

### NDAR Big Data Realities

Dan Hall Manager, National Database for Autism Research. NIMH



# Why Should Anyone Care About Big Data?

- Genomics studies have allowed great strides in uncovering the basis for a number of diseases that are caused by a mutation to a single gene.
- For complex diseases (multiple genes involved and may have an environmental component as well), neither genomics nor imaging (MRI) have been very successful at finding biomarkers that have a strong correlation to diagnosis or treatment.
- For many complex diseases a single diagnosis (diabetes, schizophrenia...) really covers a wide range of diseases that share some symptoms.

**Potential Solutions:** 

- Continued experiments to uncover the basic biology.
- Combining data from experiments in multiple laboratories with continuous aggregation of data across modalities and results



### **National Database For Autism Research**

- NDAR is trying to solve a hard problem:
  - The data in NDAR come from multiple laboratories and are measured for different purposes.
  - There are many data collection instruments that measure similar clinical criteria.
  - There are a number of cases where the same individual is seen in multiple different laboratories.
  - There are other significant databases with autism data.



### **National Database for Autism Research**

- Joint initiative supported by NIMH, NICHD, NINDS, and NIEHS
  - Federal data repository
  - Contains data from human subjects related to autism (and control subjects)
  - Data are available to the research community through a not too difficult application process
  - Summary data are available to everyone with a browser at <u>http://ndar.nih.gov</u>
- Begun in late 2006, first data was received in 2008, significant data became available in 2012.
- Autism Interagency Coordinating Committee Recommendation called for 90% of all human subjects data to be shared.
- Currently has broad data available from over 77,000 subjects from demographic data, -omic (~400TB), clinical assessments, imaging data, eye tracking, exposure



# **NDAR: Implementation**

- NDAR has deep federation with the following data repositories allowing NDAR to query data controlled by others.
  - Autism Tissue Program
  - Autism Genetic Resource Exchange
  - Interactive Autism Network
  - Simons Foundation Autism Research Initiative
- Generally, NIH funded investigators are expected to share their data via NDAR ongoing for data <u>"about"</u> research subjects and at time of publication on <u>"findings</u>". Investigators with funding from other sources are welcome to deposit their data.
- Over 100 studies have registered data, and more than 150 are expected to share data.
- NDAR has two key features to allow data standardization and aggregation: data dictionaries and the Global Unique Identifier (GUID)



# **Global Unique Identifier**

- The NDAR GUID software allows any researcher to generate a unique identifier using some information from a birth certificate.
- If the same information is entered in different laboratories, the same GUID will be generated.
- This strategy allows NDAR to aggregate data on the same subject collected in multiple laboratories without holding any of the personally identifiable information about that subject.
- The GUID is now being used in other research communities and can be made available to you.





# **Data Dictionary**

- The NDAR data dictionary is one of the key building blocks for this repository. It provides a flexible and extensible framework for data definition by the research community.
- 400+ instruments, freely available to anyone
  - 60,000+ unique data elements and growing
  - A research community platform for defining the complex language characterizing autism research
    - Clinical
    - Genomics/Proteomics
    - Imaging Modalities
- Accommodates any data type and data structure
- Extended and enhanced by the ASD research community
- Curated by NDAR
- Allows investigators to quickly perform quality control tests
- <sup>7</sup> of their data without submitting data anywhere.



| NIH NDAR National Database<br>for Autism Research<br>Serving the autism research community |          |        |  |                               |                                   |                                      |           |         |               |           |                        |         |
|--|----------|--------|--|-------------------------------|-----------------------------------|--------------------------------------|-----------|---------|---------------|-----------|------------------------|---------|
| Home   | Quer     | ry     | Harmonization Tools                        | Cloud                         | Contribute                        | Request Acce                         | ess P     | olicy   | Tutorials     | About     | FAQ                    |         |
| Data [   | Dictiona | ary    | Resolve Subject                            | Identifie                     | rs Harm                           | ionization Star                      | ndards    |         |               |           |                        |         |
| Listed be  | elow are | e the  | data structures suppo                      | rting NDA                     | R's autism da                     | ata definition. To                   | see ot    | her def | initions in N | IDAR, sel | ect Source. Select     | Categor |
| Type:  |          |        | So<br>V                                    | urce:                         |                                   | Categ                                | ory:      |         | T             |           |                        |         |
|  |          |        | TITLE                                      | 2741                          |                                   | - Diagn                              | 0540      |         |               |           | SHORT NA               | ME      |
| Downlo   | ad 🛛     | Filter | Adapted ADOS Mod                           | lule 1                        |                                   |                                      |           |         |               |           | aados_m10              | 1       |
| Downlo   | ad li    | Filter | Adapted ADOS Mod                           | lule 2                        |                                   |                                      |           |         |               |           | aados_m20              | 1       |
| Downlo   | ad li    | Filter | Autism Diagnostic I                        | nterview                      | - Cumulative                      |                                      |           |         |               |           | adi_c02                |         |
| Downlo   | ad li    | Filter | Autism Diagnostic I                        | nterview                      | , Rev (ADI-R)                     | ) Toddler 2004                       |           |         |               |           | adir_t_2004            | 401     |
| Downlo   | ad li    | Filter | Autism Diagnostic I                        | nterview                      | , Rev (ADI-R)                     | Toddley 200                          |           |         |               |           | adir_t_2006            | 503     |
| Downlo   | ad li    | Filter | Autism Diagnostic I                        | nterview                      | , Revised (AD                     | DI-R)                                |           |         |               |           | adi_200304             |         |
|  | _        |        | Autism Diagnostic I                        | nterview                      | -Questionnair                     | <u>e</u>                             |           |         |               |           | adi_q01                |         |
| Downlo   |          | Filtor | Autism Diagnostic I<br>Autism Diagnostic ( | <u>nterview</u>               | <u>-Screener</u><br>on Schedule I | (ADOS) Toddler                       |           |         |               |           | adi_s01                |         |
| Downlo   |          | Filter | Autism Diagnostic (                        | <u>Dheervati</u>              | on Schedule .                     | - Module 1                           |           |         |               |           | ados1_2001             | 102     |
| Downlo   |          | Filter | Autism Diagnostic (                        | <u>Dheervati</u>              | on Schedule -                     | - <u>Module 1</u><br>- Module 1 (200 | 7)        |         |               |           | ados1_2003             | 701     |
| Downlo   |          | Filter | Autism Diagnostic (                        | <u>Dheenvati</u>              | on Schedule -                     | - Module 2                           | 4         |         |               |           | ados1_2007             | 102     |
| Downio   |          | Filter | Autism Diagnostic (                        | <u>Deenvati</u>               | on Schedule                       | Medule 2 (200                        | 7)        |         |               |           | ados2_2003             | 701     |
| Downio   | ad       | Filter | Autism Diagnostic (                        | Diservati                     | on Schedule -                     | Madula 2 (200                        | 4         |         |               |           | ados2_2007             | 102     |
| Downlo   | au       | riiter | Autism Diagnostic (                        | Diservati                     | on Schedule                       | Madula 2 (200                        | 7)        |         |               |           | ados3_2001             | 201     |
| Downlo   | ad       | Filter | Autism Diagnostic (                        | Deservati                     | on Schedule                       | Madula 4                             | <u>//</u> |         |               |           | ados3_2007             | 102     |
| Downlo   | ad       | Filter | Autism Diagnostic (                        | <u>Observati</u><br>Observati | on Schedule -                     | - Module 4<br>-Change                |           |         |               |           | ados4_2001<br>ados c01 | 102     |

Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2) - Module 1

Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2) - Module 2

Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2) - Module 3

ados1\_201201

ados2\_201201

ados3\_201201

Filter

Bownload

NIH

| ElementName    |        | DataType | Size | Required    | Condition  | ElementDescription  | ValueRange |
|----------------|--------|----------|------|-------------|--|---|------------|
| subjectkey     | (      | GUID     |      | Required    |  | The NDAR Global Unique<br>Identifier (GUID) for subjects<br>which identifies a subject in<br>NDAR | NDAR*      |
|                |        |          |      |             |  |   |            |
| interview_age  | Filter | Integer  |      | Required    |  | Age in months at the time of the<br>interview/test/sampling/imaging.                              | 0 :: 1200  |
| comments_misc  |        | String   | 1000 | Optional    |  | Miscellaneous comments on<br>study, interview, methodology<br>relevant to this form data          |            |
| method_adi     | Filter | Integer  |      | Required    |  | Method of ADI-R   | 1::3       |
| bkgrnd_med     |        | String   | 255  | Recommended |  | Medication  |            |
| dbaes_atotal   | Filter | Integer  |      | Conditional | #method_adi=1    #method_adi=3   | Total for Section A: Qualitative<br>Abnormalities in Reciprocal<br>Social Interaction             | 0::30; 999 |
| dbaes_bnvtotal | Filter | Integer  |      | Conditional | #subject_verbal='No'&&#method_adi=1<br>  <br>#subject_verbal='No'&&#method_adi=3</td><td>Total of Section B - Non-Verbal:<br>Qualitative Abnormalities in<br>Communication</td><td>0::20; 999</td></tr><tr><td>dbaes_bvtotal</td><td>Filter</td><td>Integer</td><td></td><td>Conditional</td><td>#subject_verbal='Yes'&&#method_adi=1<br>  <br>#subject_verbal='Yes'&&#method_adi=3</td><td>Total of Section B - Verbal:<br>Qualitative Abnormalities in<br>Communication</td><td>0::30; 999</td></tr><tr><td>dbaes_ctotal</td><td>Filter</td><td>Integer</td><td></td><td>Conditional</td><td>#method_adi=1    #method_adi=3</td><td>Total of Section C: Restricted,<br>Repetitive, and Stereotyped<br>Patterns of Behavior</td><td>0::25; 999</td></tr><tr><td>d9aes_dtotal</td><td>Filter</td><td>Integer</td><td></td><td>Conditional</td><td>#method_adi=1    #method_adi=3</td><td>Total of Section D</td><td>0::30; 999</td></tr></tbody></table> |   |            |

### Methods for Query, Analysis, and Results Reporting

#### **General Query**



#### From Labs

|  | and the local barry  | Contraction of the second s  | -  |  |   |  |   |   |
|--|--|--|--|--|---|--|---|---|
|  | and the second second  | And a second   |  |  |   |  |   |   |
| Des Des  | ateniate performen   | es Georgie Dels Dellerant Georgie D  | road Complementer  |  |   |  |   |   |
|  | Address of the local division  |  |  |  |   |  |   |   |
|  | 12 S S S S S S S S S S S S S S S S S S S   |  | Ober No.   |  |   |  |   |   |
| Collectore II  | The state by the   | charter 4/24 and 403.4   |  |  |   | Calcing as   | second the  |   |
| - Annual State   | are Synarr, Grante   | the D. Barrywood & Charles, Barberrer, Bar   |  | Martin Color   |   |  |   |   |
| Collection 2   | Catheline ACE Proteins 11 K  | <ul> <li>Barter - Herri Die, 21 N. Deutreshi - Deutre<br/>er für foldere 10 P. Rudresher - Unterstending</li> </ul>  | cia. 21 PER Description description and a particular of the second second second second second second second se  | nd ynagna el fe  | Caser -   |  | 8 <b>4</b> D  |   |
| -  | COMPANY OF MALE  | in the party   |  |  |   | -  |   | 0                                       |
| Frankris   | Barriel al.  |  |  |  |   |  |   |   |
| Anne   |  |  |  | 100  |   |  |   |   |
| -  |  |  |  |  |   |  |   |   |
| 200  | and the second se  |  |  |  |   |  |   |   |
|  | And And And And  |  |  | -  | Tradition of  | discourse of the local   |   |   |
|  |  |  |  |  | and the second second   |  |   |   |
|  | and the second second second   | and the second second and the second second second   |  | 14.14.100  | Concession of the local division of the loca  | our rear of  |   | -                                       |
|  | America, Statute<br>Alistania, T. Manuel<br>Alistania, T. Manuel<br>Alistania, T. Manuel   | Mr. Landarter, Paris, Julie Bryon, Rep<br>eds, Name Backell, Direc Rally, Artico<br>management (Science and Article), Science  | ten Conten. Indiffe Bauelbarn. 1<br>or 5 Rated Offices Rattagits, Rat  | Same & Corners   | Calurina Alica  | Radia  | laker, Anala P  | 2.2.4                                   |
|  | America, San Ameri<br>Alistania T. Manar<br>Milatania T. Milatania<br>C. America, Million A.<br>Baninya, Additiona   | Olivi, Laminerton, Farto, Tablic, Bryon, Bry<br>nik, Sonna Barchelli, Terra, Tablic, Andre<br>Statutori, Physics and Status, Solida<br>Physics of Status, Solidari, Salaria, B. Super-<br>el Barris, Schwart, Bernard, Agenesis, Barris<br>J. Barris, Schwart, Bernard, Agenesis, Barris<br>J. Barris, Schwart, Bernard, Martin, Status, Barris, Schwart, Schwa  | ten Contrar, Indiffi Bangdhern, 1<br>ar 1 Ravid, Office Rafford, And<br>Contrary, State<br>1 Supervision<br>1 Supervision<br>2 Su  | ing hitrary  | Colorison Alice<br>Robbinson<br>Instancia Robol<br>Angenes, Norma   | Radia - Version  | labora Manda P  |   |
|  | Andrew Gerbard<br>Andrew Gerbard<br>Andrew T. Maren<br>Strategy Andrew<br>Lawry, Andrew<br>Strategy Andrew<br>Strategy Andrew  | i din kaning ten firm, katin bern der<br>Berne Bernstell, Sonn finder, der<br>Produktion, Same sentre, auf die Konn<br>Steht Schleicherungen, auf die Konn<br>Schleicherungen, aus die Schleicher  | ten Contena Jackin Rapathens, 1<br>nr 5 Nated, Offina Ratingto, Kat<br>er (2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(2012)<br>(201 | ing block  | Colorison Alexa<br>In Additional<br>Internet, Marina<br>Angarina, Marina  |  | laten Karle (*<br>Sener 1 Sener   |   |
|  | erte<br>Name   | 1 this Landardan Parta, Jahlas Repais, Jary<br>Kito, Nanag Kasalah, Dinan Jahlas Kepais, Jarka<br>Managaran Matalay da Araban, Dirabit<br>Physicilas, Yanga Lanara, Jahla Hanga<br>Physicilas, Yanga Lanara, Jahla Hanga<br>Physicilas, Sangata Jahla Hanga<br>(1997) and Sangata Jahla Hangata Jahla Hanga<br>(1997) and Sangata Jahla Hangata Jahla Hanga<br>(1997) and Sangata Jahla Hangata Jahla Hangata<br>(1997) and Sangata Jahla Hangata Jahla Hangata Jahla Hangata<br>(1997) and Sangata Jahla Hangata Jahla Hangata Jahla Hangata Jahla Hangata<br>(1997) and Sangata Jahla Hangata Ja   | nen Generas, Jacob Pagabara, 1<br>ny 3. Raini, Ollino Latingia, Agri<br>edit (2020)<br>ny kagang Khak, kaning kanang<br>ja tanit dekananan, Raining kaning<br>ny gancun manani. (1974)<br>ny gancun manani.  |  | Colorison Alexa<br>Second Second<br>Second Second<br>Second Second Second   |  | lakes Raala P<br>Ratas<br>Ratas   |   |
| 10 - 10  | erte<br>Abdates, Silvert<br>Abdates, T. Bins<br>Conces, Silver, S.<br>Estility, Addition<br>Same<br>Silver<br>Same<br>Silver<br>Silver<br>Same   | • Mis Landersten Parts, Jahles Repes, Rep<br>Mis, Janes, Rassiell, Denni Rober, Schler<br>Heiner, Sterner, Statistica, Schler<br>Heiner, Sterner, Statistica, Statistica<br>Parts, Schler, Sterner, Maldeller, Kep<br>and Schler, Sterner, Schler, Statistica<br>Schler, Schler, Sterner, Statistica<br>Schler, Schler, Schler, Statistica<br>Schler, Schler, Schler, Schler, Schler<br>Schler, Schler, Schler, Schler, Schler, Schler<br>Schler, Schler, Schler, Schler, Schler, Schler, Schler<br>Schler, Schler,  | nen Generen, ledith Republices, 1<br>or 3 Rand, Olden Baltingto, Apr<br>6 Republic State, nerka Rener, 1<br>1 Sagard, Mark Rener, Rener, 1<br>2 Sagard, State Rener, State State<br>1 Sagard, State State State<br>1 Sagard, State<br>1 Sagard, State State State<br>1 Sagard, State State State<br>1 Sagard, State State State State<br>1 Sagard,  | an Lines   | Coloresa Alexa<br>el Tarbicitoria<br>Instanti Alexa<br>agartes Manuel<br>Areature Dat<br>St 21, 211   |  | Natur<br>Natur<br>Natur   |   |
|  | Antrop Site Land<br>Aladasi T. Bina<br>Site and Site and<br>Lance, Billion T.<br>Server, Billion T.<br>Server, Billion T.<br>Server, Billion T.<br>Server<br>The Antropolity Site Control of Site<br>The Antropolity Site Control of Site<br>The Antropolity Site Control of Site<br>Site Control of Site Site Site Site Site Site Site Site   | 1 Biol: Construction: Finite Coulds: Reverse Inter-<br>tion: Name Bendering Grand Anton, Constru-<br>mentations and and a second and and a second second<br>in properties. In Proceedings of the Inter-<br>tion of County Interface Antonia and Inter-<br>tion of the Interface Interface Interface<br>Interface Interface Interface Interface Interface Interface<br>Interface Interface Interface Interface Interface Interface<br>Interface Interface Interface Interface Interface Interface Interface<br>Interface Interface  | Con Concept, Ladith, Magacheres, T.<br>er, S. Kord, Offinie, Kalingkin, Kan<br>et (*) 1997-1997<br>In Support, Mark, Naming Korney, J.<br>1998, Tath. Antomatical Science, 1997;42(19):100<br>(1997). Annual Science, 1997;42(19):101<br>(1997). Annual Science, 1997). Annual Science, 1997<br>(1997). Annual Science, 1997). Annual Science, 1997<br>(1997). Annual Science, 1997). Annual Science, 1997<br>(1997). Annual Science, 1997). Annual Science, 1997). Annual Science, 1997<br>(1997). Annual Science, 1997). Annual Sci   | ing Klaren.  | Annalis Annalis   |  | Nature Annual Annual<br>Annual Annual<br>Mature<br>Taureral<br>Annual   |   |
|  | La Ye 201<br>Annues, Backet<br>Aldelais Y. Ken<br>organization<br>Lance, Billion F<br>Barry, Alfred<br>Herris<br>Barry, Million<br>Harry, Alfred<br>Harry<br>Diff particular (Schwarz 2016)<br>201 particular Schwarz 2016)<br>201 particular Schwarz 2016)  | Colicitation Conf. Particular Conf. Str. Nature<br>Sci., Nature Barrier, Milli Direm, Karling, Andrea<br>Margantina, Yang Conserv, and Millian, Andrea<br>Margantina, Yang Conserv, and Millian R. Cango<br>Margantina, Yang Conf. Sci., 2014. Sci. 2014<br>Sci. 2019 (2014) 2014 (2014) 2014 (2014)<br>pages 1022 (2014)  | nan Gurena, Jadiffa Magadhara, T<br>na 5 Aniel, Olikan Karlayta, Kapi<br>e Marini, Johan Karlayta, Kapi<br>e Marini, Kababahara, Katan Kata<br>Ing Kababahara, Katan Kata<br>Ing Kababahara, Katan Kata  | lan klasen<br>olen klasen<br>olen k  | Annual Contractions of Annual<br>Annual Contractions from<br>Annual Contractions from<br>Annual Contractions<br>Annual   |  | Haber Baala P<br>Research Baala<br>Haber<br>Tageroval<br>Sportwall<br>Sportwall   |   |
| 10 U U U U U U U U U U U U U U U U U U U   | Antra Barra, Barra, Barra, Barra, Barra, Barra, Barra, Barra, Marra, Barra, Marra, Mar   | (B): Landarder (n. Pertu, Zahla, Sahla, Beyen, Bu,<br>Sahla, Santa, Barris, M. Shan, Sahla, Jackie<br>Mayathan, "Angle Lands, and Annual Taria<br>and Sahlar and Sahlar and Sahlar and Sahlar<br>and Sahlar and Sahlar and Sahlar and<br>Sahlar and Sahlar and Sahlar and Sahlar<br>and Sahlar and Sahlar and Sahlar and<br>Sahlar and Sahlar and Sahlar and<br>Sahlar and Sahlar and Sahlar and Sahlar<br>and Sahlar and Sahlar and Sahlar and<br>Sahlar and Sahlar and Sahlar and Sahlar<br>and Sahlar Sahlar<br>and Sahlar and Sahlar<br>and  | nen Sentar Salahi Unerhera J<br>Managar Salahi<br>Mangar Salahi<br>Mangar Salahi<br>Managar Salahi<br>Mangar Salahi   | ing Klassen<br>State   | Anna Carl   |  | Hates August<br>Mater<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation   | And |
|  | LUTE 201<br>Addate 7. Bran<br>Control, Bran<br>Control, Bran<br>Control, Million<br>Ballion, Addition<br>Sector<br>The partness During China<br>201 partness During China<br>20   | e Bel, Landaurine Parts, Landau Fayne, Santa<br>Santa, Jassia Bauri, Brans, Balvis, Carlos<br>Hanna, Annan Bauri, Caroli, Balvis, Barrison<br>Hanna, Karlin Santa, Santa Santa<br>Santa Santa Santa Santa<br>and Santa Santa Santa<br>and Santa Santa Santa<br>Part Spare  | ner Correy, Ladia Rapabor, T<br>e S. Rad, Ollin Karla, Kara<br>G. Sand, Ollin Karla, Kara<br>G. Sand, Sandarawa, Kara, Kara<br>Baratawa, Kara<br>Kara  | lane in Correcto<br>Sectores Antonio<br>Distances  | ference Are<br>example for<br>Area and area<br>Area and area<br>Area and area<br>Area and area<br>Area and area   | -  | Hates Scale F   |   |
|  | La Via Cell<br>Anna S. D.<br>Control Control Control<br>Control Control Control<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>Series<br>S | Chi Landaritte Parts, Labito Fayer, Bello<br>Santa Santa Barra, Michael Santa, Santa<br>Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>A Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa<br>Santa Santa Santa<br>Santa Santa San   | nen Luczen Jahlfs Bangloren, J<br>en Grunzen<br>Marine Local, Nanka Luca, San<br>Marine Marine Marine Luca, San<br>Marine Marine Marine Marine<br>Marine Marine Marine Marine Marine<br>Marine Marine Marine Marine Marine<br>Marine Marine Marine Marine Marine<br>Marine Marine Marine Marine Marine Marine Marine Marine Marine<br>Marine Marine Marine Marine Marine Marine Marine Marine Marine<br>Marine Marine Ma   | land & Correct<br>State Reverse for<br>an Annual House for<br>the Correct Processing<br>of Proceedings   | Grantes Alex<br>Josef C. Marine<br>Strategy and S. Marine<br>Arabitation Factor<br>Arabitation Factor<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitation<br>Arabitatio   | Name And A State   | Nation Annual Control of States of S  | ter te                                  |
|  | Autor (20)<br>Autor, Solver<br>Aldebri, T. Umo<br>Cance, Silver, Aldebri,<br>Sality, Addebri,<br>Sality, Sality, Sality,<br>Sality, Sality,<br>Sality, Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,<br>Sality,   | C Mick Learning Trades, Jacking Learning, Karping<br>Stranding, Sanakara Sanakara, Sanakara<br>Sanakara, Sanakara Sanakara, Sanakara<br>Sanakara, Sanakara Sanakara, Sanakara<br>Sanakara, Sanakara, Sanakarara, Sanakara, Sanakara, Sanakara, Sanakara, Sanaka  | Inter Convert, Salita Rapidore, S<br>e 1 Anno (Salita Rapidore), Salita<br>e (FURCE)<br>(Salita Rapidore), Salita Rapidore, Salita<br>(Salita Rapidore), Salita Rapidore, Salita R   | lant bilarren<br>antari bilarren<br>bilarren   | Generative Alexa<br>Mathematics<br>Instance (Linear<br>Area (Linear)<br>Area (Linear<br>Area (Linear)<br>Area (Linear)<br>A   | Name And in the Andrew And Andrew A   | lakes kale fr<br>marine tang<br>marine tang<br>marine tang<br>marine<br>tang<br>marine<br>tang<br>marine<br>tang<br>marine<br>tang<br>marine<br>tang<br>marine<br>tang<br>tang<br>tang<br>tang<br>tang<br>tang<br>tang<br>tang  |   |
|  | erre con<br>Anter a constraint<br>devices of the out<br>of the constraint of the<br>second of the  | n dirk Landstatter frank Landstat Ersen, ford<br>den Samste Bask (1995) Theory California Andrea<br>Department of the Samster Samster Samster<br>and Samster Samster Samster Samster<br>and Samster Samster<br>Million Samster<br>Samster Samster<br>Million Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster<br>Samster | Inter Concern, Lardin Rugaline, L<br>or Stand, Ghina Kanada, Kanada<br>de Christophill, A. Kanada, Kanaga, K.<br>Tanina Andrew, K. Kanada, Kanaga, K.<br>Sanada, K. Kanada, K. Kanada, K. Kanaga, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K.<br>Kanada, K. Kanada, K.<br>Kanada, K. Kanada,   | ine kloren<br>stat krein<br>stat   | Grantes Alex<br>Instant (, Marin<br>Arabia Sala<br>Arabia Sala<br>Arabia Sala<br>Arabia Sala<br>Arabia Sala<br>Arabia Sala<br>Arabia Sala   | Andres - Andre in A<br>Andres - Andre in<br>Andres - Andre in<br>Andre in<br>A | Artes Rado fo<br>Mater<br>Hates<br>States<br>Spread<br>Spread   |   |
|  | erre con<br>description of the<br>error of the   | <ul> <li>Bit is being being the probability of the second sec</li></ul>   | Inter Convert, India Regulatora, I<br>on Stando Galler, Marchael Roman, J<br>on Stando Galler, Standar Roman, J<br>on Stando Galler, Standar Roman, J<br>on Stando Galler, Standar Standar<br>Standards, Standard Standard, Standard<br>Standards, Standard Standard, Standard<br>Standards, Standard Standard, Standard<br>Standards, Standard Standard, Standard<br>Standards, Standard Standard, Standard<br>Standard, Standard Standard, Standard Standard, Standard<br>Standard, Standard Stan  | Same Balances<br>References<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Designed<br>Desig   | Antonio Alexandria<br>Antonio Catalogueses, Handi<br>Antonio Catalogueses, Handi<br>Antonio Catalogueses<br>Antonio Catalogues  | neres ford to be   | Artes Kala (<br>Artes)<br>Artes<br>Artes<br>Artes<br>Artes<br>Artes<br>Artes<br>Artes<br>Artes  |   |
|  | Antipological and a second sec   | the Science Reserves And Science And Science And Science Reserves And  | tere Conces Control Management of<br>the Concest Control Management of<br>the Particle Control Management of the<br>Particle Control Management of the Control Management<br>of the Control Management of the Control Management<br>of the Control Management of the Control Management<br>Management  | ing king t   | Antonio Alexandri<br>Internet (* Alexandri<br>Antonio Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alexandri<br>Alex | nere frott in t  | Netes Ruste /<br>Britsen<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ruste<br>Ru |   |
|  | Anter Color<br>Anter Color Color<br>Color Color<br>Color Color<br>Color Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>Color<br>C   | <ul> <li>Me &amp; Lange Barriske, Tarlis Sandak Barry, Barriske, Sandak Barriske, Tarlis Sandak Barriske, Tarliske, Ta</li></ul>   | Second Se   | See bisses<br>in the second second<br>second second second second<br>second second second second second<br>second second second<br>second second second<br>second second second<br>second second second<br>second second second<br>second second second<br>second second second<br>second second second<br>second second secon   | Annania Anna<br>Anna   |  | Select Roads /<br>Roads /<br>Select /<br>S  | -                                       |
| B<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H   | Antiparticiparteciparti   | <ul> <li>Mel America Martín Santillo Marca Raza Contecha Martín Santillo Martín Martin Martín Ma</li></ul>   | Inter Lange, Lattit Mandhao, La<br>19 Anad Olita<br>Mandala<br>19 Anad Olita<br>19 Anad Olita<br>19 Anadol<br>19 A  |  | Conserver Alexandree  | ventere  | Netes Reals for<br>Netes Constant<br>Reality C  |   |
|  | Antipation of the second secon   | <ul> <li>b) the Lamba particular fields in shafting for the same fields in the same field of the s</li></ul>   | Jones Levers, Junité Mandheon, Jan<br>19 Annes Chine, Mandheon, Januar<br>(Januar), Januar Mandheo, Januar<br>(Januar), Januar Mandheo, January<br>(Januar), January Mandheo, January<br>(January), January Mandheo, January<br>January), January Mandheo, January<br>January), January Mandheo, January<br>January January, January Mandheo, January  | See bieren<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>bereiten<br>b  | Conserver Alexe<br>mann ( Alexe<br>mann ), Hanni<br>An 20, 2012<br>Mag 20, 2012<br>Ang 20, 2012   |  | lighten Kunder Fr<br>Kristenster<br>Berner<br>Hanner<br>Tigener<br>Statue<br>Statue<br>Statue<br>Statue   |   |
| Angenetic and a second se   | Antipation of the second secon   | <ul> <li>Mei Kansen Berningersen Rules, Sandia Kansen, Kansi Kansen, Kansen Kansen, Kansen</li></ul>   | Lang Lange, Jarth Mandheo, La<br>Shang China Lang Lang Lang Lang<br>Shang China Lang Lang Lang Lang<br>Shang China Lang Lang Lang Lang<br>Hang Lang Lang Lang Lang Lang Lang<br>Hang Lang Lang Lang Lang Lang Lang<br>Hang Lang Lang Lang Lang Lang Lang Lang<br>Hang Lang Lang Lang Lang Lang Lang Lang L   | See Linner   | Conserver Alexandream<br>Marian A. Andream<br>Angel A. 2010<br>Mag 21, 2012<br>Mag 21, 2012<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream<br>Alexandream  | 1992, (*****)<br>200 (****)<br>*   | Sylves Harder Fr  |   |
|  | Line of the second seco   | <ul> <li>Mel Lamora Barris, Barlis Garlis, Barlis Merce, Barlis Mellen, Marcia Barlis, Mellen, Barlis Mellen, Marcia Barlis, Mellen, Marcia Mellen, Mellen</li></ul>   | Annu Leven, Janki Mandham, Ja<br>20 Shook Olika Harayan, Kari<br>20 Shook Olika<br>20 Shook Olika<br>20 Shook Olika Harayan<br>20 Shook Olika Harayan  |  | Celevise Alexa<br>man of Analysis<br>parts, files<br>franking fail<br>draws for<br>high to the<br>high to<br>high to<br>h   | nere lind in the   | Network Read of A   |   |
| Read and a second secon | Line rate<br>and links if there<br>are used in the second second<br>even and there is a second<br>even in the second second second<br>even in the second second second second<br>the party second second second second<br>the party second second second second<br>the party second s   | b) B) A contrast from the second s  | Jones Lenzes, Jackin Mansham, Jan<br>Jones Lenzes, Glanci Mansham, Jan<br>Jones Callon, Kanada Janas, Jan<br>Januar Call, Jan Kanada January, Ja<br>Januar Call January, Katalan January,<br>January Katalan Katalan January, Jan<br>January, Katalan January, Katalan January, Jan<br>January, Katalan January, Katalan January,  | lage & Carrow<br>Base Revent, for<br>South Heads<br>In Proceedings<br>(1999)<br>South<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles<br>Charles | Generative Alexe<br>and the Alexandrow Alexandrow<br>Alexandrow Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexandrow<br>Alexand  | ners fortigt<br>ann fortigt<br>-   | lighen, Nauler J.<br>er erstellen, Nauler J.<br>Weiter<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Nation<br>Na  |   |
| Report<br>B<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C  | virtual and<br>beneficial and a second second second<br>second second second second second second second<br>second second s   | <ul> <li>A Martine Carlos Martine Carlos Receber Martine Carlos Martines C</li></ul>   | January Lawren, Janhin Manchano, Jan<br>San Jannes, China Manchan, Agu<br>Sangan, Shan, Katalan Kanang, Ji<br>Sangan, Shan, Katalan Kanang, Ji<br>Katalan Katalan Katalan Katalan<br>Katalan Katalan Katalan<br>Katalan Katalan Katalan<br>Katalan Katalan   | Tange & Carrens, fo<br>deal Arrens, fo<br>Market Manada<br>Arrens, fo<br>Arrens, fo<br>Arrens, fo<br>Arrens, fo<br>Arrens, fo<br>Arrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens,<br>Carrens  | Generation Allows<br>Control of Horizontal<br>Instance of Horizontal<br>Instance of Horizontal<br>Instance of Horizontal<br>Anomale with<br>Anomale with  | nan katala   | lighen, Baule, J.<br>er einer einer<br>werten einer<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Bernen<br>Berne  |   |

### **From Papers**

#### NIH WINGAR share disauts the set of the set

|  |  |  | a a di se di s   |
|--|--|--|--|
| Results<br>Budy Abstracts<br>Results<br>Box attentia | Table C Protection (1) as an an active data and the C Park of the C Park | Shariy Golarita<br>Dariy Nassurat<br>Data Analysia | Candral of Foreica and Addima (411)<br>Candral of Foreica (1994)<br>Fast - AND (1996)<br>Age: 110 (1996)<br>Age: 110 (1996)<br>Fast - AND |

Q Add New Study

### By Data Element

|      | 1000    |       | . Name of Concession, Name of Concession, or Conces | The set of some states within                                   | and a local second s |  |  |
|------|---------|-------|--|---|---|--|--|
|      | -       |       | Percent  | Safe of some fire some so general<br>bed some region of general |   | Report for   |  |
|      | -       | 1.00  | -  | Distribution for Data Structure: all 200354 and E               | Increase and the second states of the   | _  | -  |
|      | -       | - 288 | frank in the   |   | Description<br>fotal for Section A: Qualitative<br>Residence Social Vicentian                                   | e Abnormalities in   |  |
|      | and .   |       | Anterior   |   | Value Rangel  |  |  |
|      | true    |       | . Service  | - M   | Notes<br>999 - masing   |  |  |
| -    | Magar   |       | Enteriore  | . Louistillillillilli   |   |  |  |
| -    |         |       | Sector.  | 1   |   |  |  |
| -    | liner.  |       |  | **  |   |  |  |
|      | Sear .  |       | Desire.  |   |   |  |  |
|      | -       |       | Personal de  | 990 No 909  | Filters   |  |  |
|      | II.     | 1.1.  |  | <sup>1</sup> 34 subjects have no value provided for diseasuated | odi. 200304<br>Start_stola' calum: 19-30  |  |  |
|      | Sugar . |       | Tearrents  | Filter Other Structure  | res Remove Filters  | Download Re  | ture .   |
| 1000 | -       |       | Conception in which the  | Contraction (   |   | 10.01 C 20.02 P  | 100  |
| 0    | **      |       | -  | -   |   | L + Religio - re<br>L + Religio - re<br>Resident - L +<br>Resident - L + Re-<br>Resident - L + Re- | en 1 - Kangur int 1 -<br>Benni skandur (met)<br>an strafter meter 1 -<br>ting 1 - kentl ett mys- |

### By Concept





### **Does It Work?**

- More than 270 investigators have requested access to the NDAR database.
- Papers are starting to appear based largely or solely on data from NDAR. Investigators are also using data from NDAR as preliminary evidence in NIH grant applications.
- The NDAR infrastructure has been cloned to create the Federal Interagency Traumatic Brain Injury informatics system (FITBIR).
- NIMH has recently decided to collect data from clinical trials and from Research Domain criteria expanding the systems scope.



### Conclusions

- It is possible, but not easy, to make information from human subjects research broadly available to the research community.
- The GUID and the data dictionary are the key elements that are needed to allow complex queries across data from multiple laboratories.
- Behind the scenes data curation is also needed. This is costly, but the user does not see this effort (unless it fails).
- This Model of Data Sharing and Results Reporting is appropriate to other Research Communities, especially those related to Research Domain Criteria (RDoC).

