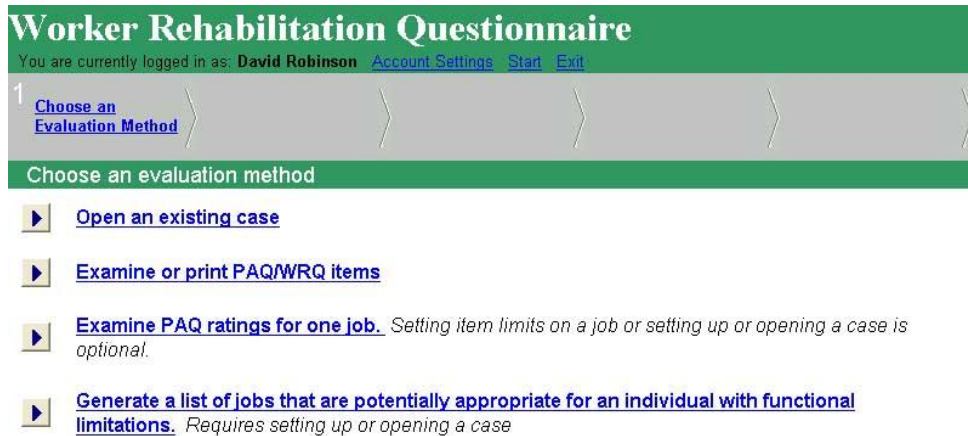


Checking WRQ Reliability and Using the Same Command for Other Analyses

Since reliability places a ceiling on validity, assessment of reliability is essential. The WRQ reliability check takes two cases at a time to evaluate test-retest or interrater reliability.

- It calculates a summary statistic, [intraclass correlation](#) that reflects the extent to which the two sets of ratings are systematically related.
- It tests the significance of differences the two sets of ratings, i.e., whether one set of ratings was consistently higher or lower than the other. This may be more likely in the interrater reliability context. The same calculation might be useful in circumstances (described below) that are unrelated to psychometric reliability.
- It calculates item-by-item differences between the two sets of ratings. Sizable differences may suggest closer attention to item definitions, i.e., using the item definition to make each rating.

To check psychometric reliability or compare ratings for other purposes, click **Open an existing case**



on the **Choose an evaluation method** screen above, which points to the **Select an existing case to open** screen below:

Worker Rehabilitation Questionnaire

You are currently logged in as: [David Robinson](#) [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#)

Select an existing case to open

Client Name	Case Start Date	Case Notes	Action
DR	02/24/2004	D.R. is a 40-year old plumber who has bilateral shoulder acromioclavicular joint arthritis. He complains of pain worse in his right shoulder than his left and of shooting pains on...	Delete
PH	05/16/2004	This is a 45-year old machinist with degenerative joint disease at the radial ulnar joint, who had surgery for psoform removal. She has a 6.0 millimeter, two-point numbness in th...	Delete
John Doe	06/14/2004	This paint shop supervisor was rear-ended in traffic. He sustained a mild closed head injury and pain and weakness in his upper extremities....	Delete
Accounting Clerk	07/22/2004	This Accounting Clerk sustained a back injury that restricted her sitting tolerance. When she returned to work with restrictions, she had no job to return to. This report lists jo...	Delete
M McB	07/12/2004	This will use the Compare Two Reports Compare Ratings function....	Delete
animal keeper	02/28/2005	Case was created by setting item limits on job 412.674-010 - Animal Keeper....	Delete
New Client	08/19/2008	Enter case notes here....	Delete

Clicking the John Doe hotlink in the **Select an existing case to open** screen above points to the **Setup/Open Case** screen below.

The **Setup/Open Case** screen below shows that two reports have been saved to this case: **Evaluation of individual** and **Supervisor, Paint Department**. Note checks in boxes to the left of those reports.

Worker Rehabilitation Questionnaire
You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [Setup / Open Case](#) > 3 [Select Database](#) > 4 [Rate Capabilities and Tolerances](#) > 5 [Ratings Summary](#) > 6 [Run Job Matching Analysis and Generate Reports](#)

Setup / Open Case

Personal Information

Name: Insurance Carrier:
Birth Date: Claim #:
Telephone #: Diagnosis:
Current Evaluator:

Case Reports

Report	Date	Status	Data Source	Evaluator	Action
<input checked="" type="checkbox"/> Evaluation of individual	06/14/2004	Complete	On Individual	David Robinson	<input type="button" value="Rename"/> <input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>
<input checked="" type="checkbox"/> Supervisor, Paint Department	06/15/2004	Complete	From Database	David Robinson	<input type="button" value="Rename"/> <input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>

Click on two boxes to compare two reports
[Compare two reports](#)

Case Notes

[Continue \(Select Database\)](#)

[Learn More](#) [Log in](#) [Contact Web Master](#)

Clicking the hotlink, **Compare two reports**, directly above **Case Notes**, points to the **Compare Reports** screen below:

Worker Rehabilitation Questionnaire

You are currently logged in as: [David Robinson](#) [Account Settings](#) [Sign Out](#) [Exit](#)

1 [Choose an Evaluation Method](#)
2 [Setup / Open Case](#)
3 [Select Database](#)
4 [Rate Capabilities and Tolerances](#)
5 [Ratings Summary](#)
6 [Run Job Matching Analysis and Generate Reports](#)

Compare Reports

Comparison Type: Compare Ratings Compare Jobs

Personal Information

Name: John Doe Insurance Carrier: ABC
 Birth Date: August 22, 1961 Claim #: 12345
 Telephone #: (000) 000-0000 Diagnosis: Closed head injury Chronic neck pain and upper extremity pain and weakness

Case Notes: This paint shop supervisor was rear-ended in traffic. He sustained a mild closed head injury and pain and weakness in his upper extremities.

Report Information

Report Type(s): On Individual and From Database
 Reports Compared: Report 1 = R1 = Evaluation of individual
 Report 2 = R2 = Supervisor, Paint Department
 Report Date: 21 August 2008 12:00:17 pm
 Administrator(s): David Robinson and David Robinson

Comparison of Ratings

Intraclass correlation: $r = 0.83$
 The proportion of ratings in which $R1 < R2$ equals the proportion in which $R2 < R1$: $z = -3.83$

Item #	Description	R1	R2	R1 < R2	R1 > R2	Absolute Diff.
1	Reading words	3	3			0
2	Using numbers	2	1.7		+	0.3
3	Using graphics	5	1.5		+	3.5
4	Using patterns	3	0.5		+	2.5
5	Using information displays	4	1.5		+	2.5
6	Using measuring devices	4	1.5		+	2.5
7	Watching machines in use	3	1.7		+	1.3
8	Watching things you are working with	4	3		+	1

On the **Compare Reports** screen, the default, **Compare Ratings**, reports the intraclass correlation coefficient and results of other comparisons. A psychometric reliability check uses data collected by the same two rating methods, most likely after clicking **Generate a list of jobs that are potentially appropriate for an individual**

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > > > >

Choose an evaluation method

- ▶ [Open an existing case](#)
- ▶ [Examine or print PAQ/WRQ items](#)
- ▶ [Examine PAQ ratings for one job.](#) *Setting item limits on a job or setting up or opening a case is optional.*
- ▶ [Generate a list of jobs that are potentially appropriate for an individual with functional limitations.](#) *Requires setting up or opening a case*

with functional limitations on the **Choose an evaluation method** screen above and [setting up a case](#).

The **Compare Reports** screen below reports **Intraclass correlation $r = 0.83$** under the **Comparison of**

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [Setup / Open Case](#) > 3 [Select Database](#) > 4 [Rate Capabilities and Tolerances](#) > 5 [Ratings Summary](#) > 6 [Run Job Matching Analysis and Generate Reports](#)

Compare Reports

Comparison Type: Compare Ratings Compare Jobs

Personal Information

Name: John Doe Insurance Carrier: ABC
 Birth Date: August 22, 1961 Claim #: 12345
 Telephone #: (000) 000-0000 Diagnosis: Closed head injury Chronic neck pain and upper extremity pain and weakness

Case Notes: This paint shop supervisor was rear-ended in traffic. He sustained a mild closed head injury and pain and weakness in his upper extremities.

Report Information

Report Type(s): On Individual and From Database
 Reports Compared: Report 1 = R1 = Evaluation of individual
 Report 2 = R2 = Supervisor, Paint Department
 Report Date: 21 August 2008 12:00:17 pm
 Administrator(s): David Robinson and David Robinson

Comparison of Ratings

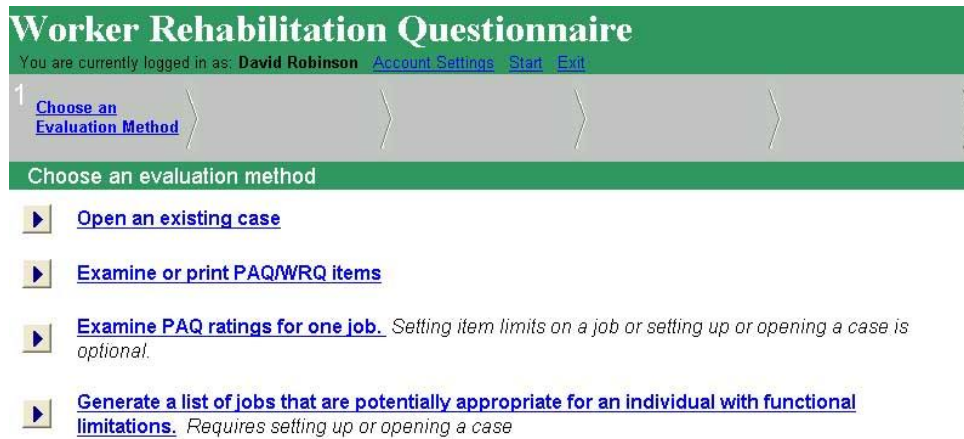
Intraclass correlation: $r = 0.83$
 The proportion of ratings in which $R1 < R2$ equals the proportion in which $R2 < R1$: $z = -3.83$

Item #	Description	R1	R2	R1 < R2	R1 > R2	Absolute Diff.
1	Reading words	3	3			0
2	Using numbers	2	1.7		+	0.3
3	Using graphics	5	1.5		+	3.5
4	Using patterns	3	0.5		+	2.5
5	Using information displays	4	1.5		+	2.5
6	Using measuring devices	4	1.5		+	2.5

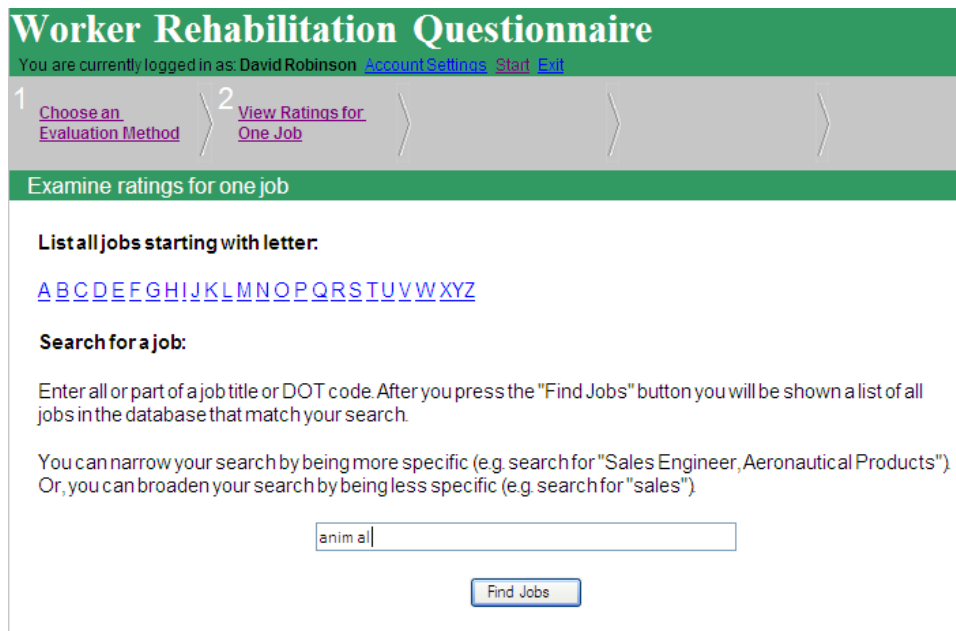
Ratings field. Intraclass correlation summarizes systematic relationship between two sets of . Squaring the correlation coefficient of $(0.83)^2 = .69$ means that 69% of the information in one set of ratings is present to perfectly predict rating values in the other set. Visual inspection of the plus signs on the **Compare Reports** screen shows which of two ratings on each job element is higher. Differences in ratings between two raters might involve inadequate understanding or incomplete learning of item definitions or procedural failure to use item definitions to make every rating and setting ever item limit. Differences may reflect rater biases of strictness or leniency (Wherry, 1952; Wherry & Bartlett, 1982). The second line under **Comparison of Ratings** states: **The proportion of ratings in which R1 < R2 equals the proportion in which R2 < R1: z = 3.83**. Calculation of z tests the statistical significance of the difference between two proportions (Walker & Lev, 1953). The two proportions tested are the proportion of items in which **R1** rated higher than **R2** vs. the proportion in which **R2** rated higher than **R1**. In this case, **z = -3.83**, $p < .0001$. In the classic test-retest or interrater reliability study, if $z > 1.99$, then neither rater rated systematically higher than the other.

A Forensic Application of the Compare Reports Command: In psychometric reliability studies, the same two methods of data collection are used. This example, however demonstrates a forensic application of the **Compare Reports** command. The **Reports Compared** label shows that **Report1 = R1 = Evaluation of individual** and **Report1 = R1 = Supervisor, Paint Department**. In this case, a Supervisor, Paint Department was assessed using [both WRQ analysis methods](#). The **Compare Ratings** command offers a convenient way to document rating differences. Intraclass correlation and z are less important in this application, simply showing that the two methods produced similar results. Visual inspection of rating differences shows that ratings on the individual's capabilities and tolerances (**R1**) are consistently higher than PAQ ratings on his former job (**R2**). In this situation, it was useful to document that the ratings on the individual's capabilities and tolerances were systematically higher than the PAQ ratings on which items and why just to anticipate a questions that could arise on cross examination.

Detecting Differences Between Jobs with Similar Titles: The **Compare Jobs** command can be used to detect differences between two unfamiliar jobs that have similar titles, e.g., Animal Keeper and Animal Caretaker. To do this, select one of these jobs from the database and save it to a case named "animal keeper," and then select the other job from the database and save it to that case. Begin that process by clicking on **Examine PAQ ratings for one job** in the **Choose an evaluation method** screen below:



Clicking on **Examine PAQ ratings for one job** points to the screen below that offers to list jobs in the PAQ database that begin with letters of the alphabet, or to enter information in the data blank, such as a word in a job title, such as “animal,” illustrated below:



Clicking the **Find Jobs** button points to the following list of jobs that includes both **Animal Keeper** and **Animal Caretaker**:

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [View Ratings for One Job](#) > >

Examine ratings for one job

List all jobs starting with letter:

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

Select a job from the following list to view its ratings:

DOT Number	Job Title
410.674-010	Animal Caretaker
412.674-010	Animal Keeper
349.224-010	Animal-Ride Manager
379.137-010	Supervisor, Animal Cruelty Investigation

Search for a job:

Enter all or part of a job title or DOT code. After you press the "Find Jobs" button you will be shown a list of all jobs in the database that match your search.

You can narrow your search by being more specific (e.g. search for "Sales Engineer, Aeronautical Products"). Or, you can broaden your search by being less specific (e.g. search for "sales").

Clicking [Animal Caretaker](#) above points to the next screen, PAQ ratings for the job of Animal Caretaker:

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [View Ratings for One Job](#) > 3 [Set Item Limits for This Job?](#) >

Examine ratings for Animal Caretaker (410.674-010)

Job Title:	Animal Caretaker
DOT Number:	410.674-010
PAQ Number:	003185

Item Number	Item	Rating
1	Reading words	1.1
2	Using numbers	1
3	Using graphics	0.1
4	Using patterns	0
5	Using information displays	0.7
6	Using measuring devices	0.9
7	Watching machines in use	0.7
8	Watching things you are working with	0.7
9	Watching features of nature	0
10	Inspecting constructed things	0.4
11	Watching people or animals	2.5
12	Watching events around you	0.6
13	Viewing artistic work	0
14	Listening to speech	1.7

Clicking the third choice in the navigation bar **Set Item Limits for This Job?** points to the following screen:

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [Setup / Open Case](#) > 3 [Set Item Limits for This Job?](#) > 4 [Rate Capabilities and Tolerances](#) > 5 [Ratings Summary](#) > 6 [Run Job Matching Analysis and Generate Reports](#)


Summary of Ratings and Item Limits


Setting Ratings and Limits from job:


Job Title: Animal Caretaker
DOT Number: 410.674-010
PAQ Number: 003185

Item #	Description	Rating	Limit
1	Reading words	1.1	<input type="text"/>
2	Using numbers	1	<input type="text"/>
3	Using graphics	0.1	<input type="text"/>
4	Using patterns	0	<input type="text"/>
5	Using information displays	0.7	<input type="text"/>
6	Using measuring devices	0.9	<input type="text"/>
7	Watching machines in use	0.7	<input type="text"/>
8	Watching things you are working with	0.7	<input type="text"/>
9	Watching features of nature	0	<input type="text"/>
10	Inspecting constructed things	0.4	<input type="text"/>
11	Watching people or animals	2.5	<input type="text"/>
12	Watching events around you	0.6	<input type="text"/>
13	Viewing artistic work	0	<input type="text"/>
14	Listening to speech	1.7	<input type="text"/>
15	Listening to other sounds	0	<input type="text"/>

[Definition of Item Limits](#)
[Item Limits Decision Rule](#)


[Review the Last Selected Item](#)


[Save All Changes](#)


[Print Ratings and Item Limits](#)

Rather than setting item limits, which is of no interest in this analysis, click the **Save All Changes** button on the right side of the screen, which points to the **Choose where to save exam** screen below:

Worker Rehabilitation Questionnaire


You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [View Ratings for One Job](#) > 3 [Set Item Limits for This Job?](#) >

Choose where to save exam


Job Title: Animal Caretaker
DOT Number: 410.674-010
PAQ Number: 003185


You have chosen to set item limits and ratings for this job. In order to proceed, please select one of the two options (in italics) below:

 *Create a new case. This new case will have a new exam added to it with the ratings from this job.*

Personal Information

Name:	<input type="text" value="animal caretaker"/>	Insurance Carrier:	<input type="text"/>
Birth Date:	<input type="text"/>	Claim #:	<input type="text"/>
Telephone #:	<input type="text"/>	Diagnosis:	<input type="text"/>

 *Select an existing case. This case will have a new exam added to it with the ratings from this job.*

Client Name	Case Start Date	Case Notes
 DR	02/24/2004	D.R. is a 40-year old plumber who has bilateral shoulder acromioclavicular joint arthritis. He complains of pain worse in his right shoulder than his left and of shooting pains on the right from his shoulder to his wrist and on both sides of his neck. He rated his pain on a 5-8 on a 0-9 scale of intensity. His pain level increases with such activities as picking up his toddler, working with a pick and shovel and with heavy lifting. His stated that he has pain walking and swinging his arms or walking and holding his girlfriend's hand.

On this **Choose where to save exam** screen, enter “animal caretaker” and click the **Save and Continue** button in the middle of the screen just above the first case about D.R.. In the navigation bar, click **Choose an Evaluation Method** to return to the **Choose an evaluation method** screen. Select **Examine PAQ ratings for one job** and enter “animal” in the data blank. Click the **Find Jobs** button, and then the hotlink to **Animal Keeper**. Click the blinking **Set Item Limits for this Job?**, but this time, after clicking the **Save Information** button, scroll down to the “animal caretaker” case, click that case to save the data to that case. Both cases are saved to the “animal caretaker” case. Click #1, **Choose an Evaluation Method** in the navigation bar to return to the **Choose an Evaluation Method** screen. Select **Open an Existing Case**, and click on the animal caretaker hotlink.

Worker Rehabilitation Questionnaire

You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [Setup / Open Case](#) > 3 [Select Database](#) > 4 [Rate Capabilities and Tolerances](#) > 5 [Ratings Summary](#) > 6 [Run Job Matching Analysis and Generate Reports](#)

Setup / Open Case

Personal Information

Name: Insurance Carrier:

Birth Date: Claim #:

Telephone #: Diagnosis:

Current Evaluator:

Case Reports

	Report	Date	Status	Data Source	Evaluator	Action
<input checked="" type="checkbox"/>	412.674-010 - Animal Keeper	02/28/2005	Incomplete	From Database	David Robinson	<input type="button" value="Rename"/> <input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>
<input checked="" type="checkbox"/>	410.674-010 - Animal Caretaker	02/28/2005	Incomplete	From Database	David Robinson	<input type="button" value="Rename"/> <input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>

Click on two boxes to compare two reports
[Compare two reports](#)

Case Notes

[Continue \(Select Database\)](#)

Check the boxes to the left of the reports. Notice that the **Status** of these two reports is **Incomplete**. It is incomplete is because no item limits were set. We are not asking any disability questions in this exercise. Our purpose is to get both sets of PAQ ratings into a case file in order to compare them by clicking **Compare two reports** and reviewing the **Compare Reports** screen below:

Worker Rehabilitation Questionnaire
 You are currently logged in as: David Robinson [Account Settings](#) [Start](#) [Exit](#)

1 [Choose an Evaluation Method](#) > 2 [Setup / Open Case](#) > 3 [Select Database](#) > 4 [Rate Capabilities and Tolerances](#) > 5 [Ratings Summary](#) > 6 [Run Job Matching Analysis and Generate Reports](#)

Compare Reports
 Comparison Type: Compare Ratings Compare Jobs

Personal Information
 Name: animal caretaker Insurance Carrier:
 Birth Date: Claim #:
 Telephone #: Diagnosis:
 Case Notes:

Report Information
 Report Type(s): From Database and From Database
 Reports Compared: Report 1 = R1 = 412.674-010 - Animal Keeper
 Report 2 = R2 = 410.674-010 - Animal Caretaker
 Report Date: 22 August 2008 1:53:30 pm
 Administrator(s): David Robinson and David Robinson

Comparison of Ratings
 Intraclass correlation: r = 0.82
 The proportion of ratings in which R1 < R2 equals the proportion in which R2 < R1: z = -3.97

Item #	Description	R1	R2	R1 < R2	R1 > R2	Absolute Diff.
1	Reading words	3.4	1.1		+	2.3
2	Using numbers	1.8	1		+	0.8
3	Using graphics	2.3	0.1		+	2.2
4	Using patterns	0.2	0		+	0.2
5	Using information displays	1.2	0.7		+	0.5
6	Using measuring devices	2	0.9		+	1.1
7	Watching machines in use	1.7	0.7		+	1
8	Watching things you are working with	0.9	0.7		+	0.2

First, note that **R1** is the **Animal Keeper** and **R2** the **Animal Caretaker**. Scanning the **R1>R2** column, it is evident that **R1 Animal Keeper** ratings are statistically significantly higher ($z = 3.97, p < .005$) than the **R2 Animal Caretaker** ratings. The first difference in the **Absolute Diff** column is that Item #1 Reading words is 2.3 rating scale points higher than for **Animal Keeper**, which makes it clear that the **Animal Keeper** is the higher level job of the two. The substantial intraclass correlation coefficient shows that the two jobs are highly related, which we assumed from their titles.

References

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Wherry, R. J. Sr. (1952). *The control of bias in rating: A theory of rating* (Personnel Research Board Report 922).

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Wherry, R. J. Sr. & Bartlett, C. J. (1982). The control of bias in ratings: A theory of rating. *Personnel Psychology*, *35*, 521-551.