions and conventions

**Definitions**

EGO Respondent

ALTER Student in the same school as ego who is eligible to be nominated as a friend

SISTER SCHOOL Sample school in the same community as ego’s school.

If ego attends a high school, the sister school is generally the junior high or middle school that sends the majority of its students to ego’s high school. If ego attends a junior high or middle school, the sister school is the high school ego is most likely to attend. If ego’s school contains grades 7-12 there is no sister school.

NODE Unique member of a network

TIE Nomination of *j* as a friend of *i*

DYAD Pair of tied nodes

SYMMETRIC DYAD Dyad in which ego’s nomination of alter is reciprocated

ASYMMETRIC DYAD Dyad in which ego’s nomination of alter is not reciprocated

GEODESIC The shortest path between two nodes

OUT-DEGREE Number of alters nominated by ego

IN-DEGREE Number of alters who nominate ego

EGO’S SEND-NETWORK Ego and the set of alters nominated by ego EGO’S RECEIVE-NETWORK Ego and the set of alters who nominate ego

EGO’S SEND- AND RECEIVE-NETWORK The union of ego’s send-network and ego’s receive-

network

TOTAL FRIENDSHIP NETWORK Complete school-level friendship matrix CATEGORICAL ATTRIBUTE An attribute which divides a population into mutually

exclusive sub-populations. Categorical attributes used here are sex, race, grade, and age.

TRAIT A characteristic which defines a sub-population in terms of a categorical attribute. Examples are male, female, black, white, 8th graders, 16 year olds.

IN-GROUP PREFERENCE The tendency for persons sharing a trait to nominate each other.

OUT-GROUP PREFERENCE The tendency for persons to nominate those who do

not share a particular trait with them.

#### Coding of Race and Ethnicity

The race and ethnicity questions in the Add Health study allowed respondents to chose multiple racial and ethnic backgrounds. In order to calculate ego-network heterogeneity measures and school-level segregation indices, we created a categorical race/ethnicity variable, using the following logic.

Respondent was classified as:

WHITE if he/she marked white as his/her only race and did not claim a Hispanic background

BLACK if he/she marked black as his/her only race and did not claim a Hispanic background

HISPANIC if he/she claimed a Hispanic background, regardless of racial background ASIAN if he/she marked Asian as their only race and did not mark Hispanic

background

OTHER all other responses

If any of the four specific racial/ethnic groups comprised less than 2 percent of the total population of a particular school, that group was recoded to OTHER for all school-level segregation indices.

#### Mathematical Conventions

The formulas used to construct all variables are provided in the variable description section of this code book, along with the appropriate references. Within formulas, **bold** typeface refers to matrices, normal typeface to scalars. Subscripts are in row-column order. Thus **D**ij refers to the cell located in the *i*th row and *j*th column of the matrix **D**.

#### Missing Data

As noted above, network measures were not calculated for schools with low response rates or for individual respondents with problematic identification numbers. Beyond these cases, particular network measures are missing for certain respondents, due to substantive or mathematical reasons. For example, the female saliency index is missing for those students who attend all- male schools. The conditions under which particular measures will be missing are outlined in the variable description section of this code book.

### PART II: Summary List of Add Health Network Variables

#### Individual-level Measures

**Basic Network Descriptors**

In-degree **DGX2**

Out-degree **ODGX2**

Number of nominations outside of school **NOUTNOM**

Number of nominations to sister school **TAB113**

Bonacich centrality,  = 0.1 **BCENT10X**

Reach **REACH**

Reach in three steps **REACH3**

Mean geodesic distance **IGDMEAN**

Proximity prestige **PRXPREST**

Influence domain (in-reach) **INFLDMN**

Ego has a best male friend **HAVEBMF**

Ego has a best female friend **HAVEBFF**

Best male friend reciprocates **BMFRECIP**

Best male friend reciprocates as best friend **BMFRECBF**

Best female friend reciprocates **BFFRECIP**

Best female friend reciprocates as best friend **BFFRECBF**

#### Ego-centered Network Measures

##### *Sociometric characteristics of ego-networks*

Ego send-network density **ESDEN**

Size of ego send-network **NES**

Ego receive-network density **ERDEN**

Size of ego receive-network **NER**

Ego send- and receive-network density **ESRDEN**

Size of ego send- and receive-network **NESR**

##### *Ego-network heterogeneity measures for grade, race, and age*

*Grade*

Ego send-network

Network heterogeneity **EHSGRD**

Proportion of grades represented **ERSNGRD**

Number of cases used to calculate heterogeneity **NEHSGRD**

Ego receive-network

Network heterogeneity **EHRGRD**

Proportion of grades represented **ERRNGRD**

Number of cases used to calculate heterogeneity.. **NEHRGRD**

Ego send- and receive-network

Network heterogeneity **EHGRD**

Proportion of grades represented **ERNGRD**

Number of cases used to calculate heterogeneity **NEHGRD**

*Race*

Ego send-network

Network heterogeneity **EHSRC5**

Proportion of races represented **ESRNRC5**

Number of cases used to calculate heterogeneity **NEHSRC5**

Egos receive-network

Network heterogeneity **EHRRC5**

Proportion of races represented **ERRNRC5**

Number of cases used to calculate heterogeneity **NEHRRC5**

Ego send- and receive-network

Network heterogeneity **EHRC5**

Proportion of races represented **ERNRC5**

Number of cases used to calculate heterogeneity **NEHRC5**

*Age*

Ego send-network

Network heterogeneity **EHSAGE**

Proportion of ages represented **ERSNAGE**

Number of cases used to calculate heterogeneity **NEHSAGE**

Ego receive-network

Network heterogeneity **EHRAGE**

Proportion of ages represented **ERRNAGE**

Number of cases used to calculate heterogeneity.. **NEHRAGE**

Ego send- and receive-network

Network heterogeneity **EHAGE**

Proportion of ages represented **ERNAGE**

Number of cases used to calculate heterogeneity **NEHAGE**

***Ego-network behavior/attribute means for in-school questionnaire items*** *(where the in-school questionnaire item number, as shown in the appendix replaces <x>.)*

Based on ego’s send-network:

Behavior/attribute mean **AXS<*x*>**

Number of alters with valid data on attribute **NAS<*x*>**

Based on ego receive-network:

Behavior/attribute mean **AXR<*x*>**

Number of alters with valid data on attribute **NAR<*x*>**

Based on ego send- and receive-network:

Behavior/attribute mean **AX<*x*>**

Number of alters with valid data on attribute **NA<*x*>**

#### School-level Measures

**Measures of Global Network Structure**

Density **DENX2** Density at maximum reach **RCHDEN**

Relative density **RELDEN**

Proportion symmetric dyads **PTCMUT**

Proportion asymmetric dyads **PTCASY**

Mutuality index **RHO2**

#### Measures of Segregation and Group Salience for Grade, Race, and Sex

Grade segregation index **SEG1S3**

7th grade salience index **SS37**

8th grade salience index **SS38**

9th grade salience index **SS39**

10th grade salience index **SS310**

11th grade salience index **SS311**

12th grade salience index **SS312**

Race segregation index **SEG1RCE5**

White salience index **SRCE51**

Black salience index **SRCE52**

Hispanic salience index **SRCE53**

Asian salience index **SRCE54**

Other salience index **SRCE55**

Sex segregation index **SEG1S2**

Male salience index **SS20**

Female salience index **SS21**

### PART III: Construction of Add Health Network Variables

#### Individual-level Measures

**Basic Network Descriptors In-degree (IDGX2)**

The number of times ego is nominated by other students in the school.

*IDGX* 2*i*

Where:

  *X ji j*

 *X ji j*

= the sum of the *i*th column of the total friendship network **X**

#### Out-degree (ODGX2)

The number of people respondent nominates in the school.

*ODGX* 2*i*

Where:

 *X ij*

*j*

  *Xij*

*j*

= the sum of the *i*th row of the total friendship network **X**

*Students were allowed to nominate up to 10 people. If a student skipped this entire section, ODGX2= 0.*

#### Number of nominations outside the school (NOUTNOM)

The number of people ego nominates from outside the school.

*NOUTNOMi*   *t*7777*i* , *t*8888*i* , *tpairedi*

Where:

t7777i = tie to student who attends neither ego’s school nor the sister school

t8888i = tie to student who attends the sister school but is not on the roster

tsisteri = tie to student who attends the sister school and is on roster

#### Number of matched nominations to sister school (TAB113)

The number of valid alters ego nominates from the sister school.

*TAB*113*i*   *tpairedi*

Where:

tpairedi = tie to student who attends the paired school

*Cases are missing if there is no sister school. Ties are omitted if they do not reference a valid student identification number.*

#### Bonacich centrality, = 0.1 (BCENT10X)

Ego’s centrality, weighted by the centrality of those to whom he/she sends ties (Bonacich 1987).

1

*BCENT*10 *X(* *,* *)i = (I*  ** *X ) X1*

Where:

 = a scaling vector

 = power weight (here = 0.1)

**I** = identity matrix

**X** = total friendship network

**1** = column of 1s

*If ODGX2 = 0 then BCENT10X =0.*

#### Reach (REACH)

Maximum number of alters ego can reach in the total friendship network.

*REACHi =*

 *Bij*

*j*

Where:

**B** is the reachability matrix of **X**

such that:

**D** = geodesic distance matrix of the total friendship network **X**

and

**B**ij = 1 if **D**ij > 0

*If ODGX2 = 0 then REACH = 0.*

#### Reach in three steps (REACH3)

A step refers to the length of a path from *i* to *j*. If *i* nominates *j* and *j* nominates *k* and *k* nominates *l*, then *i* and *l* are three steps apart. The value of the variable REACH3 is the total number of alters ego can reach in three steps.

*REACH*3*i =*

Where:

 *Bij*

*j*

**B** is a variant of the reachability matrix of **X**

such that:

**D** = geodesic distance matrix of the total friendship network **X**

and

**B**ij = 1 if 0< **D**ij <4

*If ODGX2 = 0 then REACH3=0.*

#### Mean geodesic distance (IGDMEAN)

Average path length between ego and ego’s complete set of reachable alters.

 *Dij*

*j*

*IGDMEAN i =*  *Bij*

*j*

Where:

**B** is the reachability matrix of **X**

such that

**D** = geodesic distance matrix of the total friendship network **X**

and

**B**ij = 1 if **D**ij > 0

*If ODGX2= 0 then IGDMEAN is missing.*

#### Proximity prestige (PRXPREST)

Measures the prestige of ego relative to the number of people who can reach ego (Wasserman and Faust 1994:203-205).

*I i*

*PRXPREST = (g*  *1)*

*i*  *d* (*n j* , *ni* )

*j* *Ii*

Where:

*I*i = influence domain of *i*, which is equal to the number of alters who can reach *i (see below)*

g = number of nodes in **X**

d (nj,ni) =length of the geodesic distance between actor *j* to actor *i If IDGX2 = 0 then PRXPREST is missing.*

#### Influence domain (INFLDMN)

Number of alters who can reach ego.

*INFLDMNi =*

 *B ji j*

Where:

**B** is the reachability matrix of **X**

such that:

**D** = geodesic distance matrix of the total friendship network **X**

and

**B**ij = 1 if **D**ij > 0

*If IDGX2= 0 then IGFLDMN = 0.*

#### Ego has a best male friend (HAVEBMF)

Dummy variable indicating whether ego nominated a male friend in the school as his/her best friend.

HAVEBMFi = 0 ego did not nominate a male best friend HAVEBMFi = 1 ego nominated a male best friend

#### Ego has a best female friend (HAVEBFF)

Dummy variable indicating whether ego nominated a female friend in the school as his/her best friend.

HAVEBFFi = 0 ego did not nominate a female best friend HAVEBFFi = 1 ego nominated a female best friend

#### Best male friend reciprocates (BMFRECIP)

Dummy variable indicating whether the person ego nominated as his/her best male friend nominated ego a friend.

BMFRECIPi = 0 ego’s best friend did not reciprocate a friendship

nomination

BMFRECIPi = 1 ego’s best friend reciprocated with a friendship

nomination

*If ego has no best male friend, or if the best male friend did not complete the questionnaire, BMFRECIP is missing.*

#### Best male friend reciprocates as best friend (BMFRECBF)

Dummy variable indicating whether the person ego nominated as his/her best male friend nominated ego as his best friend.

BMFRECIPi = 0 ego’s best friend did not reciprocate as best friend BMFRECIPi = 1 ego’s best friend reciprocated as best friend

*If ego has no best male friend, or if the best male friend did not complete the questionnaire, BMFRECBF is missing.*

#### Best female friend reciprocates (BFFRECIP)

Dummy variable indicating whether the person ego nominated as his/her best female friend nominated ego as any type of friend.

BFFRECIPi = 0 ego’s best friend did not reciprocate a friendship

nomination

BFFRECIPi = 1 ego’s best friend reciprocated with a friendship

nomination

*If ego has no best female friend, or if the best female friend did not complete the questionnaire, BFFRECIP is missing.*

#### Best female friend reciprocates as best friend (BFFRECBF)

Dummy variable indicating whether the person ego nominated as his/her best female friend nominated ego as her best friend.

BFFRECIPi = 0 ego’s best friend did not reciprocate as best friend BFFRECIPi = 1 ego’s best friend reciprocated as best friend

*If ego has no best female friend, or if the best female friend did not complete the questionnaire, BMFRECBF is missing.*

#### Ego-centered Network Measures

Ego-centered networks are composed of ego and a set of alters directly tied to ego. The set of alters in a particular type of ego network is defined in one of three ways: (1) those alters nominated by ego, the *ego send-network*; (2) alters nominating ego, the *ego receive-network*; or

(3) the union of ego’s send- and receive-networks (the *ego send- and receive-network*). All three types of ego networks include ties sent from any node in the network to any other node in the ego network. Thus if ego sends ties to *j* and *k*, a tie from *j* to *k* is part of ego’s send-network (as are ties from *k* to *j*, *j* to ego, and *k* to ego). We have calculated sociometric characteristics, heterogeneity measures, and attribute means for each of the three types of ego networks.

**Sociometric characteristics of ego-networks.** For each ego with valid network data, we have calculated the density and size of each of the three types of ego networks.

#### Ego send-network density (ESDEN)

Density of the network composed of ego and the set of alters nominated by ego

*S ESDENi = s*  *(s*  *1)*

Where:

**S** = total ego send-network s = number of nodes in **S**

*If ODGX2 = 0 then ESDEN is missing.*

#### Size of ego send-network (NES)

Number of alters nominated by ego, plus ego.

*NESi*  *s*

Where:

s = the number of nodes in **S**

*If ODGX2 = 0 then NES = 1.*

#### Ego receive-network density (ERDEN)

Density of the network composed of ego and the set of alters who nominate ego

 *R ERDENi = r*  *(r*  *1)*

Where:

**R** = total ego receive-network r = number of nodes in **R**

*If IDGX2 = 0 then ERDEN is missing.*

#### Size of ego receive-network (NER)

Number of alters who nominate ego, plus ego.

*NERi*  *r*

Where:

r = the number of nodes in **R**

*If IDGX2 = 0 then NER = 1.*

#### Ego send- and receive-network density (ESRDEN)

Density of the network composed of ego, the set of alters nominated by ego, and the set of alters who nominate ego.

*SR ESRDENi = sr*  *(sr*  *1)*

Where:

**SR** = total ego send- and receive-network sr = number of nodes in **SR**

*If ODGX2 = 0 and IDGX2 = 0 then ESRDEN is missing.*

#### Size of ego send- and receive-network (NESR)

Number of alters who are nominated by ego or who nominate ego, plus ego.

*NESRi*  *sr*

Where:

sr = the number of nodes in **SR**

*If ODGX2 = 0 and IDGX2 = 0 then NER = 1.*

**Ego-network heterogeneity measures for grade, race, and age.** For each of the three types of ego networks, we calculate a heterogeneity measure for three categorical attributes: grade, race, and age. Three variables are associated with each network/attribute combination: a heterogeneity score, the proportion of all traits present in the school which are represented in the ego network, and the number of nodes in the network used to calculate the heterogeneity score.

**Heterogeneity measures.** This family of variables assesses the heterogeneity of an ego network with respect to the traits of a categorical attribute. The formula used to calculate ego-network heterogeneity with respect to attribute A is:

 *n*  *A*  2 

*HETEROGENEITY*  1    *k*  

*iA en* 



1

Where:

A = the categorical attribute

Ak = the number of nodes with trait *k* in the ego network

en = the number of nodes in the ego network with valid data on A n = the total number of traits of A represented in the ego network

*HETEROGENEITYiA is missing if ego is the only member of the underlying ego network, or if all members of the ego network (including ego) have missing data on attribute A. If all members of the ego network who have valid data on attribute A share the same trait, HETEROGENEITYiA = 0.*

**Proportion of possible traits represented in ego network.** This family of variables is a measure of the sheer diversity of the ego network, with respect to the number of traits present in ego’s school.

*PROPORTIONiA*

 *ni*

*n*

*s*

Where:

A = the categorical attribute

ni = the total number of traits of A represented in the ego network ns = the total number of traits of A represented in ego’s school

*PROPORTIONiA is missing if HETEROGENEITYiA is missing.*

**Number of cases used to calculate heterogeneity.** This family of variables is a sheer count of the number of cases in the ego network with valid data on attribute A.

*NofCASESiA*  *en*

Where:

en = the number of nodes in the ego network with valid data on A

*NofCASESiA is missing if HETEROGENEITYiA is missing.*

**Variable names for heterogeneity and related measures.** Variable names are shown in the table below, where within each cell, the first variable is the heterogeneity score, the second is the proportion of traits represented, and the third is the number of cases used to calculate heterogeneity.

##### *Attribute*

|  |  |  |  |
| --- | --- | --- | --- |
| ***Type of Ego Network*** | Grade | Race | Age |
| EGO SEND-NETWORK | **EHSGRD ERSNGRD**  **NEHSGRD** | **EHSRC5 ESRNRC5**  **NEHSRC5** | **EHSAGE ERSNAGE**  **NEHSAGE** |
| EGO RECEIVE-NETWORK | **EHRGRD ERRNGRD**  **NEHRGRD** | **EHRRC5 ERRNRC5**  **NEHRRC5** | **EHRAGE ERRNAGE**  **NEHRAGE** |
| EGO SEND- AND RECEIVE-NETWORK | **EHGRD ERNGRD**  **NEHGRD** | **EHRC5 ERNRC5**  **NEHRC5** | **EHAGE ERNAGE**  **NEHAGE** |

**Ego-network behavior/attribute means for in-school questionnaire items.** For most of the behavior and attribute variables on the Add Health in-school questionnaire, means are provided for each of three types of ego networks (send, receive, and send and receive). Mean values exclude ego and any alters with missing values on the attribute or behavior variable. We also provide the number of alters in the ego network with valid data on x as a separate variable, to aid in reliability checks. Additionally, we have calculated mean values for two variables constructed from the in-school questionnaire: grade point average (GPA) and the number of extracurricular activities (NUMACT).1

**Mean values on behavior and attribute measures.** This family of variables provides the mean value of ego’s peers (defined by a particular ego network) on behavior and attribute measures from the in-school questionnaire. The range of MEANix is the same as the range of *x*.

 *x j*

*MEANix*  *nj*

Where:

*x* = the in-school behavior or attribute variable

*xj* = the value of *x* for the *j*th member of the ego network

nj = the number of nodes in the ego network with valid data on *x*

(excluding ego)

*Missing values are a function of missing values on x and the degree of the actor. If ODGX2 = 0, then all means calculated on ego’s send-network are missing. If IDGX2 = 0, then all means calculated on ego’s receive-network are missing. If both ODGX2 = 0 and IDGX2 = 0, then means calculated on ego’s send- and receive-network are missing.*

1 GPA is the mean grade across four core subjects from the in-school questionnaire (items S10a - S10d). Grades are weighted as follows: A = 4, B = 3, C = 2, D or F = 1. GPA was calculated using only valid responses.

NUMACT is the number of extra curricular activities reported by the respondent.

NUMACT is top-coded at 10, since inspection of the responses of those reporting more than 10 extra curricular activities (approximately 1 percent of the sample) appeared unreliable. For example, many of these students reported that they participated in every activity listed; others claimed to participate in every sport.

**N of alters in the ego network with valid data on x.** This family of variables reports the number of alters in the ego network with valid data on *x*.

*NofCASESix*  *ej*

Where:

ej = the number of nodes in the ego network with valid data on *x*, (excluding ego)

*NofCASESix is missing if MEANix is missing.*

**Variable names for mean values and related measures.** The conventions used to form the variable names for the mean values on the in-school behavior and attribute measures are shown in the table below. To form actual variable names, replace <*x*> by the in-school item number. A complete list of these variables is included in the Appendix.

***Behavior or Attribute x***

|  |  |  |
| --- | --- | --- |
| ***Type of Ego Network*** | Mean of alter set | N OF VALID ALTERS |
| EGO SEND-NETWORK | **AXS<*x*>** | **NAS<*x*>** |
| EGO RECEIVE-NETWORK | **AXR<*x*>** | **NAR<*x*>** |
| EGO SEND- AND  RECEIVE-NETWORK | **AX<*x*>** | **NA<*x*>** |

#### School-level Measures

School-level measures are calculated using all valid nominations from students at the school to other students at the school. All students from a single school will have the same values for all school-level measures.

#### Measures of Global Network Structure Density (DENX2)

The number of actual ties in the total friendship network divided by the number of possible ties in the total friendship network.

*DENX2 =*

Where:

 *X*

*g*  *(g*  *1)*

**X** = total friendship network g = number of nodes in **X**

#### Density at maximum reach (RCHDEN)

The proportion of all ties filled when reach maximized.

 *B RCHDEN = g*  *(g*  *1)*

Where:

**B** is the reachability matrix of **X**

such that:

**D** = geodesic distance matrix of the total friendship network **X**

and

**B**ij = 1 if **D**ij > 0

g = number of nodes in **X**

#### Relative density (RELDEN)

Observed density divided by maximum possible density given out-degree = 10.

*RELDEN = DENX2*

 

*(10*  *g) / (g*  *(g*  *1))*

Where:

g = number of nodes in the total friendship network **X**

#### Proportion symmetric dyads (PTCMUT)

Proportion of all dyads that are symmetric.

*PTCMUT = M*

*D*

Where:

M = number of mutual dyads within the total friendship network **X**

D = number of dyads within the total friendship network **X**

#### Proportion asymmetric dyads (PTCASY)

Proportion of all dyads that are asymmetric.

*PTCASY = A*

*D*

Where:

A = number of asymmetric dyads within the total friendship network **X**

D = total number of dyads within the total friendship network **X**

#### Mutuality index (RHO2)

Katz and Powell’s (1955) mutuality index. Measures the tendency for actors in a group to reciprocate choices. The index is based on the expected number of mutual dyads given a random network with the same distribution of out-ties as that observed in the data (Wasserman and Faust 1994, formula 13.14).

*RHO*2 *=*

*2* *g*  *1**2 M*  *L2 + L*

*2*

*2*

*L* *g*  *1*  *L2 + L2*

Where:

g = number of nodes in the total friendship network **X**

M = number of mutual dyads

L = sum of the out-degree of the total friendship network **X**

L2 = sum of the squares of the out-degree of the total friendship network **X**

#### Measures of Segregation and Group Salience for Grade, Race, and Sex

One useful way to compare the social structure of schools is in terms of how much students sharing categorical attributes tend to choose each other as friends. For three fundamental categorical attributes, sex, grade, and race, we have constructed measures of school-level segregation and trait-specific measures of salience. The school-level measures assess the overall level of inter-group segregation, relative to a null of random mixing across groups. The trait specific measures of salience assess the strength of the in-group preference of students with a

particular trait to choose other students with the same trait as friends (i.e., girls’ preference for girls as friends, blacks’ preference for blacks as friends, seniors’ preference for seniors as friends).

**Segregation indices.** The segregation indices are a modification of Freeman’s (1978) index; for the Add Health data, we generalize from two traits to multiple traits and allow for positive out- group preference. Segregation indices are calculated as follows:

*SEGREGATION = Expected(CrossTraitTies)*  *Observed* (*CrossTraitTies*)

*A Expected(CrossTraitTies)*

where *cross trait ties* refers to the total number of ties sent from each set of nodes sharing one trait to all nodes not sharing that trait, summed across all traits.

The expected number of *cross trait ties* is the sum of the expected values for each possible trait- trait combination, omitting ties between nodes sharing a trait. The expected number of ties sent from trait *k* to trait *l* is equal to the total number of ties sent by those with trait *k* multiplied by the probability that a tie from a node with trait *k* is sent to a node with trait *l*. This probability is a function of the relative size of the groups sharing each trait, and is calculated as:

*p( g )= gk*  *gl*

*kl*

*g*

*k*

* *(g*  1*)*

Where:

gk = the number of nodes with trait *k*

gl = the number of nodes with trait *l*

g = the number of nodes in the total friendship network **X**

Thus,

*Expected**CrossTraitTies*  *Tk*    *p**gkl* 

*k l*

Where:

Tk = total number of ties sent by those with trait k

pkl = probability that a tie from a node with trait *k* is sent to a node with trait *l*

and

*k*  *l*

The segregation index has a theoretical minimum of -1 (pure out-group preference) and a theoretical maximum of 1 (pure in-group preference, or total segregation). A value of 0 indicates no group-preference: ties are sent randomly with respect to this categorical attribute.

In general, rare traits have large influences on the segregation indices. Therefore, we required that at least 2 percent of a school’s population must have exhibited a trait before we included it in the segregation index calculations. We note, however, that 2 percent of a small school is only a few students, and therefore urge caution when using these measures.

Where applicable, we provide grade (**SEG1S3**), race (**SEG1RCE5**), and sex (**SEG1S2**) segregation indices for all schools with valid network data.

**Salience indices.** Salience indices measure trait-specific in-group preferences. We define in- group preference as the extent to which persons with a particular trait tend to nominate other persons with the same trait as their friends.

The formula used to calculate the salience index is drawn from Rytina and Morgan (1982).

*SALIENCE = tkk / Tk*

*k*

*gk /g*

Where:

k = relevant trait

tkk = number of ties sent by those with trait *k* to those with trait *k*

Tk = total number of ties sent by those with trait *k*

gk = number of nodes with trait *k*

g = total number of nodes in the network

For each school with valid network data, we provide salience indices for the following traits (variable names are in parentheses):

|  |  |  |
| --- | --- | --- |
| **GRADE** | **RACE** | **SEX** |
| 7th **(SS37)** | White **(SRCE51)** | Male **(SS20)** |
| 8th **(SS38)** | Black **(SRCE52)** | Female **(SS21)** |
| 9th **(SS39)** | Hispanic **(SRCE53)** |  |
| 10th **(SS310)** | Asian **(SRCE54)** |  |
| 11th **(SS311)** | Other **(SRCE55)** |  |
| 12th **(SS312)** |  |  |

*If less than 2 percent of the school has a particular trait, the associated salience index is set to missing. When students with the same trait do not send any ties to one another, the salience index = 0.*

### PART IV: References

Bearman, Peter S., Jo Jones, and J. Richard Udry, J. 1997. The National Longitudinal Study of Adolescent Health: Research Design. [WWW document]. URL: <http://www.cpc.unc.edu/> projects/addhealth/design.html

Bearman, Peter S. and James Moody. 1997. “Add Health Network Data.” Unpublished. Bonacich, Phililp. 1987. “Power and Centrality: A Family of Measures.” *American Journal of*

*Sociology* 92:1170-1182.

Freeman, Linton C. 1978. “Segregation in Social Networks.” *Sociological Methods and Research* 6(4):411-430.

Katz, Leo and Powell, James H. 1955. “Measurement of the Tendency Toward Reciprocation of Choice.” *Sociometry* 18:659-665.

Rytina, Steve and David L. Morgan. 1982. “The Arithmetic of Social Relations: The Interplay of Category and Network.” *American Journal of Sociology* 88:88-113.

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge and New York, Cambridge University Press.

**APPENDIX: Ordered SAS *Proc Contents* Output**

-----Variables Ordered by Position-----

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Variable | Type | Len | Pos | Label |
| 1 | AID | Char | 8 | 0 | Respondent Identifier |
| 3 | SIZE | Num | 8 | 18 | Number of questionnaires in school |
| 4 | IDGX2 | Num | 8 | 26 | In-Degree: TFN |
| 5 | ODGX2 | Num | 8 | 34 | Out-Degree: TFN |
| 6 | NOUTNOM | Num | 8 | 42 | Number of ties sent outside the school |
| 7 | TAB113 | Num | 8 | 50 | Ties: Matchable to Other School |
| 8 | BCENT10X | Num | 8 | 58 | Bonacich Centrality P=.1 |
| 9 | REACH | Num | 8 | 66 | N reachable alters: TFN |
| 10 | REACH3 | Num | 8 | 74 | N reachable alters 3 steps: TFN |
| 11 | IGDMEAN | Num | 8 | 82 | mean dist to reachable alters |
| 12 | PRXPREST | Num | 8 | 90 | Proximity Prestige |
| 13 | INFLDMN | Num | 8 | 98 | Influence Domain |
| 14 | HAVEBMF | Num | 8 | 106 | R has a Best Male Friend |
| 15 | HAVEBFF | Num | 8 | 114 | R has a best Female friend |
| 16 | BMFRECIP | Num | 8 | 122 | Best Male Frnd Recip (any) |
| 17 | BMFRECBF | Num | 8 | 130 | Best Male Frnd Recip. as BF |
| 18 | BFFRECIP | Num | 8 | 138 | Best Female Frnd Recip.(any) |
| 19 | BFFRECBF | Num | 8 | 146 | Best Female Frnd Recip as BF |
| 20 | ESDEN | Num | 8 | 154 | Density: Ego Send Net |
| 21 | NES | Num | 8 | 162 | Size: Ego Send Net |
| 22 | ERDEN | Num | 8 | 170 | Density: Ego Recieve Net |
| 23 | NER | Num | 8 | 178 | Size: Ego Recieve Net |
| 24 | ESRDEN | Num | 8 | 186 | Density: Ego S&R net |
| 25 | NESR | Num | 8 | 194 | Size: Ego Send & Recv Net |
| 26 | EHSGRD | Num | 8 | 202 | Ego SEND net Heterogeneity: GRADE |
| 27 | ERSNGRD | Num | 8 | 210 | Prop. GRD rep in ego network |
| 28 | NEHSGRD | Num | 8 | 218 | # of cases used: EHSGRD |
| 29 | EHRGRD | Num | 8 | 226 | Ego RECV net Heterogeneity: GRD |
| 30 | ERRNGRD | Num | 8 | 234 | Prop. GRD rep in ego RECV network |
| 31 | NEHRGRD | Num | 8 | 242 | # of cases used: EHRGRD |
| 32 | EHGRD | Num | 8 | 250 | Ego S&R net Heterogeneity: GRADE |
| 33 | ERNGRD | Num | 8 | 258 | Prop. GRADE rep in ego network |
| 34 | NEHGRD | Num | 8 | 266 | # of cases used: EHGRD |
| 35 | EHSRC5 | Num | 8 | 274 | Ego SEND net Heterogeneity: Race(5) |
| 36 | ESRNRC5 | Num | 8 | 282 | Prop. Race(5) rep in ego SEND network |
| 37 | NEHSRC5 | Num | 8 | 290 | # of cases used: EHSRC5 |
| 38 | EHRRC5 | Num | 8 | 298 | Ego RECV net Heterogeneity: Race(5) |
| 39 | ERRNRC5 | Num | 8 | 306 | Prop. Race(5) rep in ego RECV network |
| 40 | NEHRRC5 | Num | 8 | 314 | # of cases used: EHRRC5 |
| 41 | EHRC5 | Num | 8 | 322 | Ego S&R net Heterogeneity: Race(5) |
| 42 | ERNRC5 | Num | 8 | 330 | Prop. Race(5) rep in ego network |
| 43 | NEHRC5 | Num | 8 | 338 | # of cases used: EHRC5 |
| 44 | EHSAGE | Num | 8 | 346 | Ego SEND net Heterogeneity: AGE |
| 45 | ERSNAGE | Num | 8 | 354 | Prop. AGE rep in ego network |
| 46 | NEHSAGE | Num | 8 | 362 | # of cases used: EHSAGE |
| 47 | EHRAGE | Num | 8 | 370 | Ego RECV net Heterogeneity: AGE |
| 48 | ERRNAGE | Num | 8 | 378 | Prop. AGE rep in ego RECV network |
| 49 | NEHRAGE | Num | 8 | 386 | # of cases used: EHRAGE |
| 50 | EHAGE | Num | 8 | 394 | Ego S&R net Heterogeneity: AGE |
| 51 | ERNAGE | Num | 8 | 402 | Prop. AGE rep in ego network |
| 52 | NEHAGE | Num | 8 | 410 | # of cases used: EHAGE |
| 53 | AXSGPA | Num | 8 | 418 | Send alter mean: gpa |
| 54 | AXSNACT | Num | 8 | 426 | Send alter mean: numact |
| 55 | AXSS1 | Num | 8 | 434 | Send alter mean: s1 |
| 56 | AXSS2 | Num | 8 | 442 | Send alter mean: s2 |
| 57 | AXSS3 | Num | 8 | 450 | Send alter mean: s3 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 58 | AXSS45A | Num | 8 | 458 | Send | alter mean: s45a |
| 59 | AXSS45B | Num | 8 | 466 | Send | alter mean: s45b |
| 60 | AXSS45C | Num | 8 | 474 | Send | alter mean: s45c |
| 61 | AXSS45D | Num | 8 | 482 | Send | alter mean: s45d |
| 62 | AXSS45E | Num | 8 | 490 | Send | alter mean: s45e |
| 63 | AXSS45F | Num | 8 | 498 | Send | alter mean: s45f |
| 64 | AXSS46A | Num | 8 | 506 | Send | alter mean: s46a |
| 65 | AXSS46B | Num | 8 | 514 | Send | alter mean: s46b |
| 66 | AXSS46C | Num | 8 | 522 | Send | alter mean: s46c |
| 67 | AXSS46D | Num | 8 | 530 | Send | alter mean: s46d |
| 68 | AXSS47 | Num | 8 | 538 | Send | alter mean: s47 |
| 69 | AXSS48 | Num | 8 | 546 | Send | alter mean: s48 |
| 70 | AXSS49 | Num | 8 | 554 | Send | alter mean: s49 |
| 71 | AXSS50 | Num | 8 | 562 | Send | alter mean: s50 |
| 72 | AXSS59A | Num | 8 | 570 | Send | alter mean: s59a |
| 73 | AXSS59B | Num | 8 | 578 | Send | alter mean: s59b |
| 74 | AXSS59C | Num | 8 | 586 | Send | alter mean: s59c |
| 75 | AXSS59D | Num | 8 | 594 | Send | alter mean: s59d |
| 76 | AXSS59E | Num | 8 | 602 | Send | alter mean: s59e |
| 77 | AXSS59F | Num | 8 | 610 | Send | alter mean: s59f |
| 78 | AXSS59G | Num | 8 | 618 | Send | alter mean: s59g |
| 79 | AXSS60A | Num | 8 | 626 | Send | alter mean: s60a |
| 80 | AXSS60B | Num | 8 | 634 | Send | alter mean: s60b |
| 81 | AXSS60C | Num | 8 | 642 | Send | alter mean: s60c |
| 82 | AXSS60D | Num | 8 | 650 | Send | alter mean: s60d |
| 83 | AXSS60E | Num | 8 | 658 | Send | alter mean: s60e |
| 84 | AXSS60F | Num | 8 | 666 | Send | alter mean: s60f |
| 85 | AXSS60G | Num | 8 | 674 | Send | alter mean: s60g |
| 86 | AXSS60H | Num | 8 | 682 | Send | alter mean: s60h |
| 87 | AXSS60I | Num | 8 | 690 | Send | alter mean: s60i |
| 88 | AXSS60J | Num | 8 | 698 | Send | alter mean: s60j |
| 89 | AXSS60K | Num | 8 | 706 | Send | alter mean: s60k |
| 90 | AXSS60L | Num | 8 | 714 | Send | alter mean: s60l |
| 91 | AXSS60M | Num | 8 | 722 | Send | alter mean: s60m |
| 92 | AXSS60N | Num | 8 | 730 | Send | alter mean: s60n |
| 93 | AXSS60O | Num | 8 | 738 | Send | alter mean: s60o |
| 94 | AXSS62A | Num | 8 | 746 | Send | alter mean: s62a |
| 95 | AXSS62B | Num | 8 | 754 | Send | alter mean: s62b |
| 96 | AXSS62C | Num | 8 | 762 | Send | alter mean: s62c |
| 97 | AXSS62D | Num | 8 | 770 | Send | alter mean: s62d |
| 98 | AXSS62E | Num | 8 | 778 | Send | alter mean: s62e |
| 99 | AXSS62F | Num | 8 | 786 | Send | alter mean: s62f |
| 100 | AXSS62G | Num | 8 | 794 | Send | alter mean: s62g |
| 101 | AXSS62H | Num | 8 | 802 | Send | alter mean: s62h |
| 102 | AXSS62I | Num | 8 | 810 | Send | alter mean: s62i |
| 103 | AXSS62J | Num | 8 | 818 | Send | alter mean: s62j |
| 104 | AXSS62K | Num | 8 | 826 | Send | alter mean: s62k |
| 105 | AXSS62L | Num | 8 | 834 | Send | alter mean: s62l |
| 106 | AXSS62M | Num | 8 | 842 | Send | alter mean: s62m |
| 107 | AXSS62N | Num | 8 | 850 | Send | alter mean: s62n |
| 108 | AXSS62O | Num | 8 | 858 | Send | alter mean: s62o |
| 109 | AXSS62P | Num | 8 | 866 | Send | alter mean: s62p |
| 110 | AXSS62Q | Num | 8 | 874 | Send | alter mean: s62q |
| 111 | AXSS62R | Num | 8 | 882 | Send | alter mean: s62r |
| 112 | AXSS63 | Num | 8 | 890 | Send | alter mean: s63 |
| 113 | AXSS64 | Num | 8 | 898 | Send | alter mean: s64 |
| 114 | NASGPA | Num | 8 | 906 | Ego | Net Denominator axsgpa |
| 115 | NASNACT | Num | 8 | 914 | Ego | Net Denominator axsnact |
| 116 | NASS1 | Num | 8 | 922 | Ego | Net Denominator axss1 |
| 117 | NASS2 | Num | 8 | 930 | Ego | Net Denominator axss2 |
| 118 | NASS3 | Num | 8 | 938 | Ego | Net Denominator axss3 |
| 119 | NASS45A | Num | 8 | 946 | Ego | Net Denominator axss45a |
| 120 | NASS45B | Num | 8 | 954 | Ego | Net Denominator axss45b |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 121 | NASS45C | Num | 8 | 962 | Ego | Net | Denominator | | axss45c |
| 122 | NASS45D | Num | 8 | 970 | Ego | Net | Denominator | | axss45d |
| 123 | NASS45E | Num | 8 | 978 | Ego | Net | Denominator | | axss45e |
| 124 | NASS45F | Num | 8 | 986 | Ego | Net | Denominator | | axss45f |
| 125 | NASS46A | Num | 8 | 994 | Ego | Net | Denominator | | axss46a |
| 126 | NASS46B | Num | 8 | 1002 | Ego | Net | Denominator | | axss46b |
| 127 | NASS46C | Num | 8 | 1010 | Ego | Net | Denominator | | axss46c |
| 128 | NASS46D | Num | 8 | 1018 | Ego | Net | Denominator | | axss46d |
| 129 | NASS47 | Num | 8 | 1026 | Ego | Net | Denominator | | axss47 |
| 130 | NASS48 | Num | 8 | 1034 | Ego | Net | Denominator | | axss48 |
| 131 | NASS49 | Num | 8 | 1042 | Ego | Net | Denominator | | axss49 |
| 132 | NASS50 | Num | 8 | 1050 | Ego | Net | Denominator | | axss50 |
| 133 | NASS59A | Num | 8 | 1058 | Ego | Net | Denominator | | axss59a |
| 134 | NASS59B | Num | 8 | 1066 | Ego | Net | Denominator | | axss59b |
| 135 | NASS59C | Num | 8 | 1074 | Ego | Net | Denominator | | axss59c |
| 136 | NASS59D | Num | 8 | 1082 | Ego | Net | Denominator | | axss59d |
| 137 | NASS59E | Num | 8 | 1090 | Ego | Net | Denominator | | axss59e |
| 138 | NASS59F | Num | 8 | 1098 | Ego | Net | Denominator | | axss59f |
| 139 | NASS59G | Num | 8 | 1106 | Ego | Net | Denominator | | axss59g |
| 140 | NASS60A | Num | 8 | 1114 | Ego | Net | Denominator | | axss60a |
| 141 | NASS60B | Num | 8 | 1122 | Ego | Net | Denominator | | axss60b |
| 142 | NASS60C | Num | 8 | 1130 | Ego | Net | Denominator | | axss60c |
| 143 | NASS60D | Num | 8 | 1138 | Ego | Net | Denominator | | axss60d |
| 144 | NASS60E | Num | 8 | 1146 | Ego | Net | Denominator | | axss60e |
| 145 | NASS60F | Num | 8 | 1154 | Ego | Net | Denominator | | axss60f |
| 146 | NASS60G | Num | 8 | 1162 | Ego | Net | Denominator | | axss60g |
| 147 | NASS60H | Num | 8 | 1170 | Ego | Net | Denominator | | axss60h |
| 148 | NASS60I | Num | 8 | 1178 | Ego | Net | Denominator | | axss60i |
| 149 | NASS60J | Num | 8 | 1186 | Ego | Net | Denominator | | axss60j |
| 150 | NASS60K | Num | 8 | 1194 | Ego | Net | Denominator | | axss60k |
| 151 | NASS60L | Num | 8 | 1202 | Ego | Net | Denominator | | axss60l |
| 152 | NASS60M | Num | 8 | 1210 | Ego | Net | Denominator | | axss60m |
| 153 | NASS60N | Num | 8 | 1218 | Ego | Net | Denominator | | axss60n |
| 154 | NASS60O | Num | 8 | 1226 | Ego | Net | Denominator | | axss60o |
| 155 | NASS62A | Num | 8 | 1234 | Ego | Net | Denominator | | axss62a |
| 156 | NASS62B | Num | 8 | 1242 | Ego | Net | Denominator | | axss62b |
| 157 | NASS62C | Num | 8 | 1250 | Ego | Net | Denominator | | axss62c |
| 158 | NASS62D | Num | 8 | 1258 | Ego | Net | Denominator | | axss62d |
| 159 | NASS62E | Num | 8 | 1266 | Ego | Net | Denominator | | axss62e |
| 160 | NASS62F | Num | 8 | 1274 | Ego | Net | Denominator | | axss62f |
| 161 | NASS62G | Num | 8 | 1282 | Ego | Net | Denominator | | axss62g |
| 162 | NASS62H | Num | 8 | 1290 | Ego | Net | Denominator | | axss62h |
| 163 | NASS62I | Num | 8 | 1298 | Ego | Net | Denominator | | axss62i |
| 164 | NASS62J | Num | 8 | 1306 | Ego | Net | Denominator | | axss62j |
| 165 | NASS62K | Num | 8 | 1314 | Ego | Net | Denominator | | axss62k |
| 166 | NASS62L | Num | 8 | 1322 | Ego | Net | Denominator | | axss62l |
| 167 | NASS62M | Num | 8 | 1330 | Ego | Net | Denominator | | axss62m |
| 168 | NASS62N | Num | 8 | 1338 | Ego | Net | Denominator | | axss62n |
| 169 | NASS62O | Num | 8 | 1346 | Ego | Net | Denominator | | axss62o |
| 170 | NASS62P | Num | 8 | 1354 | Ego | Net | Denominator | | axss62p |
| 171 | NASS62Q | Num | 8 | 1362 | Ego | Net | Denominator | | axss62q |
| 172 | NASS62R | Num | 8 | 1370 | Ego | Net | Denominator | | axss62r |
| 173 | NASS63 | Num | 8 | 1378 | Ego | Net | Denominator | | axss63 |
| 174 | NASS64 | Num | 8 | 1386 | Ego | Net | Denominator | | axss64 |
| 175 | AXRGPA | Num | 8 | 1394 | Recieve | | alter | mean: | gpa |
| 176 | AXRNACT | Num | 8 | 1402 | Recieve | | alter | mean: | numact |
| 177 | AXRS1 | Num | 8 | 1410 | Recieve | | alter | mean: | s1 |
| 178 | AXRS2 | Num | 8 | 1418 | Recieve | | alter | mean: | s2 |
| 179 | AXRS3 | Num | 8 | 1426 | Recieve | | alter | mean: | s3 |
| 180 | AXRS45A | Num | 8 | 1434 | Recieve | | alter | mean: | s45a |
| 181 | AXRS45B | Num | 8 | 1442 | Recieve | | alter | mean: | s45b |
| 182 | AXRS45C | Num | 8 | 1450 | Recieve | | alter | mean: | s45c |
| 183 | AXRS45D | Num | 8 | 1458 | Recieve | | alter | mean: | s45d |

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| 184 | AXRS45E | Num | 8 | 1466 | Recieve | | alter | mean: | s45e |
| 185 | AXRS45F | Num | 8 | 1474 | Recieve | | alter | mean: | s45f |
| 186 | AXRS46A | Num | 8 | 1482 | Recieve | | alter | mean: | s46a |
| 187 | AXRS46B | Num | 8 | 1490 | Recieve | | alter | mean: | s46b |
| 188 | AXRS46C | Num | 8 | 1498 | Recieve | | alter | mean: | s46c |
| 189 | AXRS46D | Num | 8 | 1506 | Recieve | | alter | mean: | s46d |
| 190 | AXRS47 | Num | 8 | 1514 | Recieve | | alter | mean: | s47 |
| 191 | AXRS48 | Num | 8 | 1522 | Recieve | | alter | mean: | s48 |
| 192 | AXRS49 | Num | 8 | 1530 | Recieve | | alter | mean: | s49 |
| 193 | AXRS50 | Num | 8 | 1538 | Recieve | | alter | mean: | s50 |
| 194 | AXRS59A | Num | 8 | 1546 | Recieve | | alter | mean: | s59a |
| 195 | AXRS59B | Num | 8 | 1554 | Recieve | | alter | mean: | s59b |
| 196 | AXRS59C | Num | 8 | 1562 | Recieve | | alter | mean: | s59c |
| 197 | AXRS59D | Num | 8 | 1570 | Recieve | | alter | mean: | s59d |
| 198 | AXRS59E | Num | 8 | 1578 | Recieve | | alter | mean: | s59e |
| 199 | AXRS59F | Num | 8 | 1586 | Recieve | | alter | mean: | s59f |
| 200 | AXRS59G | Num | 8 | 1594 | Recieve | | alter | mean: | s59g |
| 201 | AXRS60A | Num | 8 | 1602 | Recieve | | alter | mean: | s60a |
| 202 | AXRS60B | Num | 8 | 1610 | Recieve | | alter | mean: | s60b |
| 203 | AXRS60C | Num | 8 | 1618 | Recieve | | alter | mean: | s60c |
| 204 | AXRS60D | Num | 8 | 1626 | Recieve | | alter | mean: | s60d |
| 205 | AXRS60E | Num | 8 | 1634 | Recieve | | alter | mean: | s60e |
| 206 | AXRS60F | Num | 8 | 1642 | Recieve | | alter | mean: | s60f |
| 207 | AXRS60G | Num | 8 | 1650 | Recieve | | alter | mean: | s60g |
| 208 | AXRS60H | Num | 8 | 1658 | Recieve | | alter | mean: | s60h |
| 209 | AXRS60I | Num | 8 | 1666 | Recieve | | alter | mean: | s60i |
| 210 | AXRS60J | Num | 8 | 1674 | Recieve | | alter | mean: | s60j |
| 211 | AXRS60K | Num | 8 | 1682 | Recieve | | alter | mean: | s60k |
| 212 | AXRS60L | Num | 8 | 1690 | Recieve | | alter | mean: | s60l |
| 213 | AXRS60M | Num | 8 | 1698 | Recieve | | alter | mean: | s60m |
| 214 | AXRS60N | Num | 8 | 1706 | Recieve | | alter | mean: | s60n |
| 215 | AXRS60O | Num | 8 | 1714 | Recieve | | alter | mean: | s60o |
| 216 | AXRS62A | Num | 8 | 1722 | Recieve | | alter | mean: | s62a |
| 217 | AXRS62B | Num | 8 | 1730 | Recieve | | alter | mean: | s62b |
| 218 | AXRS62C | Num | 8 | 1738 | Recieve | | alter | mean: | s62c |
| 219 | AXRS62D | Num | 8 | 1746 | Recieve | | alter | mean: | s62d |
| 220 | AXRS62E | Num | 8 | 1754 | Recieve | | alter | mean: | s62e |
| 221 | AXRS62F | Num | 8 | 1762 | Recieve | | alter | mean: | s62f |
| 222 | AXRS62G | Num | 8 | 1770 | Recieve | | alter | mean: | s62g |
| 223 | AXRS62H | Num | 8 | 1778 | Recieve | | alter | mean: | s62h |
| 224 | AXRS62I | Num | 8 | 1786 | Recieve | | alter | mean: | s62i |
| 225 | AXRS62J | Num | 8 | 1794 | Recieve | | alter | mean: | s62j |
| 226 | AXRS62K | Num | 8 | 1802 | Recieve | | alter | mean: | s62k |
| 227 | AXRS62L | Num | 8 | 1810 | Recieve | | alter | mean: | s62l |
| 228 | AXRS62M | Num | 8 | 1818 | Recieve | | alter | mean: | s62m |
| 229 | AXRS62N | Num | 8 | 1826 | Recieve | | alter | mean: | s62n |
| 230 | AXRS62O | Num | 8 | 1834 | Recieve | | alter | mean: | s62o |
| 231 | AXRS62P | Num | 8 | 1842 | Recieve | | alter | mean: | s62p |
| 232 | AXRS62Q | Num | 8 | 1850 | Recieve | | alter | mean: | s62q |
| 233 | AXRS62R | Num | 8 | 1858 | Recieve | | alter | mean: | s62r |
| 234 | AXRS63 | Num | 8 | 1866 | Recieve | | alter | mean: | s63 |
| 235 | AXRS64 | Num | 8 | 1874 | Recieve | | alter | mean: | s64 |
| 236 | NARGPA | Num | 8 | 1882 | Ego | Net | Denominator | | axrgpa |
| 237 | NARNACT | Num | 8 | 1890 | Ego | Net | Denominator | | axrnact |
| 238 | NARS1 | Num | 8 | 1898 | Ego | Net | Denominator | | axrs1 |
| 239 | NARS2 | Num | 8 | 1906 | Ego | Net | Denominator | | axrs2 |
| 240 | NARS3 | Num | 8 | 1914 | Ego | Net | Denominator | | axrs3 |
| 241 | NARS45A | Num | 8 | 1922 | Ego | Net | Denominator | | axrs45a |
| 242 | NARS45B | Num | 8 | 1930 | Ego | Net | Denominator | | axrs45b |
| 243 | NARS45C | Num | 8 | 1938 | Ego | Net | Denominator | | axrs45c |
| 244 | NARS45D | Num | 8 | 1946 | Ego | Net | Denominator | | axrs45d |
| 245 | NARS45E | Num | 8 | 1954 | Ego | Net | Denominator | | axrs45e |
| 246 | NARS45F | Num | 8 | 1962 | Ego | Net | Denominator | | axrs45f |

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| 247 | NARS46A | Num | 8 | 1970 | Ego | Net Denominator axrs46a |
| 248 | NARS46B | Num | 8 | 1978 | Ego | Net Denominator axrs46b |
| 249 | NARS46C | Num | 8 | 1986 | Ego | Net Denominator axrs46c |
| 250 | NARS46D | Num | 8 | 1994 | Ego | Net Denominator axrs46d |
| 251 | NARS47 | Num | 8 | 2002 | Ego | Net Denominator axrs47 |
| 252 | NARS48 | Num | 8 | 2010 | Ego | Net Denominator axrs48 |
| 253 | NARS49 | Num | 8 | 2018 | Ego | Net Denominator axrs49 |
| 254 | NARS50 | Num | 8 | 2026 | Ego | Net Denominator axrs50 |
| 255 | NARS59A | Num | 8 | 2034 | Ego | Net Denominator axrs59a |
| 256 | NARS59B | Num | 8 | 2042 | Ego | Net Denominator axrs59b |
| 257 | NARS59C | Num | 8 | 2050 | Ego | Net Denominator axrs59c |
| 258 | NARS59D | Num | 8 | 2058 | Ego | Net Denominator axrs59d |
| 259 | NARS59E | Num | 8 | 2066 | Ego | Net Denominator axrs59e |
| 260 | NARS59F | Num | 8 | 2074 | Ego | Net Denominator axrs59f |
| 261 | NARS59G | Num | 8 | 2082 | Ego | Net Denominator axrs59g |
| 262 | NARS60A | Num | 8 | 2090 | Ego | Net Denominator axrs60a |
| 263 | NARS60B | Num | 8 | 2098 | Ego | Net Denominator axrs60b |
| 264 | NARS60C | Num | 8 | 2106 | Ego | Net Denominator axrs60c |
| 265 | NARS60D | Num | 8 | 2114 | Ego | Net Denominator axrs60d |
| 266 | NARS60E | Num | 8 | 2122 | Ego | Net Denominator axrs60e |
| 267 | NARS60F | Num | 8 | 2130 | Ego | Net Denominator axrs60f |
| 268 | NARS60G | Num | 8 | 2138 | Ego | Net Denominator axrs60g |
| 269 | NARS60H | Num | 8 | 2146 | Ego | Net Denominator axrs60h |
| 270 | NARS60I | Num | 8 | 2154 | Ego | Net Denominator axrs60i |
| 271 | NARS60J | Num | 8 | 2162 | Ego | Net Denominator axrs60j |
| 272 | NARS60K | Num | 8 | 2170 | Ego | Net Denominator axrs60k |
| 273 | NARS60L | Num | 8 | 2178 | Ego | Net Denominator axrs60l |
| 274 | NARS60M | Num | 8 | 2186 | Ego | Net Denominator axrs60m |
| 275 | NARS60N | Num | 8 | 2194 | Ego | Net Denominator axrs60n |
| 276 | NARS60O | Num | 8 | 2202 | Ego | Net Denominator axrs60o |
| 277 | NARS62A | Num | 8 | 2210 | Ego | Net Denominator axrs62a |
| 278 | NARS62B | Num | 8 | 2218 | Ego | Net Denominator axrs62b |
| 279 | NARS62C | Num | 8 | 2226 | Ego | Net Denominator axrs62c |
| 280 | NARS62D | Num | 8 | 2234 | Ego | Net Denominator axrs62d |
| 281 | NARS62E | Num | 8 | 2242 | Ego | Net Denominator axrs62e |
| 282 | NARS62F | Num | 8 | 2250 | Ego | Net Denominator axrs62f |
| 283 | NARS62G | Num | 8 | 2258 | Ego | Net Denominator axrs62g |
| 284 | NARS62H | Num | 8 | 2266 | Ego | Net Denominator axrs62h |
| 285 | NARS62I | Num | 8 | 2274 | Ego | Net Denominator axrs62i |
| 286 | NARS62J | Num | 8 | 2282 | Ego | Net Denominator axrs62j |
| 287 | NARS62K | Num | 8 | 2290 | Ego | Net Denominator axrs62k |
| 288 | NARS62L | Num | 8 | 2298 | Ego | Net Denominator axrs62l |
| 289 | NARS62M | Num | 8 | 2306 | Ego | Net Denominator axrs62m |
| 290 | NARS62N | Num | 8 | 2314 | Ego | Net Denominator axrs62n |
| 291 | NARS62O | Num | 8 | 2322 | Ego | Net Denominator axrs62o |
| 292 | NARS62P | Num | 8 | 2330 | Ego | Net Denominator axrs62p |
| 293 | NARS62Q | Num | 8 | 2338 | Ego | Net Denominator axrs62q |
| 294 | NARS62R | Num | 8 | 2346 | Ego | Net Denominator axrs62r |
| 295 | NARS63 | Num | 8 | 2354 | Ego | Net Denominator axrs63 |
| 296 | NARS64 | Num | 8 | 2362 | Ego | Net Denominator axrs64 |
| 297 | AXGPA | Num | 8 | 2370 | S&R | alter mean: gpa |
| 298 | AXNUMACT | Num | 8 | 2378 | S&R | alter mean: numact |
| 299 | AXS1 | Num | 8 | 2386 | S&R | alter mean: s1 |
| 300 | AXS2 | Num | 8 | 2394 | S&R | alter mean: s2 |
| 301 | AXS3 | Num | 8 | 2402 | S&R | alter mean: s3 |
| 302 | AXS45A | Num | 8 | 2410 | S&R | alter mean: s45a |
| 303 | AXS45B | Num | 8 | 2418 | S&R | alter mean: s45b |
| 304 | AXS45C | Num | 8 | 2426 | S&R | alter mean: s45c |
| 305 | AXS45D | Num | 8 | 2434 | S&R | alter mean: s45d |
| 306 | AXS45E | Num | 8 | 2442 | S&R | alter mean: s45e |
| 307 | AXS45F | Num | 8 | 2450 | S&R | alter mean: s45f |
| 308 | AXS46A | Num | 8 | 2458 | S&R | alter mean: s46a |
| 309 | AXS46B | Num | 8 | 2466 | S&R | alter mean: s46b |

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| 310 | AXS46C | Num | 8 | 2474 | S&R | alter mean: s46c |  |
| 311 | AXS46D | Num | 8 | 2482 | S&R | alter mean: s46d |
| 312 | AXS47 | Num | 8 | 2490 | S&R | alter mean: s47 |
| 313 | AXS48 | Num | 8 | 2498 | S&R | alter mean: s48 |
| 314 | AXS49 | Num | 8 | 2506 | S&R | alter mean: s49 |
| 315 | AXS50 | Num | 8 | 2514 | S&R | alter mean: s50 |
| 316 | AXS59A | Num | 8 | 2522 | S&R | alter mean: s59a |
| 317 | AXS59B | Num | 8 | 2530 | S&R | alter mean: s59b |
| 318 | AXS59C | Num | 8 | 2538 | S&R | alter mean: s59c |
| 319 | AXS59D | Num | 8 | 2546 | S&R | alter mean: s59d |
| 320 | AXS59E | Num | 8 | 2554 | S&R | alter mean: s59e |
| 321 | AXS59F | Num | 8 | 2562 | S&R | alter mean: s59f |
| 322 | AXS59G | Num | 8 | 2570 | S&R | alter mean: s59g |
| 323 | AXS60A | Num | 8 | 2578 | S&R | alter mean: s60a |
| 324 | AXS60B | Num | 8 | 2586 | S&R | alter mean: s60b |
| 325 | AXS60C | Num | 8 | 2594 | S&R | alter mean: s60c |
| 326 | AXS60D | Num | 8 | 2602 | S&R | alter mean: s60d |
| 327 | AXS60E | Num | 8 | 2610 | S&R | alter mean: s60e |
| 328 | AXS60F | Num | 8 | 2618 | S&R | alter mean: s60f |
| 329 | AXS60G | Num | 8 | 2626 | S&R | alter mean: s60g |
| 330 | AXS60H | Num | 8 | 2634 | S&R | alter mean: s60h |
| 331 | AXS60I | Num | 8 | 2642 | S&R | alter mean: s60i |
| 332 | AXS60J | Num | 8 | 2650 | S&R | alter mean: s60j |
| 333 | AXS60K | Num | 8 | 2658 | S&R | alter mean: s60k |
| 334 | AXS60L | Num | 8 | 2666 | S&R | alter mean: s60l |
| 335 | AXS60M | Num | 8 | 2674 | S&R | alter mean: s60m |
| 336 | AXS60N | Num | 8 | 2682 | S&R | alter mean: s60n |
| 337 | AXS60O | Num | 8 | 2690 | S&R | alter mean: s60o |
| 338 | AXS62A | Num | 8 | 2698 | S&R | alter mean: s62a |
| 339 | AXS62B | Num | 8 | 2706 | S&R | alter mean: s62b |
| 340 | AXS62C | Num | 8 | 2714 | S&R | alter mean: s62c |
| 341 | AXS62D | Num | 8 | 2722 | S&R | alter mean: s62d |
| 342 | AXS62E | Num | 8 | 2730 | S&R | alter mean: s62e |
| 343 | AXS62F | Num | 8 | 2738 | S&R | alter mean: s62f |
| 344 | AXS62G | Num | 8 | 2746 | S&R | alter mean: s62g |
| 345 | AXS62H | Num | 8 | 2754 | S&R | alter mean: s62h |
| 346 | AXS62I | Num | 8 | 2762 | S&R | alter mean: s62i |
| 347 | AXS62J | Num | 8 | 2770 | S&R | alter mean: s62j |
| 348 | AXS62K | Num | 8 | 2778 | S&R | alter mean: s62k |
| 349 | AXS62L | Num | 8 | 2786 | S&R | alter mean: s62l |
| 350 | AXS62M | Num | 8 | 2794 | S&R | alter mean: s62m |
| 351 | AXS62N | Num | 8 | 2802 | S&R | alter mean: s62n |
| 352 | AXS62O | Num | 8 | 2810 | S&R | alter mean: s62o |
| 353 | AXS62P | Num | 8 | 2818 | S&R | alter mean: s62p |
| 354 | AXS62Q | Num | 8 | 2826 | S&R | alter mean: s62q |
| 355 | AXS62R | Num | 8 | 2834 | S&R | alter mean: s62r |
| 356 | AXS63 | Num | 8 | 2842 | S&R | alter mean: s63 |
| 357 | AXS64 | Num | 8 | 2850 | S&R | alter mean: s64 |
| 358 | NAGPA | Num | 8 | 2858 | Ego | Net Denominator | axgpa |
| 359 | NANUMACT | Num | 8 | 2866 | Ego | Net Denominator | axnumact |
| 360 | NAS1 | Num | 8 | 2874 | Ego | Net Denominator | axs1 |
| 361 | NAS2 | Num | 8 | 2882 | Ego | Net Denominator | axs2 |
| 362 | NAS3 | Num | 8 | 2890 | Ego | Net Denominator | axs3 |
| 363 | NAS45A | Num | 8 | 2898 | Ego | Net Denominator | axs45a |
| 364 | NAS45B | Num | 8 | 2906 | Ego | Net Denominator | axs45b |
| 365 | NAS45C | Num | 8 | 2914 | Ego | Net Denominator | axs45c |
| 366 | NAS45D | Num | 8 | 2922 | Ego | Net Denominator | axs45d |
| 367 | NAS45E | Num | 8 | 2930 | Ego | Net Denominator | axs45e |
| 368 | NAS45F | Num | 8 | 2938 | Ego | Net Denominator | axs45f |
| 369 | NAS46A | Num | 8 | 2946 | Ego | Net Denominator | axs46a |
| 370 | NAS46B | Num | 8 | 2954 | Ego | Net Denominator | axs46b |
| 371 | NAS46C | Num | 8 | 2962 | Ego | Net Denominator | axs46c |
| 372 | NAS46D | Num | 8 | 2970 | Ego | Net Denominator | axs46d |

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| 373 | NAS47 | Num | 8 | 2978 | Ego | Net | Denominator | axs47 |
| 374 | NAS48 | Num | 8 | 2986 | Ego | Net | Denominator | axs48 |
| 375 | NAS49 | Num | 8 | 2994 | Ego | Net | Denominator | axs49 |
| 376 | NAS50 | Num | 8 | 3002 | Ego | Net | Denominator | axs50 |
| 377 | NAS59A | Num | 8 | 3010 | Ego | Net | Denominator | axs59a |
| 378 | NAS59B | Num | 8 | 3018 | Ego | Net | Denominator | axs59b |
| 379 | NAS59C | Num | 8 | 3026 | Ego | Net | Denominator | axs59c |
| 380 | NAS59D | Num | 8 | 3034 | Ego | Net | Denominator | axs59d |
| 381 | NAS59E | Num | 8 | 3042 | Ego | Net | Denominator | axs59e |
| 382 | NAS59F | Num | 8 | 3050 | Ego | Net | Denominator | axs59f |
| 383 | NAS59G | Num | 8 | 3058 | Ego | Net | Denominator | axs59g |
| 384 | NAS60A | Num | 8 | 3066 | Ego | Net | Denominator | axs60a |
| 385 | NAS60B | Num | 8 | 3074 | Ego | Net | Denominator | axs60b |
| 386 | NAS60C | Num | 8 | 3082 | Ego | Net | Denominator | axs60c |
| 387 | NAS60D | Num | 8 | 3090 | Ego | Net | Denominator | axs60d |
| 388 | NAS60E | Num | 8 | 3098 | Ego | Net | Denominator | axs60e |
| 389 | NAS60F | Num | 8 | 3106 | Ego | Net | Denominator | axs60f |
| 390 | NAS60G | Num | 8 | 3114 | Ego | Net | Denominator | axs60g |
| 391 | NAS60H | Num | 8 | 3122 | Ego | Net | Denominator | axs60h |
| 392 | NAS60I | Num | 8 | 3130 | Ego | Net | Denominator | axs60i |
| 393 | NAS60J | Num | 8 | 3138 | Ego | Net | Denominator | axs60j |
| 394 | NAS60K | Num | 8 | 3146 | Ego | Net | Denominator | axs60k |
| 395 | NAS60L | Num | 8 | 3154 | Ego | Net | Denominator | axs60l |
| 396 | NAS60M | Num | 8 | 3162 | Ego | Net | Denominator | axs60m |
| 397 | NAS60N | Num | 8 | 3170 | Ego | Net | Denominator | axs60n |
| 398 | NAS60O | Num | 8 | 3178 | Ego | Net | Denominator | axs60o |
| 399 | NAS62A | Num | 8 | 3186 | Ego | Net | Denominator | axs62a |
| 400 | NAS62B | Num | 8 | 3194 | Ego | Net | Denominator | axs62b |
| 401 | NAS62C | Num | 8 | 3202 | Ego | Net | Denominator | axs62c |
| 402 | NAS62D | Num | 8 | 3210 | Ego | Net | Denominator | axs62d |
| 403 | NAS62E | Num | 8 | 3218 | Ego | Net | Denominator | axs62e |
| 404 | NAS62F | Num | 8 | 3226 | Ego | Net | Denominator | axs62f |
| 405 | NAS62G | Num | 8 | 3234 | Ego | Net | Denominator | axs62g |
| 406 | NAS62H | Num | 8 | 3242 | Ego | Net | Denominator | axs62h |
| 407 | NAS62I | Num | 8 | 3250 | Ego | Net | Denominator | axs62i |
| 408 | NAS62J | Num | 8 | 3258 | Ego | Net | Denominator | axs62j |
| 409 | NAS62K | Num | 8 | 3266 | Ego | Net | Denominator | axs62k |
| 410 | NAS62L | Num | 8 | 3274 | Ego | Net | Denominator | axs62l |
| 411 | NAS62M | Num | 8 | 3282 | Ego | Net | Denominator | axs62m |
| 412 | NAS62N | Num | 8 | 3290 | Ego | Net | Denominator | axs62n |
| 413 | NAS62O | Num | 8 | 3298 | Ego | Net | Denominator | axs62o |
| 414 | NAS62P | Num | 8 | 3306 | Ego | Net | Denominator | axs62p |
| 415 | NAS62Q | Num | 8 | 3314 | Ego | Net | Denominator | axs62q |
| 416 | NAS62R | Num | 8 | 3322 | Ego | Net | Denominator | axs62r |
| 417 | NAS63 | Num | 8 | 3330 | Ego | Net | Denominator | axs63 |
| 418 | NAS64 | Num | 8 | 3338 | Ego | Net | Denominator | axs64 |
| 419 | DENX2 | Num | 8 | 3346 | Total Network Density: TFN | | | |
| 420 | RCHDEN | Num | 8 | 3354 | Density at maximum Reach | | | |
| 421 | RELDEN | Num | 8 | 3362 | Density/Max Pos. Den | | | |
| 422 | PCTMUT | Num | 8 | 3370 | PCT dyads mutual | | | |
| 423 | PCTASY | Num | 8 | 3378 | Pct dyads Asysmetric | | | |
| 424 | RHO2 | Num | 8 | 3386 | Katz and Powells Mutuality index | | | |
| 425 | SEG1S3 | Num | 8 | 3394 | Freeman Seg Index: Grade | | | |
| 426 | SS37 | Num | 8 | 3402 | Saliency Index: Grade=7 | | | |
| 427 | SS38 | Num | 8 | 3410 | Saliency Index: Grade=8 | | | |
| 428 | SS39 | Num | 8 | 3418 | Saliency Index: Grade=9 | | | |
| 429 | SS310 | Num | 8 | 3426 | Saliency Index: Grade=10 | | | |
| 430 | SS311 | Num | 8 | 3434 | Saliency Index: Grade=11 | | | |
| 431 | SS312 | Num | 8 | 3442 | Saliency Index: Grade=12 | | | |
| 432 | SEG1RCE5 | Num | 8 | 3450 | Freeman Seg Index: Race/Ethnic(5) | | | |
| 433 | SRCE51 | Num | 8 | 3458 | Saliency Index: Race(5)=White | | | |
| 434 | SRCE52 | Num | 8 | 3466 | Saliency Index: Race(5)=Black | | | |
| 435 | SRCE53 | Num | 8 | 3474 | Saliency Index: Race(5)=Hispanic | | | |

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| --- | --- | --- | --- | --- | --- |
| 436 | SRCE54 | Num | 8 | 3482 | Saliency Index: race(5)=Asian |
| 437 | SRCE55 | Num | 8 | 3490 | Saliency Index: Race(5)=Other |
| 438 | SEG1S2 | Num | 8 | 3498 | Freeman Seg Index: Gender (1=Fem) |
| 439 | SS20 | Num | 8 | 3506 | Saliency Index: Gender=Male |
| 440 | SS21 | Num | 8 | 3514 | Saliency Index: Gender=Female |

#### Additional Information about the Constructed Network Variables

Some of the in-school variables used in constructing the network measures were re-coded before the network measures were calculated. Because of this, the values for the in-school variables will not be comparable to the corresponding values of the calculated network measures.

The recoded in-school variables are:

|  |  |  |
| --- | --- | --- |
| In-school  variable name | Codes from in-school questionnaire | Codes used to construct the  network measures |
| S2 \* | 1 = male  2 = female | recoded to:  0 = male  1 = female |
| S48 | 1 = I try very hard to do my best.  2 = I try hard enough, but not as hard as I could.  3 = I don’t try very hard.  4 = I never try at all. | reversed the codes to:  1 = I never try at all.  2 = I don’t try very hard.  3 = I try hard enough, but not as hard as I could.  4 = I try very hard to do my best. |
| S49 | 0 = no  1 = yes | recoded to:  1 = yes  2 = no |
| S62a to S62r | 1 = strongly agree  2 = agree  3 = neither agree or disagree  4 = disagree  5 = strongly disagree | reversed the codes to:  1 = strongly disagree  2 = disagree  3 = neither agree or disagree  4 = agree  5 = strongly agree |

Algorithm for recoding the network variables so they match the in-school variables:

1. Subtract (1 + highest value of the Add Health variable) from the network measure to make the network measure correspond to the in-school value of the variable.
2. Example: mean of S48 before recoding = 1.7632006 mean of S48 after reverse coding = 3.237994

highest value of unrecoded S48 = 4 highest value of S48 + 1 = 5

5 - 3.237994 = 1.7632006 gives you the same value as before recoding.

\* Does not need to be recoded but the user should be aware of the differences in codes.