

# Interact Guide

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## Preface

*Interact* is a social psychology tool for analyzing role behaviors, interpersonal emotions, identity and labeling processes, and trait attributions.

The *Interact* computer program is contained in a file named **Interact.jar**. You may download this file from

[http://www.indiana.edu/~socpsy/public\\_files/Interact.jar](http://www.indiana.edu/~socpsy/public_files/Interact.jar)

Java must be implemented on your computer in order to run *Interact*. You may download and install Java at

<http://java.com/en/download/index.jsp>

To run *Interact*, double-click the file named **Interact.jar**. A window will appear that looks like Figure 10 in this document.

## Background Ideas

*Interact* implements affect control theory. The next three sections cover parts of the theory that are central in *Interact* analyses. A more detailed exposition of the topics, and of other issues in affect control theory, is available in a book by David Heise, *Expressive Order: Confirming Sentiments in Social Actions* (New York, Springer, 2007).

## Situations

Anytime you enter a place where other people are, the first thing you have to do is figure out who you are in the situation. Usually you define the situation and your place in it fast and unconsciously, but you can see what's happening when things mess up. At some point you probably have walked into a room expecting one group of people – like coworkers – and found someone else instead – like your sweetheart. When that happens you can feel yourself dropping the readiness for some actions and preparing to act in other ways. You're changing who you are in the sense of changing from one role to another, from one social identity to another.

Obviously, another thing you have to do is figure out who the other people are. That may be simply a matter of recognizing people in uniform like a bus driver, or those who always have the same role with you like your car mechanic, or it may be more complicated like figuring out whether another person is being sweetheart or coworker right now when he or she can be both at different times. Who you are depends on who others are, and what roles others take depends on the role you have, so you have to figure these things out simultaneously.

The solution to the puzzle of defining everyone may require more information, like recognizing where you are. You and a coworker aren't supposed to act like sweethearts at the place you work; and it's strange to act like coworkers when you and your sweetheart are alone in a cozy romantic restaurant.

You've defined the situation when you can name the setting and the social identities that everyone has. Ordinarily you don't say the names out loud, but you could if someone asked you to

describe where you are and who you are and who are the people with you. *Interact* does ask! That's the way you define a situation for analysis.

## Sentiments

Each identity that you or others take carries a certain feeling. Grandparent, for example: unless you have a different attitude than most Americans, you feel grandparents generally are good and helpful, deep and powerful, quiet and meditative. That's your sentiment about grandparents, the way you feel in general about them even though you might have different feelings in some circumstances. The general sentiment about children is quite different: children (for most Americans) are good, but they're small and weak, and noisy and lively. Bullies provoke still a different sentiment: bad, powerful, and active.

Sentiments have three different components or aspects: we can feel that something is good or bad, that it is powerful or powerless, and that it is lively or quiet. Each of these aspects is a matter of degree. For example, some things are slightly good, others are quite good, still others are extremely good.

You have sentiments about ways of acting, too. Cheering someone on is good, potent, and active. Socking someone is bad, potent, and active. Ignoring someone is bad, weak, and quiet. Soothing someone is good, potent, and quiet. Each behavior has a sentiment attached to it that reflects how good it is, how powerful, how lively.

The short names for the three aspects of sentiments are Evaluation, Potency, and Activity, and sometimes these are abbreviated further with the initials EPA. We represent a sentiment precisely by measuring it on the three aspects. The custom is to measure outward from zero and use plus units to measure goodness, powerfulness, and liveliness; and minus units for things that are bad, powerless, or quiet. An **EPA profile** is a list of three such measures: the first number represents Evaluation, the second is Potency, and the third is Activity.

## Impression Formation

Affect control theory produces its results using mathematical equations that predict how events transform impressions toward or away from the sentiments that are evoked in a situation. The impression formation equations come from research on how people actually respond to events, and additional equations have been derived mathematically from the impression formation equations.

However, you don't need to know details about equations in order to use *Interact*. *Interact* doesn't require that you deal with equations at all, though it does allow you to examine that aspect of analyses if you care to.

That's enough background to use *Interact* as an aid in analyzing social relations.

## An *Interact* Analysis

After double clicking **Interact.jar**, you will see the screen displayed in Figure 10, later in this chapter. That screen is more complicated than we need right now, so click on the drop-down

menu that says *Advanced functions*, and choose the menu's other option, *Basic functions*. Then you will see the screen displayed in Figure 1.

## The Situations Form

The gray area at the top is a control area containing several drop-down menus. The drop-down menu on the left of the menu bar – the **Cultures menu** – lets you choose cultures based on surveys in different places and times. The second drop-down menu – the **Complexity menu** – selects between the simplified display in Figure 1 and the more complicated display in Figure 10. The third drop-down menu – the **Operations menu** – offers a variety of different screens where you can accomplish different tasks.

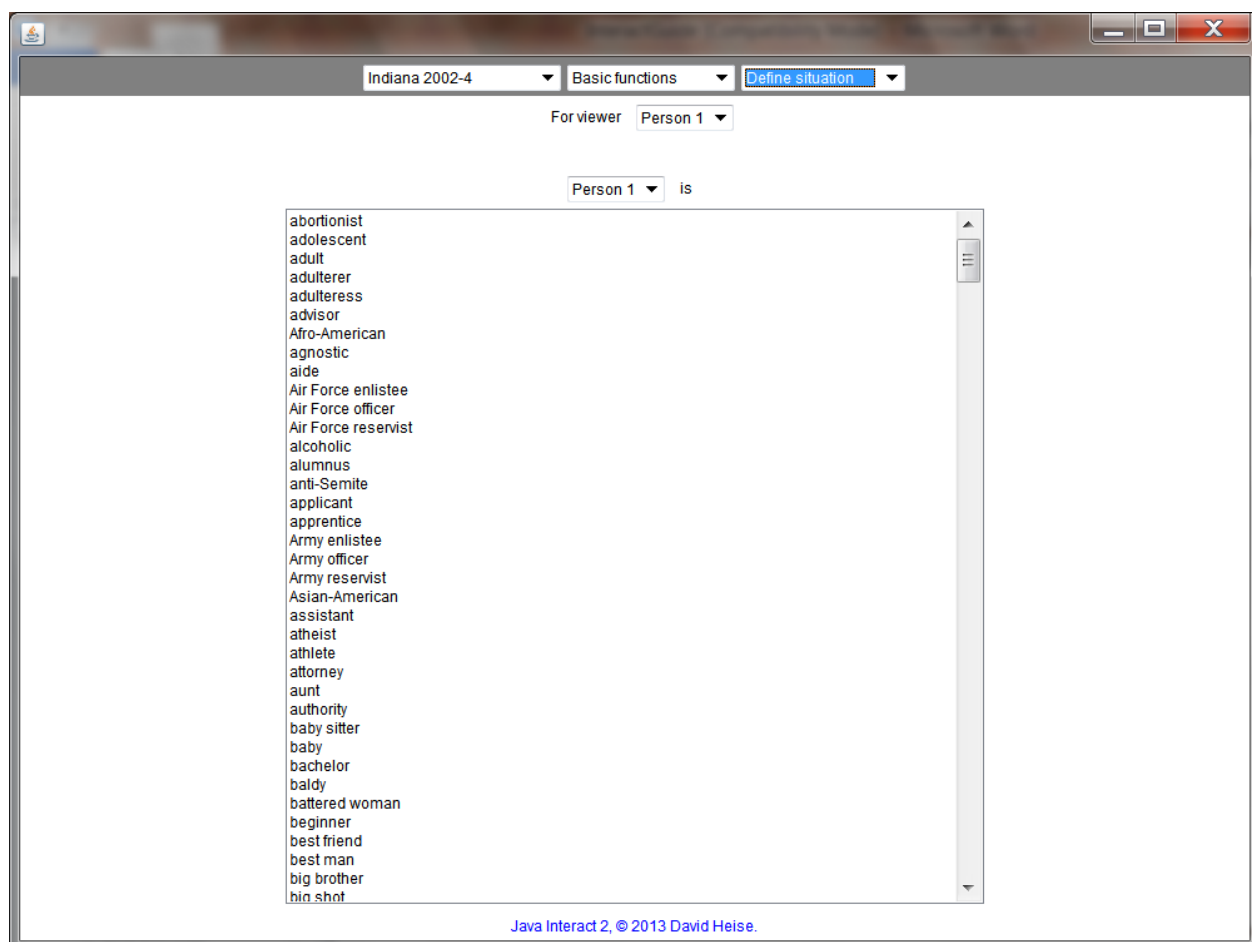


Figure 1. The form for defining the situation.

Below the menu bar are two additional drop-down menus, the **Experiencer menu** (next to the text "For viewer") and the **Target menu** (in front of the word "is"), each listing four individuals. The **Experiencer menu** determines whose viewpoint is on display at the moment. The **Target menu** shows which person is being viewed. When the screen first appears, both menus show *Person 1* meaning that we are dealing with Person 1's view of self.

In the menus listing people, Persons 1 and 3 are males, Persons 2 and 4 are females. If the experiencer is male, then *Interact* uses EPA data obtained from males in order to represent how the person feels about things. If the experiencer is female, then *Interact* uses data from females to represent the person's sentiments. Equations used to compute the person's reactions to events also change depending on gender. Additionally, gender determines whether a male or a female face is used to display emotional expressions.

The IDENTITIES LIST in the large box on the lower half of the screen is a scrolling list of identities that a person might have in an *Interact* analysis. You define the situation that you want to analyze by selecting identities from the IDENTITIES LIST.

A selected identity assigns a personal sentiment to the target individual which the individual is supposed to maintain during social interaction. This personal sentiment constitutes a motivational goal if the target individual is the experiencer. It constitutes a stable affective meaning of the other if the target individual is different than the experiencer.

Clicking on an identity highlights it. Highlighting an identity assigns that identity to the target person, for the given experiencer. Clicking on a highlighted identity de-selects it. A selected identity also will be de-selected if you select a different identity.

For example, let's examine behaviors of Person 1 (a man named John) with Person 2 (a woman named Kate), from John's point of view. The situation is set up by scrolling down the IDENTITIES LIST and clicking *man* when both person-menus show *Person 1*. Then we change the **Target menu** to *Person 2* and select *woman* from the IDENTITIES LIST. That sets up the situation we want to analyze: John sees himself as a man in this situation, and he sees Kate as a woman.

### The Define-Events Form

For the next step in analysis, we change from *Define situation* to *Define events* in the **Operations menu**. The new screen is shown in Figure 2.

Just below the menu bar on this screen is an **Experiencer menu** which indicates whose experiences are being defined—John's in this case.

In the colored area on the right side of the form are two additional person-menus—an **Actor menu** and an **Object menu**, a scrolling BEHAVIORS LIST, and a button. You define an event by selecting a person to be the actor, a person to be the object of action, and a behavior that the actor is to perform on the object. You click the button when you are satisfied with your selections.

For example, define an opening event, *John addresses Kate*, by clicking on the behavior *address* while the actor is *Person 1* and the object is *Person 2*. Clicking the line highlights it. (Clicking a highlighted entry de-selects it, as does selecting a different behavior.) Click the button labeled **Insert this event**, and the event is added in the EVENTS LIST box showing events to be analyzed.

```
Person 1[_ ,man],address,Person 2[_ ,woman]
```

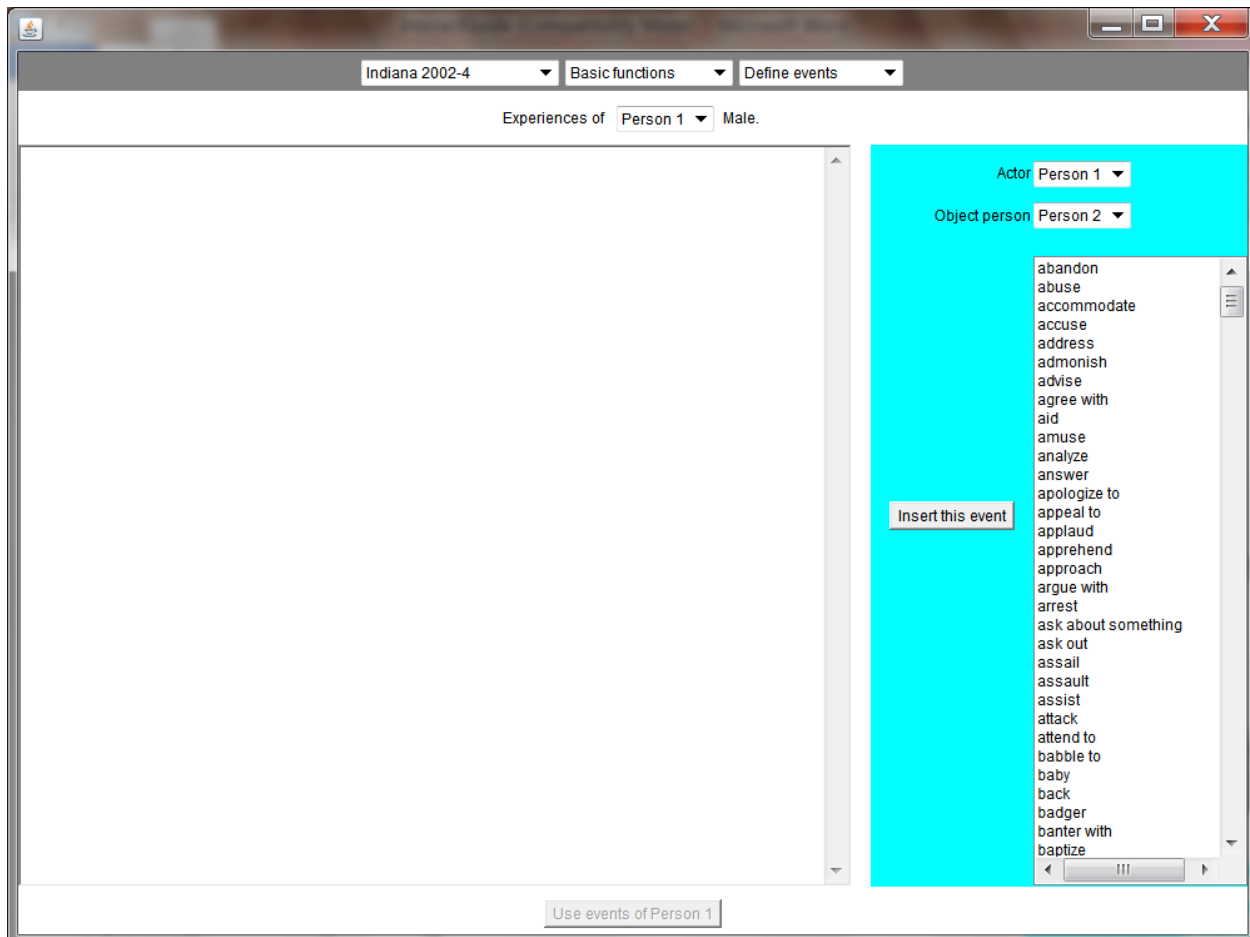


Figure 2. The form for defining events.

That is, the actor is *Person 1* and that individual's identity is *man*, the behavior is *address*, and the object of the action, *Person 2*, has the identity of *woman*.

Another button at the bottom of this screen is inoperative when *Person 1* is the experiencer. The button's function will be considered later.

### The Analyze Events Form

Now change from *Define events* to *Analyze events* in the **Operations menu**. This results in the screen shown in Figure 3.

An **Experiencer menu** just below the gray menu bar shows whose experiences you are going to analyze. Below that is an **EVENTS LIST** showing the events you are going to analyze—just one event in this case. Below the **EVENTS LIST** are empty boxes relating to emotions and behaviors of actor and object.

You make events “happen” by clicking on them. Clicking on

Person 1[\_,man],address,Person 2[\_,woman]



The screenshot shows a software window titled "Indiana 2002-4". At the top, there are three dropdown menus: "Basic functions" and "Analyze events". Below these, it says "Experiences of Person 1 Male". A text input field contains the text "Person 1[\_man],address,Person 2[\_woman]". The main workspace is divided into four quadrants by a 2x2 grid of empty rectangular boxes. The top-left quadrant is labeled "Actor emotions", the top-right is "Object emotions", the bottom-left is "Actor behaviors", and the bottom-right is "Object behaviors".

Figure 3. Form for analyzing events.

in the EVENTS LIST displays results of the action, as shown in Figure 4. The display shows the experiencer's state of mind right as the event is on the verge of being completed.

According to the ACTOR EMOTIONS LIST, John (the actor) feels a positive emotion while addressing Kate (the object). A name for the emotion is elusive, with *Interact* listing possibilities ranging from euphoria to contentment. *Interact*'s drawing of John's facial expression illuminates John's emotion, because faces – even such simple drawings of faces as you see in *Interact* – are sensitive instruments for conveying emotions to human observers.

The OBJECT EMOTIONS LIST indicates that John, the experiencer, expects Kate to feel a positive emotion, somewhat similar to his own emotion according to the drawing of her face, but perhaps not as excited as he is. Her list of emotions is empty indicating that no named emotion is very close to her predicted emotional state.

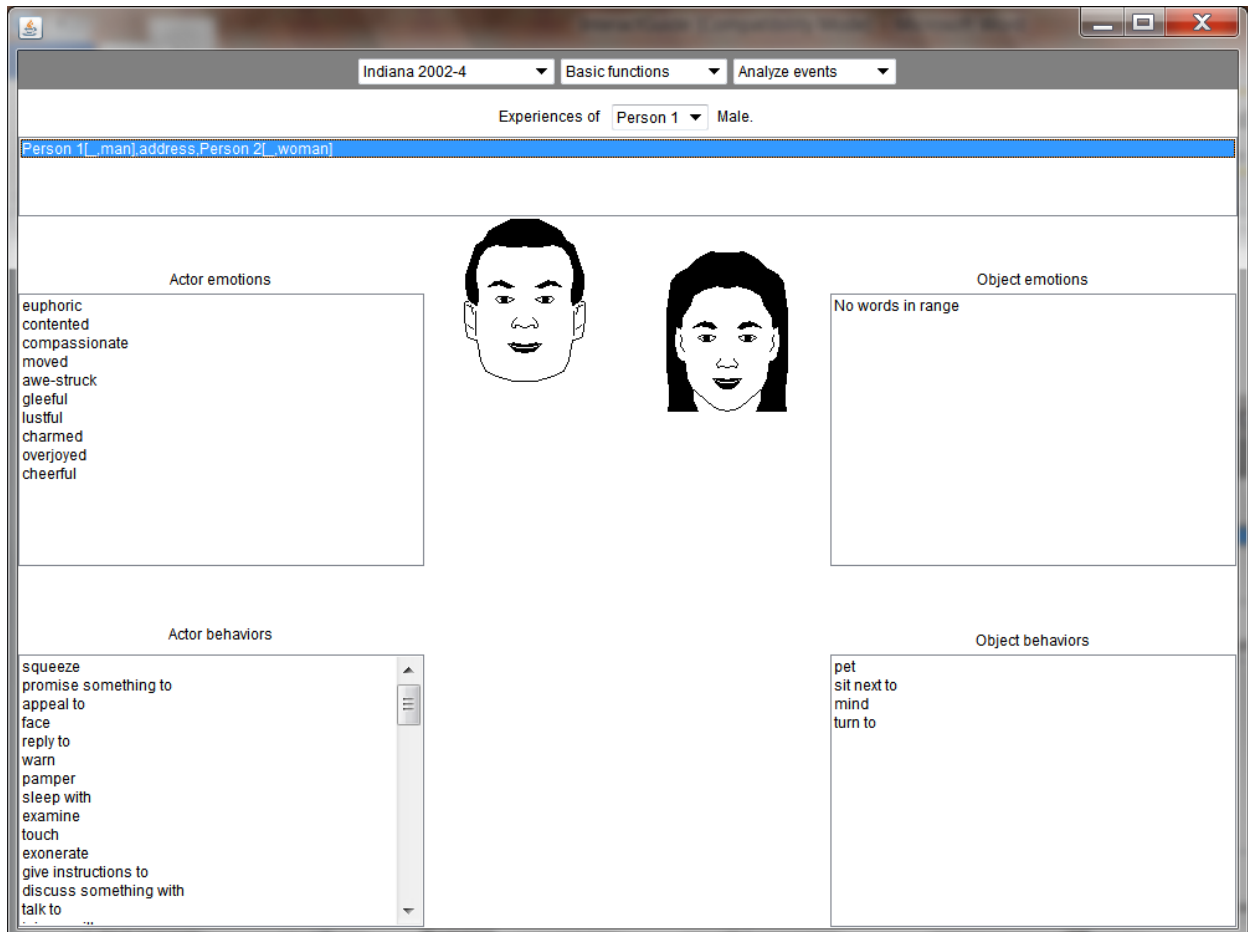


Figure 4. Emotions and predicted behaviors for the man-woman situation.

What would happen next, after John addresses Kate? *Interact* answers the question in the scrolling lists of behaviors. In accordance with affect control theory, the listed behaviors are those that would keep John's immediate feelings about himself and Kate close to the sentiments associated with *man* and *woman*. (The entries in each list are ordered according to how well they achieve this goal.)

Entries in the ACTOR BEHAVIORS LIST correspond to John's motives or impulses, after he has addressed Kate. Entries in the OBJECT BEHAVIORS LIST give John's expectations regarding Kate's behavior, after John's.

The initial action of *addressing* is rather formal, so let's assume that this encounter takes place in a formal setting like an office. Then John's likely next action, among those displayed in Figure 4, might be to *promise something to* Kate or *appeal to* her. On the other hand, if Kate acts next, John expects her to *sit next to* him, *mind* him, or *turn to* him.

Suppose it is Kate that acts next, and she *turns to* John. You generate this action by clicking on *turn to* in the OBJECT BEHAVIORS LIST. The result is a new screen — Figure 5 — displaying *Interact's* predictions about Kate turning to John, after John has addressed her.

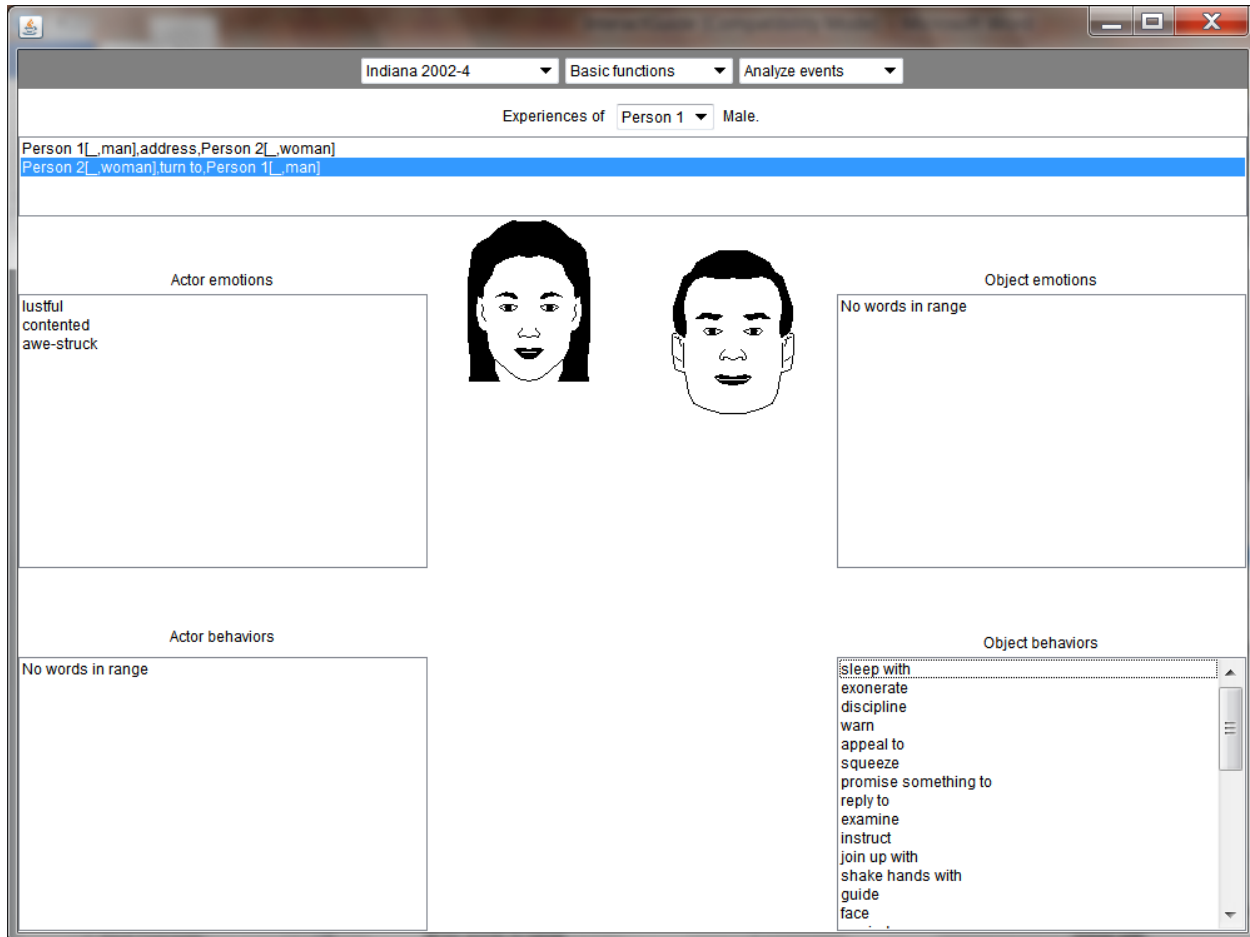


Figure 5. Effects of a second action.

Emotions at this point again are positive, but different than during the first action, as can be seen from the lists of emotions and from the facial expressions in the drawings. No emotions at all are listed for John because no named emotion is close to his predicted emotion, and we have only his facial expression to indicate what he is feeling. Since John is the experiencer here, *Interact* is predicting the emotions he actually has, and the emotions that John thinks Kate has. (Incidentally, *Interact* lists *lustful* as an emotion, though some psychologists consider it a bodily state instead.)

With regard to behavior, John expects that, after turning to him, Kate probably will do nothing since he feels that she has no ideal options for a next action. He, however, has numerous ways of acting in order to confirm his sentiments. Some inappropriate possibilities listed in Figure 5 might be mere impulses. Given the office environment, John most likely will be motivated toward a task-oriented behavior, like *appealing to* Kate or *instructing* her.

## Changing Viewpoint

Rather than continue building an interaction sequence from John's point of view, let us check whether Kate experiences things the same way as John, allowing that she too defines the situa-

tion as an encounter between a man and woman. You might suppose that you could change the **Experiencer menu** in order to accomplish this, but doing so at this point gives a screen without any events to analyze because *Interact* assumes that Kate might experience different actions than John experiences. You have to define an event list for Kate.

For illustrative purposes, let us duplicate the events that John experienced. One way of doing this is to repeat the procedure above, this time for Kate rather than John.

Use the **Operations menu** to return to the *Define situation* screen, and set the **Experiencer menu** on that screen to *Person 2*. You will observe that *Interact* already has given Kate the same definition of the situation as John.

Move on to *Define events* in the **Operations menu**, and make sure the experiencer is *Person 2*. Now you have three different ways to duplicate John's events list.

The easiest way is to click the **Use events of Person 1** button, which is enabled now that the experiencer is *Person 2*. Doing so puts John's events into Kate's EVENTS LIST box.

```
Person 1[_ ,man],address,Person 2[_ ,woman]
Person 2[_ ,woman],turn to,Person 1[_ ,man]
```

Copying and pasting John's event list provides a second way to reproduce John's list. On the *Define events* screen, set the **Experiencer menu** to *Person 1*, and click inside John's EVENTS LIST box. Use keys on your computer<sup>1</sup> to Select all and Copy in order to put John's events list on the computer's clipboard. Then set the **Experiencer menu** to *Person 2*, and click inside Kate's EVENTS LIST box. Use computer keys to Paste John's events list into Kate's. In general, you can work inside the EVENTS LIST box of the *Define events* screen just as you would with a word processor – typing, deleting, copying, and pasting.

Third, you could re-specify the events in sequence for Kate. To define the first event with *Person 2* as experiencer, set the **Actor menu** to *Person 1*, the **Object menu** to *Person 2*, click *address* in the BEHAVIORS LIST, and click **Insert this event**. To define the second event, change the **Actor menu** to *Person 2*, the **Object menu** to *Person 1*, scroll down to *turn to* in the BEHAVIORS LIST, click that behavior, and click **Insert this event**. Thereby Kate's EVENTS LIST is the same as John's.

Now select *Analyze events* on the **Operations menu**. Check that *Person 2* is selected on the **Experiencer menu**, and click the first event. That results in the screen shown in Figure 6.

Kate's experiences are different than John's, even assuming that she perceives the same first event as John!

Emotions are more intense through Kate's eyes. She sees John's smile as bigger than he supposes, and she interprets his expression in terms of passion, contentment, or his being charmed. Her own emotion is positive, though her facial expression here reveals that her emotion is different than John imagines.

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1 In Microsoft Windows, the keys are Control+A for Select all, Control+C for Copy, and Control+V for Paste.

While no words adequately describe Kate's emotion, it is affable, judging from her facial expression and some of the impulses in her consciousness, according to the OBJECT BEHAVIORS LIST.

You can click on the second entry in the EVENTS LIST to examine Kate's experiences if she simply turned to John at this point.

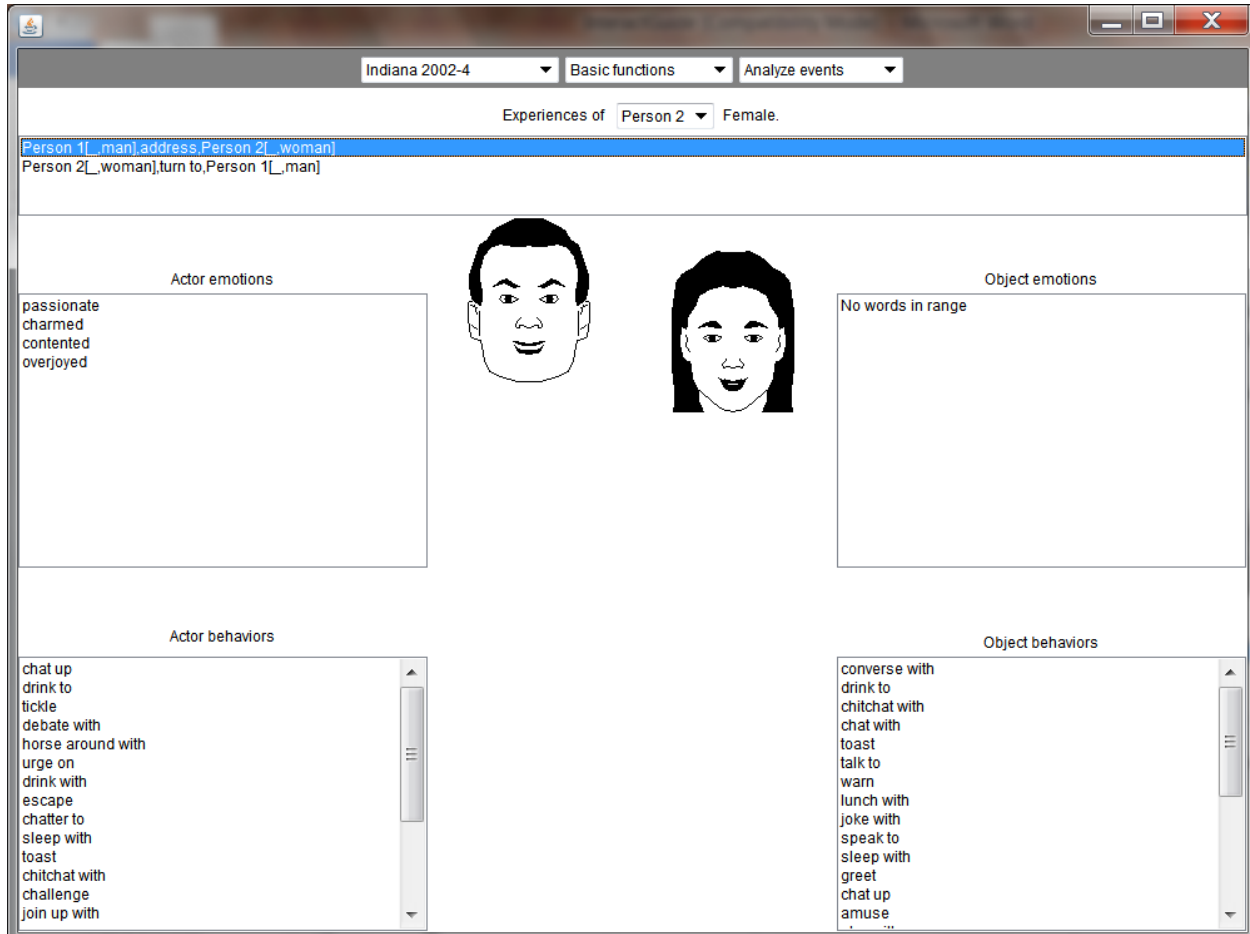


Figure 6. Female experience of the first event.

However, the behavior predictions for Kate shown in the OBJECT BEHAVIORS LIST of Figure 6 suggest that just turning to John would not occur to her. Rather she is inclined to *converse with* or *chat with* or *talk to* him. John has to misinterpret Kate's level of engagement in order to see her as simply turning to him.

Predictions developed from John's perspective do not agree with predictions developed from Kate's perspective because of gender differences in sentiments toward *man* and *woman*, because of gender differences in sentiments toward various behaviors, and because of gender differences in forming impressions from events.

Consider one other issue before leaving this example. Some of John's behavior impulses are to squeeze and sleep with Kate, and both interactants are predicted to have emotions like lustful and passionate. Is *Interact* is making the relation between John and Kate too sexual?

Not really. Individuals identifying as man and woman sometimes do involve themselves sexually, and therefore *Interact* appropriately provides predictions about what sexual behaviors might occur in such a relationship.

The sense of too much sexuality comes from supposing that John and Kate have taken the identities of *man* and *woman* in an office context, where sexual actions are inappropriate. Were they instead taking the identities of, say, *employee* and *employer*, then their sexual preoccupations would disappear, mainly because sexual acts are too rousing to confirm work-world identities, but also because *Interact* would filter out acts from the sexual world during encounters between work-world characters.

## Other Basic Forms

The forms considered above are sufficient to simulate and analyze social interactions, but *Interact* has some additional forms that you might find useful while operating at the basic level.

### The View-Report Form

*Interact* records all your analyses. Select *View report* on the **Operations menu** to see these records. The screen that appears looks like the one displayed in Figure 7.

Each block of text relates to one event. The first line identifies the experiencer, and the second line identifies the event experienced.

Subsequent lines provide emotions for the actor and object, given the experiencer's construal of the action. Then lines show what behaviors the experiencer anticipates from each interactant, in response to the current event. These acts are expectations if they concern individuals other than the experiencer, and they are motives or impulses when they apply to the experiencer.

Other lines designated as deflection, labels, and attributes provide additional information that will be explained when considering advanced functions.

You can transfer analysis records to a word processor as follows. Click inside the box containing the records, and use keys on your computer to select all and copy in order to put the records onto your computer's clipboard. Then bring up your word processor, and use computer keys to paste the records where you want them.

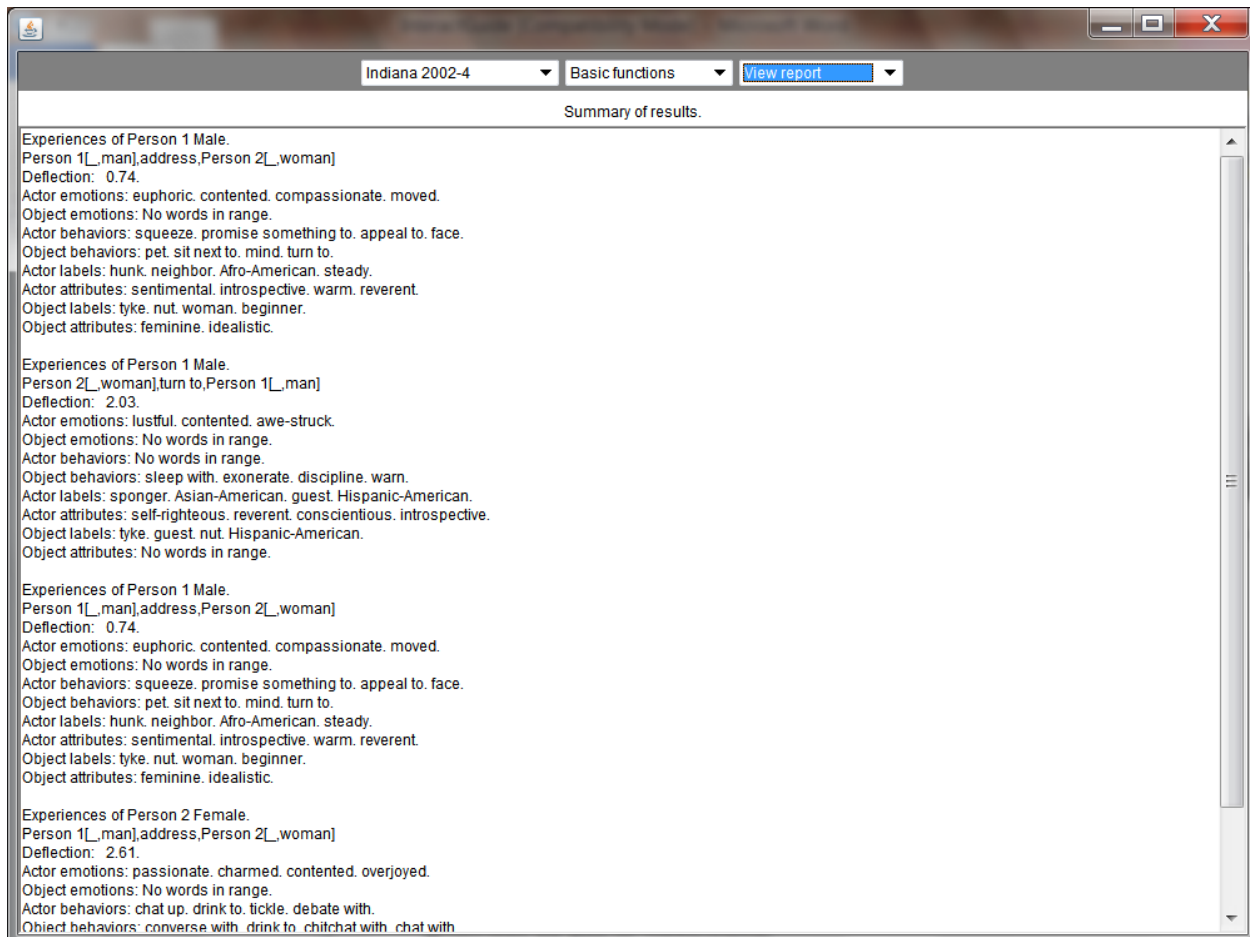


Figure 7. Records of simulated events.

## The Define-Interactants Form

Selecting *Define interactants* on the **Operations menu** produces the screen displayed in Figure 8.

With this form you can assign each of the four possible interactants in a simulation a name, a sex other than the default sex, and a visage other than the one provided by default.

The example analysis above referred to *Person 1* as “John” and *Person 2* as “Kate.” You could make *Interact* actually use these names as follows.

Click in the box that says *Person 1*, delete the existing text, and type *John*. Then click in the box that says *Person 2*, delete the text, and type *Kate*. Thereafter *Interact* will refer to *John* and *Kate* instead of *Person 1* and *Person 2*.

Figure 8. Form for constructing interactants.

For an example of changing sex and visage, consider *Person 3* who by default is a male with the face of the second male in the line-up at the bottom of the screen. You could change *Person 3* to a female having the last face in the line-up by selecting *Female 3* in the **Sex-Visage** menu on the right side of the *Person 3* box. Doing so gives *Person 3* female sentiments and female impression-formation processes, and she has the third female face for expressing emotions.

### The Find-Concepts Form

Selecting *Find concepts* on the **Operations** menu brings up the screen shown in Figure 9. You can use this form to search for concepts associated with a particular sentiment.

Each of the three bars at the top of the screen is a scale with a slider, corresponding to one of the dimensions of affective meaning. When the screen first appears, the sliders are set in the middle. The middle position corresponds to “neither good nor bad” on the first scale, “neither powerful nor powerless” on the second scale, and “neither active not inactive” on the third scale.

You can change the position of the slider on any scale by positioning the cursor over it, and dragging the slider one way or the other with your computer mouse. Moving the slider toward



one end of a scale designates a feeling of the type indicated by the adjectives at that end of the scale. The further you move the slider, the more intense the feeling you are specifying.

The RETRIEVALS LIST in the box below the sliders shows concepts whose associated sentiments are close to the feeling you specify, ordered by their closeness to the feeling. For example, the words displayed in Figure 9 are identities that are close to neutral on all three dimensions of affective meaning, according to Indiana males surveyed in 2002 to 2004. (The survey is indicated on the **Cultures menu** in the menu bar.)

At the left side of the screen are two sets of radio buttons.

The top group specifies the sex of the individuals whose sentiments are represented.

For example, suppose the form looks like Figure 9, and you click the *Female* button. Then the black dot moves from *Male* to *Female*, and the concepts in the RETRIEVALS LIST change to identities that are close to neutral on all three dimensions of affective meaning, according to Indiana females surveyed in 2002-4.

Figure 9. Form for translating sentiments into concepts

The second set of radio buttons determines what kinds of concepts are displayed. For example, suppose the form looks like Figure 9, and you click the *Behaviors* button. Then the black dot moves from *Identities* to *Behaviors*, and the concepts in the RETRIEVALS LIST change to behaviors that are close to neutral on all three dimensions of affective meaning, according to Indiana males surveyed in 2002-4.

## Advanced Analyses

The procedures discussed above allow you to explore affect control theory's basic predictions about emotions and actions during social encounters. However, you can use *Interact* to go much deeper in understanding social relations.

## Situations

Refresh *Interact*'s opening screen by reloading **Interact.jar**. Leave *Advanced functions* showing on the **Complexity menu**. The screen has the format shown in Figure 10.

The **Experiencer menu**, the **Target menu**, and the IDENTITIES LIST all are the same as in Figure 1, and need not be discussed again. However, the expanded form presents eight new elements.

Indiana 2002-4    Advanced functions    Define situation

For viewer    Person 1

Person 1    is

in setting

abortion clinic  
adult bookstore  
airplane  
amusement park  
April Fools Day  
assembly line  
athletic club  
auction  
ball game  
banquet  
bar  
barber shop  
basketball game  
battlefield  
beach  
beauty salon  
bed  
bedroom  
board room  
bowling alley  
brothel  
bull session  
bus stop  
bus  
business meeting  
cafe  
cafeteria  
camp  
campground

abortionist  
adolescent  
adult  
adulterer  
adulteress  
advisor  
Afro-American  
agnostic  
aide  
Air Force enlistee  
Air Force officer  
Air Force reservist  
alcoholic  
alumnus  
anti-Semite  
applicant  
apprentice  
Army enlistee  
Army officer  
Army reservist  
Asian-American  
assistant  
atheist  
athlete  
attorney  
aunt  
authority  
baby sitter  
baby

no emotion  
abusive  
accommodating  
adventurous  
affectionate  
afraid  
aggravated  
aggressive  
agitated  
alarmed  
aloof  
ambitious  
amused  
angry  
anguished  
annoyed  
antisocial  
anxious  
apathetic  
apprehensive  
arrogant  
ashamed  
at-ease  
authoritarian  
awe-struck  
bitter  
Black  
blue  
bossy

Institution  
All institutions

Combination

Java Interact 2, © 2013 David Heise.

Figure 10. Expanded form for defining situations.

### Settings

A SETTINGS LIST occupies the large box on the left. This list allows you to situate a social encounter in a specific place, like a *ball game*, or at a culturally recognized time, like *April Fool's Day*.

You select a setting by clicking on it. You can de-select a setting by clicking on it again, or by selecting a different setting.

Selecting a setting automatically changes equations in *Interact* from those dealing with actor-behavior-object events to equations for events specified in terms of actors, behaviors, objects, and settings. The expanded equations incorporate the sentiment associated with a selected setting into *Interact's* analyses of events.

### Modifiers

A MODIFIERS LIST occupies the large box on the right. This list allows you to refine the definition of a target person by modifying the individual's basic identity with a mood, a trait, or a status characteristic.

You specify a **mood** by selecting an emotion word as modifier. The emotion is combined with the individual's identity to create a personal sentiment that the experiencer tries to maintain for the individual during social action. Specifying a **trait** like *industrious* or *petty* operates the same way: the trait and identity combine to form a personal sentiment that the experiencer tries to confirm. Some **status characteristics** like *rich* or *old* are in the list, and adding one of these to an identification similarly adjusts the personal sentiment that is to be maintained for the target individual.

You select, and de-select, an entry in the MODIFIERS LIST in the usual ways. However, if you click on one of the entries at this point, the entry will be selected, and then immediately de-selected. That is because you cannot modify an identity until you have specified what identity is to be modified.

### Institutions

The screen has an **Institutions menu** in the lower left corner. Making a selection on this menu, other than *All* which appears initially, reduces the number of entries in the SETTINGS LIST and the IDENTITIES LIST. Only settings and identities that are part of the selected social context are listed.

Aside from *All*, the selections on this drop-down menu are<sup>2</sup>: *Lay, Business, Law, Politics, Academe, Medicine, Religion, Family, and Sexual*.

---

2 Alignment of identities and settings with these social institutions is discussed in Chapter 4 of Neil J. MacKinnon and David R. Heise, *Self, Identity, and Social Institutions* (New York: Palgrave, 2010).

The first option, *Lay*, relates to situations that are not covered by other entries in the menu. Mainly these are non-institutional, informal situations. However, the option also collects odds and ends of identities and settings from institutions other than those listed.

The *Business* option presents identities and settings related to occupations and work, and also those related to commerce and sales.

The *Law* option presents identities and settings related to crime and policing, and also those related to courts and law.

The *Politics* option presents identities and settings related to political participation and governing.

The *Academe* option presents identities and settings related to schools and teaching, at all levels.

The *Medicine* option presents identities and settings related to the medical profession and caring for the ill.

The *Religion* option presents identities and settings related to ecclesiastics, divinities, and worship.

The *Family* option presents identities and settings related to marriage, children, and giving care to relatives.

The *Sexual* option presents identities and settings related to sexual attraction and modes of obtaining sexual pleasure, both conventional and deviant.

#### *EPA Profiles*

A **Sentiment box** is positioned beneath each list. The box displays the EPA profile of the selected entry in the list above it. You can copy the profile by clicking inside the box, selecting (Control-A on a Windows computer), and copying to the clipboard (Control-C).

A **Sentiment box** can be used to type an EPA profile (with spaces between each number). Press Enter and the profile that you typed in the box will be added as a special entry in the list above it. Here is an example. Typing an EPA profile consisting of the numbers 2.5, -1, and 0 adds an entry to *Interact* as follows.

```
_2.5_-1_0, 2.5, -1.0, 0.0, 2.5, -1.0, 0.0, 11 111111111 111
```

The new *Interact* entry joins the numbers with underscores to form the “word.” The entered EPA profile is assigned to both males and females which is why the EPA numbers are repeated. The series of ones at the end of the line indicate that this entry is useable in any institution. The added entry can be selected as part of a definition of the situation. It will continue to be available throughout the analysis, though not when *Interact* is reloaded.

A gray-toned **Sentiment box** at the lower left displays the EPA profile generated by amalgamating a selected identity with a selected modifier. New EPA profiles cannot be entered with this box.

## Define Events

Selecting *Define events* in advanced mode produces a form like that in Figure 11. The components on top are the same as in basic mode, with two exceptions.

First, the **Experiencer menu** is followed by text that specifies not only the sex of the experiencer, but also the setting that is salient in the experiencer's mind, when a setting has been selected for the experiencer.

Second, a **Behavior sentiment box** is placed below the BEHAVIORS LIST for reporting the EPA profile of a selected behavior.

An EPA profile can be entered in the box, and a numerically-defined behavior will be added to the BEHAVIORS LIST, with the numbers of the EPA profile serving as the behavior's "word." The entered numbers are the entry's EPA profile, the same for males and females. All institutional filters are open for the new entry. The new entry remains available for defining events, and for predictions on the *Analyze events* form, until you terminate your *Interact* session.

The screenshot shows a software window titled "Indiana 2002-4" with a menu bar containing "Advanced functions" and "Define events". Below the menu bar, the text "Experiences of Person 1 Male." is displayed. The main area is divided into two sections: a large empty box on the left and a cyan-colored box on the right. The cyan box contains "Actor Person 1" and "Object person Person 2". Below this is a list of behaviors: abandon, abuse, accommodate, accuse, address, admonish, advise, agree with, aid, amuse, analyze, answer, apologize to, appeal to, applaud, apprehend, approach, argue with, arrest, ask about something, ask out, assail, assault, assist, attack, attend to, babble to, baby, back, badger. An "Insert this event" button is positioned to the left of the list. At the bottom of the window, there are controls: "Use events of Person 1", "No repeats", and "Switch to:  Corporal  Overt  Group".

Figure 11. Advanced form for defining events.

*Interact* uses undefined behaviors in event definitions when you click the **Insert this event** button with no behavior highlighted. Behavior-less actions appear in the event list in the following manner.

```
Person 1[_ ,man] , _ , Person 2[_ ,woman]
```

When you click on the event in the EVENTS LIST of the *Analyze events* form, the ACTOR BEHAVIORS LIST shows the best behaviors of the given actor toward the given object person, headed by the numerically-defined behavior for the optimal behavior. Clicking on any of the listed options substitutes that behavior for the “\_” in the event definition.

As in basic mode, the bottom line of the form has a button titled **Use events of Person 1**. This button is disabled when the experiencer is Person 1. It becomes enabled when dealing with other experiencers, providing that some events were defined for Person 1.

A **Behavior control menu** is on the bottom line of the advanced form. This allows you to decide how to deal with meaning changes in behaviors that repeat in an interaction.

The default option, *No repeats*, prevents behaviors that have been implemented from reappearing in subsequent predictions. The second option, *Constant transients*, allows repetitions, but meaning changes in behaviors are ignored in repetitions – that is, repeated behaviors continue to have their original EPA profiles when computing impressions in later events. The option of *Evolving transients* also allows repetitions, but a given behavior’s EPA profile changes to the transient meaning it acquired from its most recent usage in an event.

Three checkboxes specifying different kinds of behaviors follow the phrase "Switch to" on the bottom line of this form. A check means that only behaviors of that kind will be included in *Interact*'s predictions on the *Analyze events* form. Lack of a check means that that kind of behavior will be interspersed with other kinds of behaviors in *Interact*'s behavior predictions.

*Corporal* behaviors imply some sort of bodily contact between interactants in most instances of the action, as in *kissing* someone, or *assaulting* someone. Corporal behaviors contrast with verbal behaviors like *inform*, with subjective behaviors like *abhor*, with inferred actions like *forsake*, and with expressive behaviors like *frown at*. *Interact* reports both corporal and non-corporal behaviors on the *Analyze events* form unless you check this box, in which case only corporal behaviors will be reported.

Behaviors have been coded as either *Overt* or *Surmised*. Overt behaviors are those that can be recognized largely through perception alone, as in *addressing* someone, or *hitting* someone. Surmised behaviors have to be deduced through conjectures or value judgments, as in *forgetting* someone, or *reforming* someone. The *Overt* category is checked by default, so *Interact* ordinarily reports only overt behaviors on the *Analyze events* form. Unchecking *Overt* results in both overt and surmised behaviors being reported on the *Analyze events* form.

*Group* behaviors are those that imply a third party, besides the actor and object of an event. For example, an actor *defending* someone implicitly conveys that some third party is threatening the object person. *Interact* ordinarily reports both group and non-group behaviors on the *Analyze events* form, but only group behaviors will be reported if you check *Group*.

Figure 12. Initial appearance of the advanced event-analysis form.

## Analyze Events

Select *Analyze events* in the **Operations menu** while *Advanced functions* is showing on the **Complexity menu**. You get a screen that looks like Figure 12.

Here, as on the define-events form, text following the **Experiencer menu** specifies both the person's sex and the setting that is salient for that person (if a setting was selected). A button labeled **Filters** in the same row will be discussed later.

The EVENTS LIST shows entries constructed on the *Define events* form.

Boxes for emotion and behavior lists are smaller on this screen than on the analysis screen for basic analyses in order to make space for two new sets of lists, relating to attributes and labels, and also to make space for a sentiment box under every list.

Let's tour the elements on the bottom part of the screen before continuing with analysis of John and Kate's encounter.

### Emotions

Consider first the ACTOR EMOTIONS LIST and the **Actor emotion sentiment box**. (Functions of the OBJECT EMOTIONS LIST and the **Object emotion sentiment box** are parallel.)

The EPA profile that appears initially in the **Actor emotion sentiment box** defines numerically the theoretically appropriate emotion for the actor. Entries in the ACTOR EMOTIONS LIST are named emotions close to that profile. The entries are ordered by their closeness to the theoretical profile, with the actual numerical distances preceding emotion names.

You can click on an emotion displayed in the ACTOR EMOTIONS LIST, and that emotion's EPA profile will be displayed in the **Actor emotion sentiment box**. Additionally, the actor's facial expression will change to display that emotion. However, clicking on an emotion changes nothing in the actual analysis.

If you type an EPA profile (three numbers separated by spaces) in the **Actor emotion sentiment box** followed by Enter, the actor's facial expression changes to show the emotion you entered. Try this! Type in 1 2 1, then Enter. John's face appears with a happy look. Now change the first number in the EPA profile from 1 to -1, and press Enter again. Now John is angry!

Facial expressions are formed from an emotion EPA profile according to the following rules. "(a) open eyes with positive activity; (b) arch up brow with positive evaluation; (c) raise brow with negative potency, lower brow with positive potency; (d) move mouth higher with positive potency, and move upper lip higher with positive potency; (e) drop lower lip and narrow mouth with positive activity; (f) curve lips up with positive evaluation, down with negative evaluation (D. Heise, *Expressive Order*, Springer, p. 140).

### Behaviors

The **Actor behavior sentiment box** displays the EPA profile for the actor's theoretically ideal behavior, if the actor acted again immediately after the current action. Entries in the ACTOR BEHAVIORS LIST are the behaviors closest to that profile, ordered by the distances given at the beginning of each line. The distances are printed just prior to the behavior name.

Clicking on a behavior in the ACTOR BEHAVIORS LIST causes a new event to be created and added to the EVENTS LIST, positioned after the current event. The behavior in the new event is the one you selected, and the event has the same actor and object as the current event. The new event is implemented immediately, without your clicking on the new entry in the EVENTS LIST, so all displayed results change.

At least that is the case when *Next* appears on the **Temporal menu** attached to the ACTOR BEHAVIORS LIST.

If you change *Next* to *Now* on the **Temporal menu**, then the **Actor behavior sentiment box** displays the EPA profile for the actor's theoretically ideal behavior at the moment. Entries in the ACTOR BEHAVIORS LIST are behaviors closest to the profile, ordered by their distances.



With *Now* displayed in the **Temporal menu**, clicking on a behavior in the ACTOR BEHAVIORS LIST causes that behavior to replace the currently implemented behavior. The event in the EVENTS LIST is revised with the selected behavior replacing the original behavior. This new event is implemented automatically, so all results on the screen are changed to reflect the newly defined current event.

The **Object behavior sentiment box** and the OBJECT BEHAVIORS LIST work like the corresponding actor elements with *Next* showing on the **Temporal menu**.

The **Actor behavior sentiment box** and the **Object behavior sentiment box** each show a parenthetical number as well as a behavior EPA—for example, ( 0.65 ). This is the individual's *personal tension*, measuring how far that person's transient EPA profile is from the person's fundamental EPA. Personal tensions are used to decide who will act next, as demonstrated later.

### *Attributes*

The **Actor attribute sentiment box** displays the EPA profile for an identity modifier that could be attached to the actor's identity in order to explain why an actor with the given identity would have engaged in the given behavior toward the given object. Entries in the ACTOR ATTRIBUTES LIST show modifiers that fit the profile, ordered by their distance.

Clicking on one of the entries in the ACTOR ATTRIBUTES LIST causes that modifier to be incorporated into the actor's identity, replacing the prior modifier, if any. Then the results of the current event are re-calculated automatically, using the new modifier.

The new modifier for the actor is permanently reflected in the construction of any new events involving that interactant. However, the new modifier does not affect previously defined events, other than the current event.

The **Object attribute sentiment box** and the OBJECT ATTRIBUTES LIST work the same way, except that they address the question, What personal attribute of a person with the object's identity warrants the given actor performing the given behavior on the person?

### *Labels*

The **Actor label sentiment box** displays the EPA profile for an identity that would best answer the question, What kind of person would perform this behavior on this object person? The term "label" comes from sociological labeling theory, which examines how people assign identities to individuals in order to account for their behavior.

Entries in the ACTOR LABELS LIST show identities that fit the profile, ordered by their distance. Clicking on one of the entries causes that identity to be exchanged for the actor's current identity, permanently. Results of the current event are re-calculated automatically, using the new identity.

The **Object label sentiment box** and the OBJECT LABELS LIST work the same way, except that they address the question, What kind of a person deserves being the object of the given behavior by the given actor?

### Deflection Graph

When an event is being analyzed, the bottom middle of the screen in Figure 12 shows a graph, partitioned into regions. The graph plots deflections for generated events, in sequence, thereby indicating how well impressions from events are maintaining the experiencer's fundamental sentiments over time.

Background colors partition the graph into four **segments**. Deflections in the lowest quarter of the graph are produced by events that maintain sentiments reasonably well; such events seem normal and expected. Deflections in the second quarter from the bottom signal events that produce impressions somewhat different than situational sentiments; such events seem unusual and unique. Deflections in the third quarter from the bottom are from events that generate impressions that are inconsistent with situational sentiments; such events seem unorthodox and weird. Events with deflections in the top quarter of the graph produce impressions that invalidate situational sentiments; such events seem impossible as originally conceived.

Indiana 2002-4    Advanced functions    Find concepts

Bad, Awful    Good, Nice

Little, Powerless    Big, Powerful

Inactive, Slow    Active, Fast

infinitely    neutral    infinitely

Entries matching EPA profile: 0,0,0,0,0

Male  
 Female  
 Lay  
 Business  
 Law  
 Politics  
 Academe  
 Medicine  
 Religion  
 Family  
 Sexual

Male  
 Female  
 Identities  
 Behaviors  
 Modifiers  
 Settings

gay, -0.01 -0.10 -0.15, 0.18  
 stepmother, -0.11 -0.07 0.14, 0.19  
 stepparent, 0.12 0.09 0.19, 0.24  
 stranger, 0.02 -0.09 -0.23, 0.25  
 probationer, -0.19 0.17 0.13, 0.29  
 sponger, 0.16 0.20 -0.17, 0.31  
 convalescent, 0.30 0.09 -0.03, 0.31  
 stepsister, 0.28 -0.10 0.26, 0.39  
 spendthrift, -0.40 -0.05 -0.07, 0.41  
 stuffed shirt, 0.06 -0.33 0.26, 0.42  
 spinster, -0.38 -0.13 -0.15, 0.43  
 toady, -0.37 -0.20 -0.12, 0.44  
 chum, -0.05 0.22 0.38, 0.44  
 agnostic, -0.33 -0.32 0.06, 0.46  
 stepdaughter, 0.47 0.06 -0.03, 0.47  
 questioner, 0.30 0.36 0.21, 0.51  
 novice, 0.30 -0.42 0.07, 0.52  
 gun moll, -0.29 0.11 0.42, 0.52  
 stepchild, 0.06 -0.55 -0.08, 0.56  
 stepbrother, 0.43 0.23 0.31, 0.58  
 tomboy, -0.07 0.25 0.52, 0.58  
 bureaucrat, -0.54 0.11 0.22, 0.59  
 divorcée, -0.23 -0.52 0.20, 0.60  
 plainclothesman, 0.29 -0.29 -0.48, 0.63  
 half brother, 0.01 0.04 0.63, 0.63  
 miser, -0.40 -0.07 -0.50, 0.64  
 hussy, -0.56 0.08 0.31, 0.65  
 sawbones, 0.19 0.49 0.41, 0.67  
 mouthpiece, 0.57 0.35 -0.07, 0.67

Type number for maximum distance, press Enter. 1.00

Figure 13. Form for translating sentiments into concepts, in advanced mode.

## Find Concepts

Selecting *Find concepts* on the **Operations menu** when working with *Advanced functions* produces the form displayed in Figure 13.

Instead of specifying an EPA profile with the slider scales, you can type or Paste a reference profile into the **Search profile sentiment box** next to the phrase “Entries matching EPA profile,” after deleting the zeros already in the box. Then press Enter, and a list of concepts with sentiments close to that EPA profile will be listed in the RETRIEVALS LIST.

Each line in the RETRIEVALS LIST contains a word or phrase identifying the concept, the concept’s EPA profile, and the distance between the search profile and the concept’s profile.

By default, the RETRIEVALS LIST shows all concepts with a distance less than 1.0. The cut-off distance can be changed by entering a new value between zero and sixteen in the **Maximum distance box** at the bottom right of the screen. (No concepts will be omitted from the list if you enter 16.0.) The new value also will be used when creating lists on the *Analyze events* form.

Radio buttons specifying sex, and radio buttons specifying kinds of concept work the same as with *Basic functions*. That is, selecting *Male* or *Female* establishes the gender database used in retrievals, and selecting *Identities*, *Behaviors*, *Modifiers*, or *Settings* determines the kind of concepts that are retrieved.

The advanced form additionally presents a series of filtering check-boxes, allowing you to eliminate types of concepts which do not interest you. A check in a box allows the corresponding type of concept to appear in retrievals. Removing a check closes the filter, excluding that type of concept from retrievals.

- Social institutions serve as filters for identities, behaviors, and settings. Initially retrievals include concepts from all institutions – *Lay*, *Business*, *Law*, *Politics*, *Academe*, *Medicine*, *Religion*, *Family*, and *Sexual*. Click on boxes to uncheck them and exclude concepts uniquely related to that institution. For example, click on all boxes except *Religion* to retrieve just concepts that may be operative in religious situations.
- Identities have *Male* and *Female* filters, in addition to institutional filters. (These sex filters are in addition to the sex radio buttons for choosing datasets.) Closing the *Male* filter by unchecking it removes all identities that are uniquely male. Closing the *Female* filter removes uniquely female identities from retrievals.
- Behaviors have *Overt* and *Surmised* filters, in addition to institutional filters. Closing the *Overt* filter by removing its check leaves behaviors whose recognition requires substantial inference or value judgments – more so than are required to recognize *Overt* behaviors.
- Settings have *Place* and *Time* filters, in addition to institutional filters. Closing the *Place* filter leaves settings that are defined largely in terms of clocks or calendars. Closing the *Time* filter leaves settings defined largely in terms of physical characteristics or location.
- Modifiers have their own set of filters, consisting of *Emotion*, *Trait*, *Status*, and *Feature*. Closing all filters but *Emotion* limits retrievals to words designating emotions and affective states. Closing all but *Traits* leaves personality variations and behavioral styles. *Status* modifiers relate to social stratification and social position. *Feature* mainly relates to various kinds of value judgments.

- Modifiers also have an *Adjective* filter, set off on its own. Its complement, *Adverb*, has not been implemented in *Interact*, so this filter currently is functionless.

### Examples

Suppose you're reflecting on a personal interaction, and you're trying to apprehend what the other did to you at one point. You know how the action seemed – say, somewhat nasty, very overbearing, and a bit agitated. But what action was it? What word names what the other did?

Go to *Find Concepts* with the **Operations menu**. Select *Behaviors* among the concept radio buttons.

Move the sliders to match your feelings about the behavior – say, one interval toward “Bad, Awful,” all the way out to “Big, Powerful,” and one interval toward “Active, Fast.” This produces no retrievals, just the message “No words in range, 99.99 99.99 99.99, 99.99.” (99.99 is *Interact's* code for a missing number.)

You have two tactics for dealing with this predicament.

First, increase the cut-off distance for retrievals. Change 1.00 to 3.00 in the **Maximum distance box**. Then the RETRIEVALS LIST box displays the following entries: combat, capture, sentence, fire \_ from a job, overpower, handcuff.

In the second tactic, you change the representation of your feeling, because lack of retrievals often results from one of the sliders being too extreme. Move the potency slider back so that it is two intervals from the middle. This produces about a dozen retrievals (when the cut-off distance is 1.00). Some behaviors are the same as with the first tactic, but some of the less belligerent retrievals may describe what your interactional partner was doing – like scolding you, bossing you around, or defying you.

A second example relates to obtaining cross-cultural understanding. Japanese males' EPA profile for *child* is -0.24 -2.10 2.75, and the profile is 0.00 -2.00 2.80 for Japanese females, according to *Interact's* Japanese repository of sentiments. The low evaluation of *child* seems bizarre to individuals in cultures that view children as very nice – e.g., in America the EPA profile for *child* is 1.45 -0.76 2.10 among males and 2.08 -0.64 1.94 among females. Americans might wonder how Japanese orient toward children when the Japanese sentiment is so remote from American feelings. The *Find concepts* form can help address the question by finding an equivalent identity in America.

Go to the *Find concepts* screen. Delete the zeros in the **Search profile sentiment box**, type in the Japanese female profile for *child*, 0.00 -2.00 2.80, and press Enter.

The RETRIEVALS LIST box displays the message, “No words in range.” This is informative in this case. The American lexicon of identities (at least as represented within *Interact*) contains no close approximation to Japan's affective meaning of *child*.

Expand the search to show poorer approximations by changing 1.00 to 2.00 in the **Maximum distance box**. Then, with the female database selected, the RETRIEVALS LIST shows *adolescent, teenager, schoolboy, youngster, neurotic, goof-off, and klutz*. With the male database selected, the RETRIEVALS LIST shows only *call girl*.

This suggests that Japanese relate to children somewhat like American females relate to adolescents. And like American males relate to call girls!

## Other Forms

Operating in advanced mode causes some limited changes in two other forms.

### *View Report*

The *View report* form in advanced mode begins with a statistical summary regarding the sentiment repository that you are using. For each set of concepts – identities, behaviors, modifiers, and settings – the following are given:

- number of concepts in the set;
- mean evaluation, potency, and activity, first for males and then for females;
- evaluation, potency, and activity variances, first for males and then for females.

Summaries of events continue to show whose experiences are being reported, the definition of the event, and the deflection. However, the summaries are more complex than in basic mode.

The advanced summary shows the EPA profiles for the sentiments – or fundamentals – associated with each element in the event. The missing data code (99.99) is used to specify the setting sentiment when no setting was selected for the experiencer.

Then EPA profiles for impressions – or transients – are reported. Input transients are the impressions existing at the beginning of an event. These are equal to sentiments for the first event in a sequence. Thereafter, input transients are outcome transients from prior events.

EPA profiles for outcome transients are reported next. These are the impressions of each event element that were created by the event.

The deflection and tensions produced by the action are reported on the next line. Deflection is the total distance between fundamental EPAs and outcome transient EPAs. Actor tension is the squared distance between the actor's fundamental EPAs and outcome transient EPAs. Object tension is the squared distance between the actor's fundamental EPAs and outcome transient EPAs<sup>3</sup>.

After the deflection, the summary lists the optimal EPA profiles for the actor's and object's emotions, for next behaviors, for reidentification labels, and for reidentification attributes. Following each profile is the closest verbal representation of the profile, and the distance between the verbal concept and the ideal profile. The message "No words in range" is given if no concept is within the range specified in the **Maximum distance box** on the *Find concepts form*.

---

<sup>3</sup> To illustrate the concepts of distances and tensions, let  $A_e$   $A_p$   $A_a$  be the actor's fundamental EPA profile and  $A_e'$   $A_p'$   $A_a'$  be the actor's current transient EPA profile. Actor tension is  $(A_e' - A_e)^2 + (A_p' - A_p)^2 + (A_a' - A_a)^2$  and the distance between the actor's fundamental EPA and transient EPA is the square root of that sum.

## John-and-Kate Redux

Return to the example of John and Kate to see how the *Advanced functions* tools clarify and deepen an *Interact* analysis. Start with a fresh version of *Interact* by reloading the program.

Use *Interact*'s capability to name interactants. Select *Define interactants* on the **Operations menu**, and type *John* in place of *Person 1*, and *Kate* in place of *Person 2*.

Additionally create two alter-egos of John and Kate, to observe actions from a different view-point. Change *Person 3*'s name to *Jack*, and *Person 4*'s to *Kath*. Also, change Jack's visage to *Male 1* and Kate's visage to *Female 1*.

Now return to the opening screen by choosing *Define situation* on the **Operations menu**. Make sure that *Advanced functions* is showing on the **Complexity menu**.

### Defining the Situation

You recall that in our first analysis of interaction between John and Kate, we imagined that they were in an office, and their *man* and *woman* identities inclined them toward some sexual feelings and inclinations that seemed inappropriate in such an environment.

Select *Business* on the **Institutions menu** to see if this tool can eliminate the problem. You'll see some shuffling in both the SETTINGS LIST and the IDENTITIES LIST. Now check for *man* and *woman* in the IDENTITIES LIST, and you'll find that those identities are absent! Thereby *Interact* indicates that the identities of *man* and *woman* should be foregone in business world encounters. Entries also have been eliminated from the SETTINGS LIST—e.g., *courtroom* and *emergency room*—which discourages viewing business world dealings within inappropriate environments.

While the **Experiencer menu** reads *John* and the **Target menu** also reads *John*, scroll down the SETTINGS LIST, and select *office*. The EPA profile for *office* appears in the **Setting sentiment box** below the list: 1.02 1.14 0.83. The numbers indicate that, on the average, Indiana males in 2003 rated *an office* as more or less slightly good, slightly powerful, and slightly active<sup>4</sup>.

Now scroll down the IDENTITIES LIST, and select *employee* as John's identity. The EPA profile for *employee* appears in the **Identity sentiment box** below the identities list: 1.16 0.48 0.66, in words, slightly good, neither potent nor impotent, and slightly active.

We could run the analysis with John having the *employee* identity, unelaborated. However, this time let's augment John's identity by specifying that he sees himself as having the trait of conscientiousness. By recognizing this trait in himself, John is motivated to behave, not just as an *employee*, but as a *conscientious employee*.

Scroll down the MODIFIERS LIST, and select *conscientious*. The sentiment displayed in the **Modifier sentiment box** below the MODIFIERS LIST is: 1.05 0.89 0.08, indicating that being conscientious is slightly good, slightly potent, and neither active nor inactive.

---

<sup>4</sup> To verbalize a profile, round the numbers to the nearest digit, and translate a 1 to *slightly*, a 2 to *quite*, a 3 to *extremely*, and a 4 to *infinitely*.

Simultaneously, an EPA profile is displayed in the shaded **Amalgamation sentiment box**: 0.73 0.51 0.34. This is the sentiment associated with a *conscientious employee* – about the same as *employee* except (surprisingly) slightly less good.

Now change the **Target menu** to *Kate* in order to specify John's view of her in this situation. The SETTINGS LIST still shows the selection of *office*, since John remains the experiencer.

Identify Kate as *employer*. The **Identity sentiment box** shows 1.26 1.94 1.09, indicating that males like John think that an employer is slightly good, quite powerful, and slightly active.

Let's suppose that John attributes the trait of generosity to Kate. Scroll down the MODIFIERS LIST, and select *generous*. The associated sentiment in the **Modifier sentiment box** is 2.97 1.95 1.10, so being generous is extremely good, quite potent, and slightly active.

The **Amalgamation sentiment box** shows the sentiment for a *generous employer*, which is the identity that John will try to maintain for Kate during interactions. The sentiment for this amalgamation, 2.01 1.75 1.12, is substantially nicer than the sentiment for an unmodified employer.

Figure 14 shows the completed form defining John's view of Kate.

The screenshot displays the Java Interact 2 interface for defining a viewer's view of a target. The top navigation bar includes 'Indiana 2002-4', 'Advanced functions', and 'Define situation'. Below this, the 'For viewer' dropdown is set to 'John'. The main interface is divided into three columns: 'in setting', 'Kate', and 'is'. The 'in setting' column lists various locations, with 'office' selected. The 'Kate' column lists various roles, with 'employer' selected. The 'is' column lists various traits, with 'generous' selected. Below these columns are three sentiment boxes: '1.02 1.14 0.83', '1.26 1.94 1.09', and '2.97 1.95 1.10'. At the bottom, an 'Institution' dropdown is set to 'All institutions' and a 'Combination' box shows '2.01 1.75 1.12'. The footer reads 'Java Interact 2, © 2013 David Heise.'

Figure 14. John's expanded view of Kate.

While still on the define-situation form, switch the **Experiencer menu** to *Kate*. You will see that John's definition of interactants has been reproduced as Kate's definition of them. You could provide Kate with different definitions by making different selections, but let's accept the parallel definitions in this example analysis.

However, the *office* setting has not been extended to Kate. Select *office* in the SETTINGS LIST to keep the definitions of John and Kate completely parallel.

Even though John and Kate define the situation the same in conceptual terms, the meanings of the situation are somewhat different for them because of gender differences in sentiments. Compare the sentiments, and you will find that offices are a bit less nice and active for females; a conscientious employee is much nicer for females than for males; and a generous employer is a bit nicer and more potent in female minds than in male minds.

Now to Jack and Kath's world, which is the same as John and Kate's except for salience of the *office* environment. Having these two alternative worlds will allow easy examination of how settings impact social encounters.

Change the **Experiencer menu** to *Jack* and the **Target menu** to *John*. John's identity of *conscientious employee* already is set up from the definitions of John (Person 1), and *office* is unselected, just as we want it. Check that Jack sees Kate in the proper way, and that Kath also has the desired identifications of John and Kate.

## Event Definition

Now go to *Define events* in the **Operations menu**. Add the same event as was used in the earlier analysis to John's EVENTS LIST. With *John* in the **Actor menu** and *Kate* in the **Object menu**, click *address* in the BEHAVIORS LIST. The EPA profile for addressing someone will appear in the **Behavior sentiment box**: 1.11 0.87 0.15. (The profile would be 1.52 1.40 0.29 if Kate were the experiencer, as females think this behavior is somewhat nicer and more potent than males do.)

Click the button labeled **Insert this event**. The following event definition is written into the EVENTS LIST.

```
John[conscientious,employee],address,Kate[generous,employer]
```

In other words: John, the conscientious employee, addresses Kate, the generous employer. Remember that the setting of *office* also is salient in John's mind, as indicated at the top of the form where it says "Male, in setting: office."

Select each of the other experiencers, and click the **Use events of Person 1** button to distribute the same event to all of them.

## John's Action

Change from *Define events* to *Analyze events* in the **Operations menu**. The form shows John as the experiencer. The EVENTS LIST has the following entry.

```
John[conscientious,employee],address,Kate[generous,employer]
```



As indicated by the phrase “Male, in setting: office” at the top of the *Analyze events* form, the setting of *office* is part of the event, too, because this setting is salient for John and Kate.

It is worth amplifying this event into a more detailed vignette in order to appreciate how all of the elements operate together social psychologically.

John is a conscientious employee at Craftwork Industries, and Kate, his employer, is known for her generosity. One morning John enters Kate's office, and addresses her, “Mrs. Alpha, widgets are in the whatever.”

To see *Interact's* predictions about how these elements affect John, click the entry in the EVENTS LIST in order to make the event happen. The result is displayed in Figure 15.

John's emotion, as a conscientious employee addressing a generous employer, is defined by the theoretical EPA profile of 1.91 0.96 0.72 displayed in the **Actor emotion sentiment box**. His emotion is similar to his emotion as a man addressing a woman, judging from a comparison of facial expressions in Figure 15 and Figure 4.

However, John deems Kate's emotion in this work-world event to be less positive than for a woman being addressed by a man. The difference is evident from Kate's facial expression in Figure 15 as compared to Figure 4. In fact, John expects that this event is making Kate feel vulnerable, as reflected in the potency of -1.46 for her theoretical emotion, displayed in the **Object emotion sentiment box**. Such a feeling of vulnerability often results when a powerful person is objectified by someone's action.

The **Actor behavior sentiment box** displays the EPA profile for John's theoretically ideal behavior, if he acted again after having addressed Kate. The EPA profile of 2.10 0.69 0.18 is quite positive. Some of the positivity is to compensate for the slight pomposity and impertinence of John's prior act of *addressing the generous employer in her office*. In fact, he might even offer an apology, as indicated by the behavior of *make up with* in the ACTOR BEHAVIORS LIST.

You can check what a better act would have been by changing the **Temporal menu** to *Now*. The automatic update of the screen shows that the ideal sentiment for an initial behavior by the *conscientious employee* toward the *generous employer* in her office would have an EPA profile of 1.81 0.91 0.41 – less potent and a little nicer than the sentiment for *address*. The ideal profile could be implemented with acts like *caution*, *chat with*, or *consult with*.

If Kate acts next, John expects that she will behave extremely nicely and quite powerfully, as indicated in the **Object behavior sentiment box** with its EPA profile of 2.53 2.43 0.57. Various entries in the OBJECT BEHAVIORS LIST are visible in Figure 15. If Kate did act in accord with John's expectations, she would have to choose among the possibilities logically – *teach* him if he is stumped by a problem, *give him a raise* if she realizes he is underpaid, or perform an act with minimum pre-conditions like *smile at*.

Since John did not engage in an ideal behavior, some question might arise in his mind about whether *conscientious* really is his salient trait. The **Actor attribute sentiment box** indicates that a trait befitting his action better would have an EPA profile of 2.18 1.20 0.16, and possibilities in the ACTOR ATTRIBUTES LIST include *earnest*, *affectionate*, and *accommodating*.

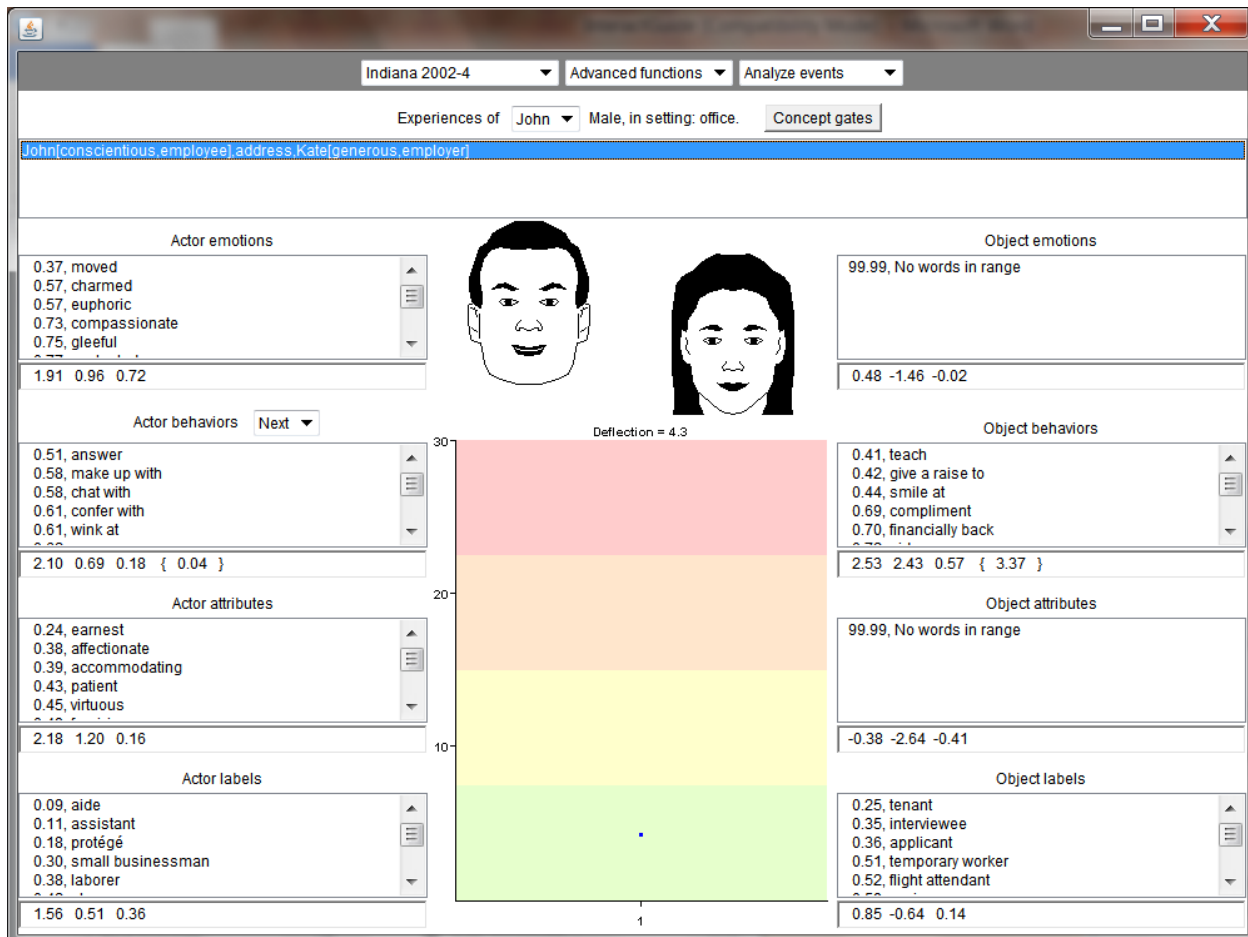


Figure 15. Results for John, with advanced functions.

Why would an even nicer trait befit his slightly pompous and impertinent action? Because if he seemed nicer, his action of addressing would have less of a detrimental effect on the *generous employer in her office*.

Alternatively, he might try to interpret his action as befitting his employer, but with a different characteristic than *generous*. The **Object attribute sentiment box** indicates that the required trait would have an EPA profile of -0.38 -2.64 -0.41. However, the message in the ACTOR ATTRIBUTES LIST indicates that no trait has such a sentiment, mainly because of the extreme impotence required, so this kind of adjustment is infeasible.

A different approach to accounting for John's inappropriate action would be to reconsider his basic identity in the situation. The **Actor label sentiment box** indicates that his action confirms an identity sentiment of 1.56 0.51 0.36, which is nicer than the EPA profile of 0.73 0.51 0.34 associated with *conscientious employee*. So he could re-identify himself with one of the identities in the ACTOR LABELS LIST, such as *aide*, *assistant*, or *protégé*.

Or he might think about re-identifying Kate as the kind of person who befits the action of being addressed in her office by a conscientious employee. The **Object label sentiment box** gives an

EPA profile of 0.85 -0.64 0.14 for the required identity, and the OBJECT LABELS LIST suggests possibilities of *tenant*, *interviewee*, or *applicant*. Since such identities would invert John's relationship with his employer, they are too impractical to consider seriously.

The **Deflection graph** reports a deflection value of 4.3 for this event. That is higher than would be generated by a more appropriate action from John. On the other hand, the plot shows the deflection in the lowest sector of the graph, indicating that the event essentially is normative, and therefore it probably would not lead to any sort of revision in the definition of the situation, notwithstanding the *Interact* results reporting potential attributions and labels.

## Kate's Responses

Kate's responses to the event are not the same as John's, though they are close. First, let's repeat the vignette in order to vivify the action.

John is a conscientious employee at Craftwork Industries, and Kate, his employer, is known for her generosity. One morning John enters Kate's office, and addresses her, "Mrs. Alpha, widgets are in the whatever."

Figure 16 shows that Kate sees John's emotionality about the same as John actually feels but with a bit more positivity. This is evident by comparing the **Actor emotion sentiment boxes**, the ACTOR EMOTIONS LIST, and the drawing of John's face in Figures 15 and 16.

On the other hand, she herself is somewhat more uneasy than John imagines, as reflected in her facial expression and her greater emotional impotency: -2.09 in the **Object emotion sentiment box** of Figure 16.

According to the ACTOR BEHAVIORS LIST in Figure 16, Kate supposes John wants to interact informally with her, at lunch for example. This expectation is a bit more active than John's actual desires. Switching to *Now* on the **Temporal menu** reveals that Kate thinks that similar behavior from John would have been the appropriate kind of action to begin with. Meanwhile her own impulses to action are a bit more potent and active than John imagines. None of the listed action implementations are very close to her ideal behavior EPA – the first behavior is 0.71 units away – but these actions are similar to what John expects.

John's personal tension of 0.07 is much less than Kate's tension of 3.64. The individual with more tension typically acts next since action is a method for reducing tension. In fact, John's tension is so low in this case that he might even wait for Kate to respond to his addressing her.

The **Actor label sentiment box** in Figure 16 indicates that Kate feels that the individual addressing her should have an EPA profile of 2.51 0.03 0.29, rather than the profile of 1.67 0.53 0.40 associated with a *conscientious employee*. The ideal profile could imply *employee* (unmodified) or *assistant*, although neither of these possibilities is perfect, judging from the large distances printed in the ACTOR LABELS LIST. Alternatively, Kate might attain the required actor sentiment by changing her understanding of John's trait from *conscientious* to *easygoing*, *warm* or *earnest*, according to the ACTOR ATTRIBUTES LIST in Figure 16.

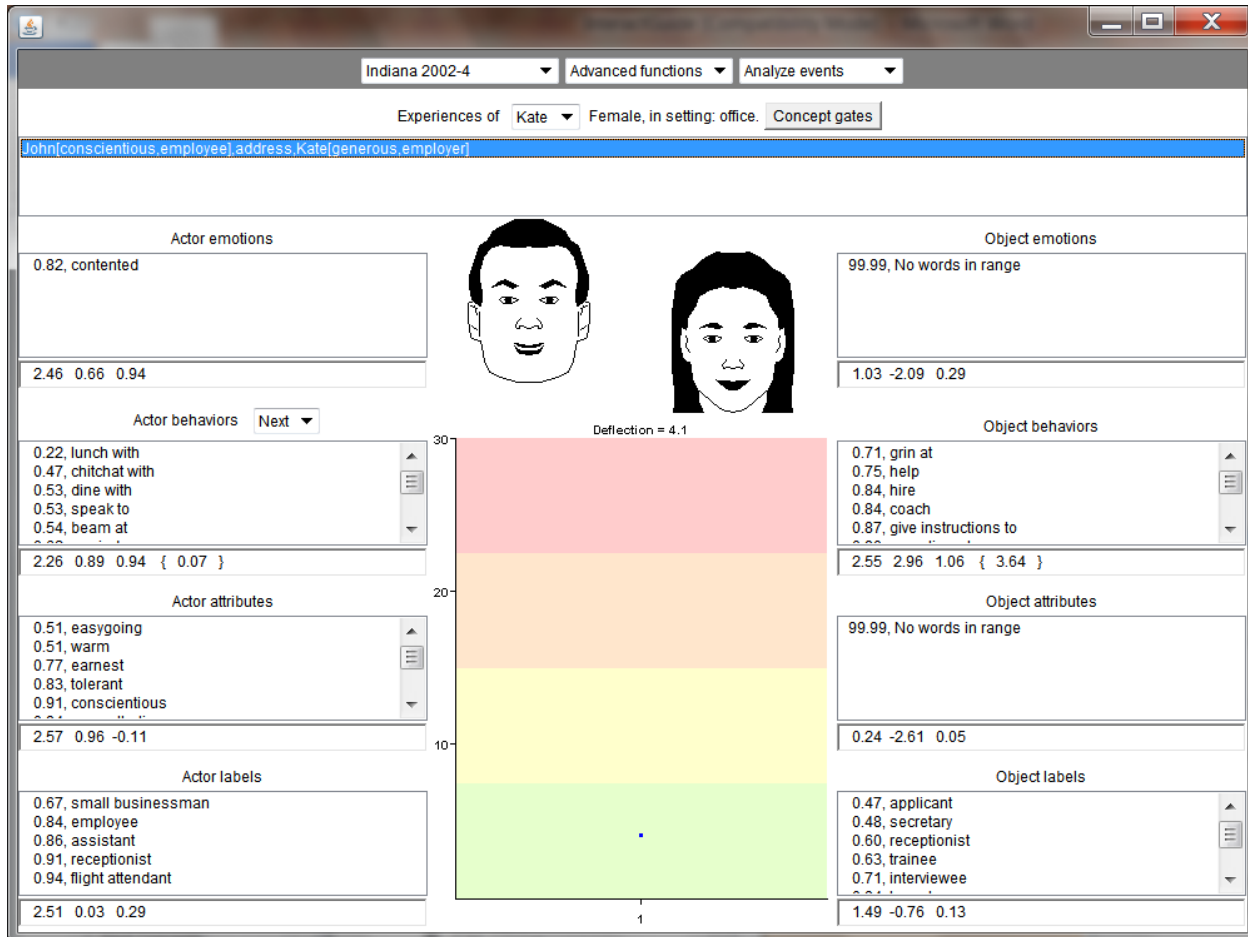


Figure 16. Results for Kate, with advanced functions.

The **Object label sentiment box** in Figure 14 indicates that Kate would have to take an identity with a sentiment of 1.49 -0.76 0.13 to warrant being *addressed* in an *office* by a *conscientious employee*. Only identities like *applicant*, *secretary*, or *receptionist* implement such a profile – all impracticable given Kate's employer status. Kate might try achieving such a self-profile by self-attributing a trait with an EPA profile of 0.24 -2.61 0.05, according to the **Object attribute sentiment box** in Figure 14. However, no non-negative traits have such low potency.

The **Deflection graph** indicates that the disturbance from this event is about the same for Kate as it is for John. So Kate, too, sees the event as basically normative, and therefore not really requiring any re-definition of the situation.

### Setting Effects

Does salience of *office* actually impact how John and Kate respond to this event? Theoretically yes, because in salient settings – say, a church, a hospital, a courtroom, or a classroom – interactants' actions maintain the sentiment attached to the setting, while also confirming sentiments associated with identities. When a setting is not salient, actions orient toward confirming identities only.

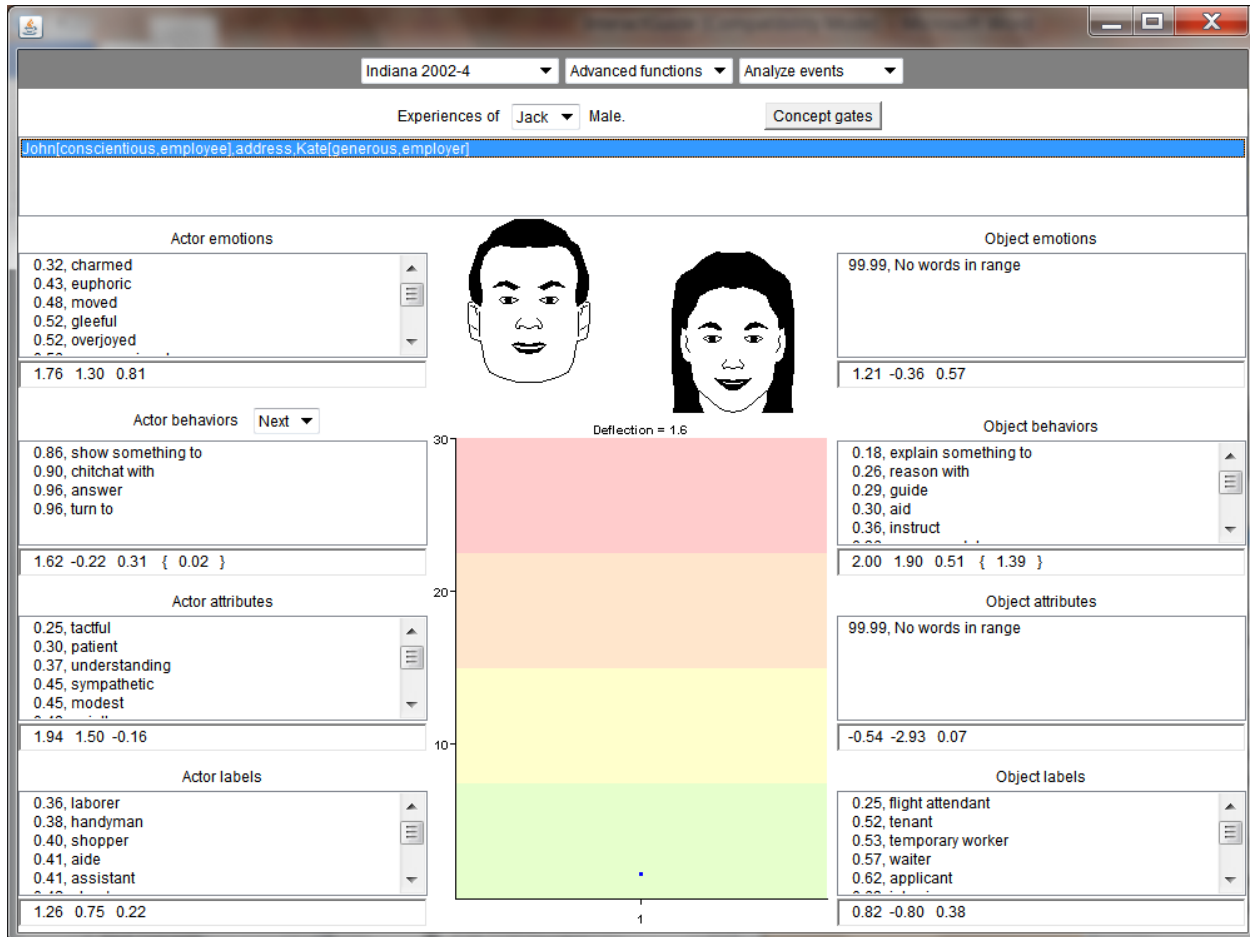


Figure 17. Jack's view. Office is not salient.

We can examine the impact of the setting by considering how *Interact's* predictions change when the event is viewed through the eyes of Jack and Kath. These observers have the same definition of the situation as John and Kate, minus the *office* setting<sup>5</sup>.

Figure 17 shows Jack's responses to the event, *the conscientious employee addresses the generous employer*. Compare this with Figure 15 to see the impact of setting salience. Jack perceives John's emotion as close to the emotion that John feels, except a bit more confident. However, Jack's conception of Kate's emotion differs from John's conception in supposing that Kate feels nicer, less impotent, and more active.

<sup>5</sup> *Interact's* actor-behavior-object (ABO) equations were obtained in two phases, as discussed in D. Heise's paper, "Methodological Issues in Impression-Formation Research" (Bloomington IN, Indiana University, 2011). The actor-behavior-object-setting equations events were obtained with stepwise regression. Methodological differences in the equations may contribute to differences noted here, but similar differences arose when using ABO equations obtained with stepwise regression.

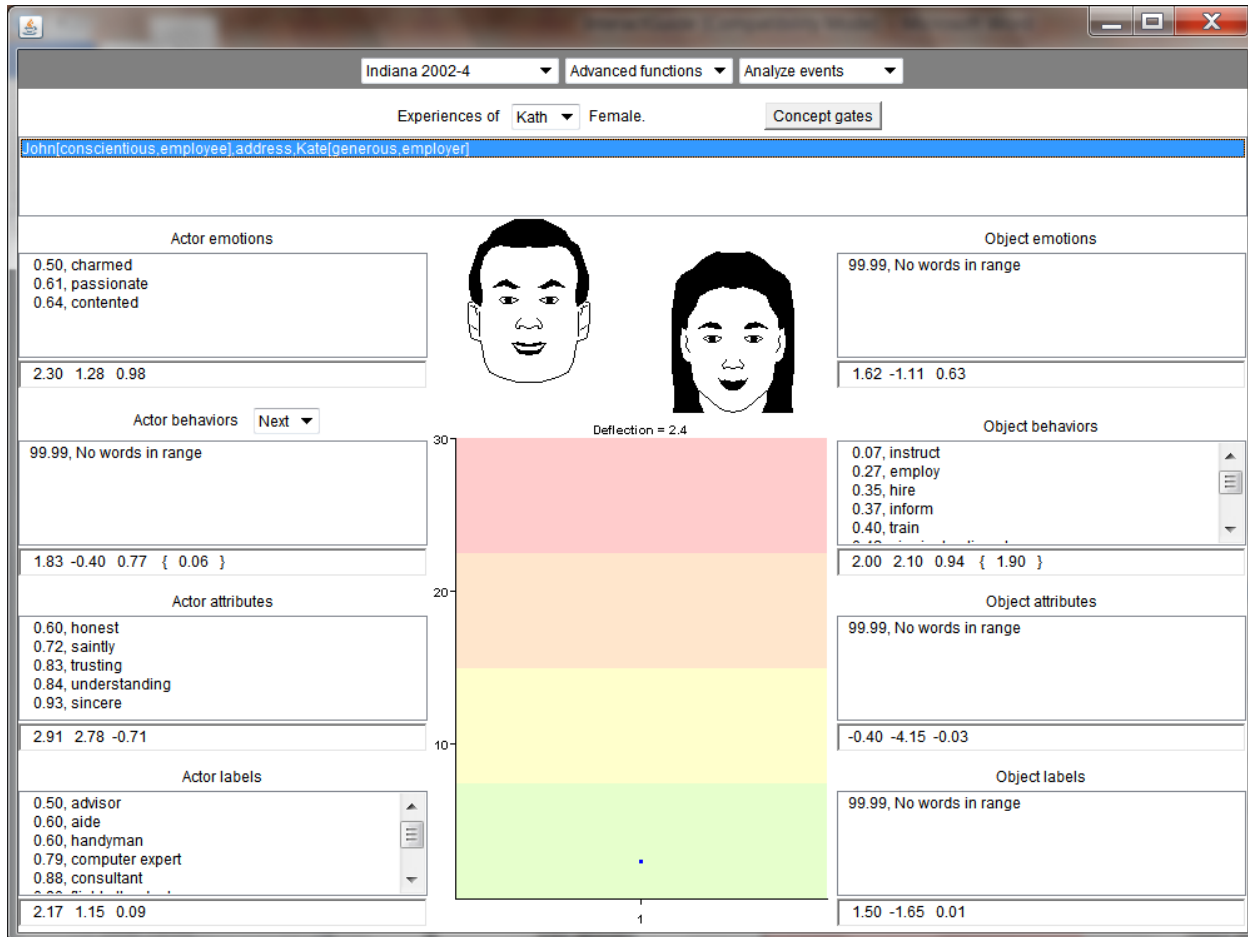


Figure 18. Kath's view: office is not salient.

Were John to follow his first action with another, Jack thinks he should act less pleasantly and less powerfully than John is motivated to act. Nevertheless, comparing the ACTOR BEHAVIORS LIST for John with the one for Jack shows that net results would be similar. Jack also expects a more relaxed behavioral response from Kate than John expects – slightly less extreme in goodness and potency.

Attributions and possible labeling processes for Jack and for John are similar even though not identical.

The deflection is about two and a half units lower for Jack than for John. Maybe that reflects less stress regarding this event for Jack. However, the deflection difference includes an artifact arising from the fact that deflection for John is computed by summing over four entities – actor, behavior, object, and setting – while only the first three terms are involved in computing Jack's deflection.

Figure 18 shows Kath's responses to the event. This is to be compared with Figure 16, which shows Kate's responses to the same event, with *office* salient.

John's emotion is about the same whether viewed by Kate or Kath. However, Kath sees Kate's emotion as different—more pleasant, less vulnerable, and more activated—than what Kate feels.

Kath as compared to Kate expects a second action by John to be lower in goodness and less potent. No actual behaviors are close to Kath's expectation. Kath expects Kate's behavioral response to be somewhat more moderate in goodness, potency, and activity than what Kate is motivated to perform. Comparing the entries in each OBJECT BEHAVIORS LIST, we see that Kath expects Kate to be more business-like than Kate might actually act.

Kath might reidentify John as somewhat less nice and more potent than Kate's inclination. The difference becomes more noticeable in the attribution, where Kath thinks John might have a nicer and notably more potent trait than Kate imagines. If re-identifying Kate, Kath would assign her an identity weaker than Kate herself allows. A trait attribution also would be weaker. No actual identities or attributions are as weak as Kath requires.

Thus, in this example, salience of the setting did make a difference—the action without consciousness of the setting seemed more relaxed. However, the effects were small, perhaps too subtle for participants to recognize directly.

## Gates

One element on the advanced *Analyze events* screen remains to be discussed—the **Filters** button.

Make the experiencer either Jack or Kath (i.e., an observer for whom setting is not salient), click the event in the EVENTS LIST, and then click **Filters**. A pop-up window appears like the one in Figure 19. The window shows how concepts have been selected for reporting on the *Analyze events* screen.

For instance, in the **Emotions** column, *Emotion* is checked, and *Trait*, *Status*, and *Feature* are unchecked. This indicates that only words classified as emotions are listed in the ACTOR EMOTIONS LIST or the OBJECT EMOTIONS LIST. Similarly, the **Traits** column has only *Trait* checked, meaning that only traits are listed in the ACTOR ATTRIBUTES LIST and in the OBJECT ATTRIBUTES LIST.

The **Actor roles** column indicates what kinds of identities are listed in the ACTOR LABELS LIST. First, only identities that can be assigned to males are included. That is because the actor in the current event, John, is male. Second, only identities in the social institution of business are included. That is because John's initial role of *employee* is classified as a business identity, so most likely any re-identification of John would give him another identity within the business world. The **Object roles** column reports the restrictions on entries in the OBJECT LABELS LIST. The categories of *Female* and *Business* are checked because the object of the current event, Kate, is female, and her identity of *employer* is in the business world.

The **Behaviors** and **Responses** columns report restrictions on behaviors in the ACTOR BEHAVIORS LIST and OBJECT BEHAVIORS LIST, respectively. *Overt* always is checked in order to retrieve manifest behaviors that can be observed. *Overt* behaviors contrast with *Surmised* behaviors, which require inferences or judgments by observers, such as in supposing someone is *fibbing* or *kowtowing*.



Figure 19. Pop-up window for filters.

An institutional code for behavior – *Business* through *Sexual* – is selected to match the institutional coding of the identity of the individual who would enact the behavior.

### Next Action

*Interact* predicted several possible actions after John's first event. John could do something, or Kate could, and each individual had multiple behaviors to choose from. Several considerations help in choosing a single plausible event from the several possibilities.

Who will be the next actor? *The individual whose situational character is most stressed will be the one to act next.* This working hypothesis derives from affect control theory as follows. Individuals who are out of character because of a prior event want to create new impressions of themselves that are more consonant with their situational characters, and the individual who is most out of character will be the person who is most motivated to seize the next opportunity to engage in a restorative action. Meanwhile, others at the scene who share the same definition of the situation also want that individual's situational character restored, and therefore they yield willingly to the individual's action.



How can you tell which interactant in an *Interact* analysis is most stressed by the current event? By comparing the *personal tensions* presented parenthetically in the actor and object **behavior sentiment boxes**.

The personal-tension results in the analyses of John and Kate (or Jack and Kath) unequivocally put Kate far more out of character than John, and both interactant's agree that this is the case. Thus Kate will be motivated to construct an action that brings her back into character, and John will let her do so.

So, Kate is the next actor. What behavior will she direct toward John? To see what actions motivate her, bring up Kate's experience of the first event (Figure 16). Her potential behaviors are listed in the OBJECT BEHAVIORS LIST, and you can scroll down to see them all. Kate's potential behaviors, relevant to her business identity, are: grin at, help, hire, coach, give instructions to, compliment, aid, instruct, employ, or teach. You have to choose among the potential behaviors in a logical manner.

Employing and hiring John are out because he already is an employee. Complimenting John might trivialize the action he just performed, so complimenting would transmogrify into a kind of unsuitable aggression. Helping, aiding, coaching, giving instructions to, instructing, or teaching could be apropos, depending on what John said. Grinning at him is a safe bet in any case. So, a plausible next event is, Kate grins at John.

You can implement this event simply by clicking on *grin at* in the OBJECT BEHAVIORS LIST. Doing so adds the event to Kate's events list.

#### *Copying Interact predictions*

Suppose you want to copy the list of predicted behaviors for Kate. Clicking inside the OBJECT BEHAVIORS LIST causes a behavior to be enacted, so instead use the computer mouse to Select and Copy the ideal EPA profile for Kate's next behavior, 2.55 2.96 1.06, from the **Object behavior sentiment box**. Move to the *Find concepts* screen via the **Operations menu**, and Paste the behavior profile into the sentiment box there. With the radio buttons, select *Female* and *Behaviors*, and uncheck all filters except *Business*. The RETRIEVALS LIST then shows Kate's appropriate behaviors. You can use the list elsewhere by clicking inside the RETRIEVALS LIST, Selecting all and Copying, then Pasting into your text processor.

Kate[generous, employer], grin at, John[conscientious, employee]

The action is implemented automatically, producing a screen like Figure 20.

Kate's emotion specifications and her facial expression suggest that she still feels fairly vulnerable. She expects that John feels positive about her action, though not empowered by it.

Comparing Kate's personal tension (1.42) to John's reveals that Kate is inclined to perform the next action as well. Her action would most likely be some instructional behavior. If John were to take the initiative, Kate expects him to relieve tension with some humor, though just talking also would be satisfactory to her.

The **Deflection Graph** indicates that this second event produces less tension than the first for Kate. The event is in the comfortable range of deflection, giving her no impetus for reidentifications.

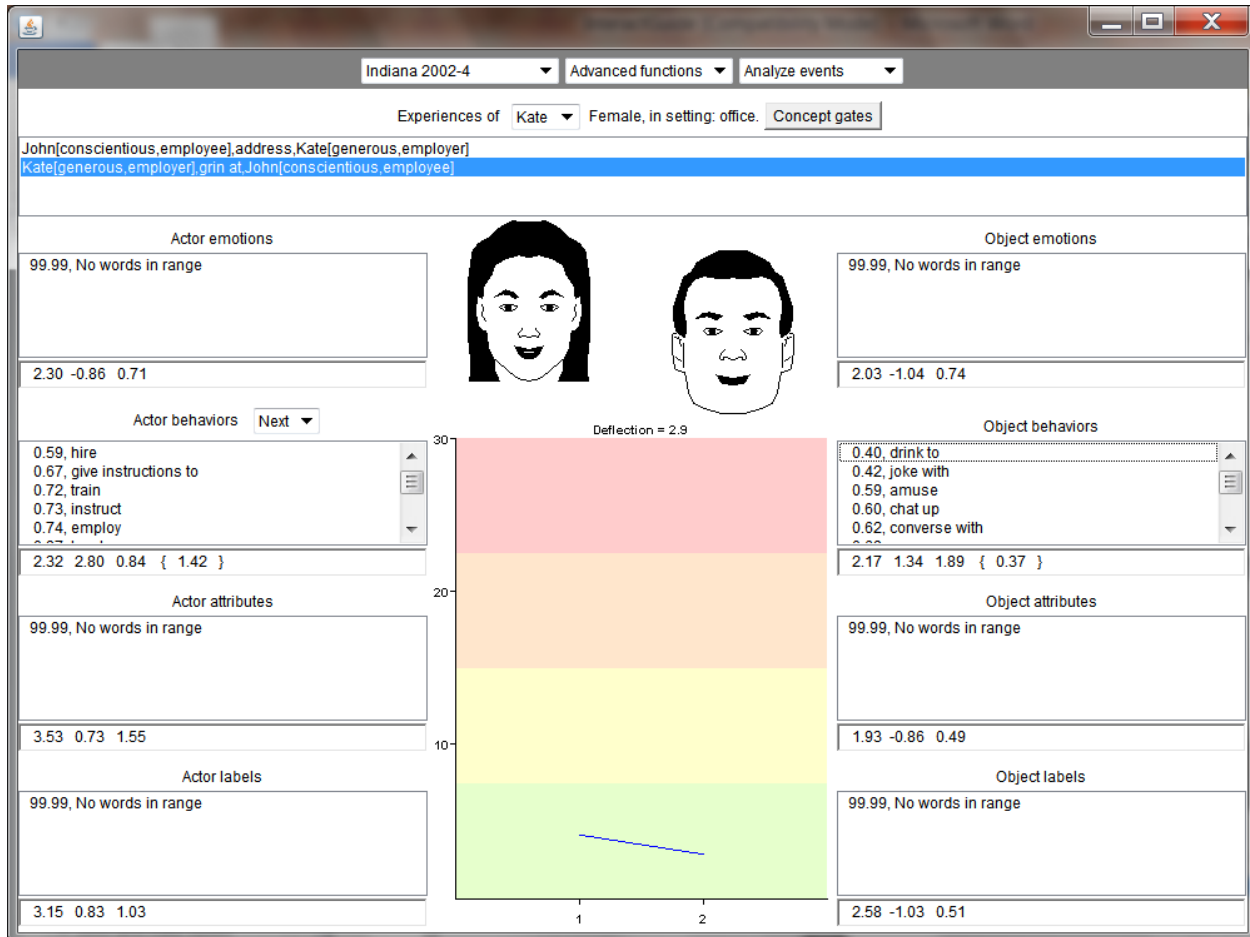


Figure 20. Kate's response to John's action.

## Continuing the Interaction

After his first action, John expects Kate to *smile at* him (as mentioned in the section above on "John's Responses"). So that probably would be the way he interprets Kate's grinning – she is smiling at him.

Return to John as the experienter on the *Analyze events* form, click his first event, and then implement his expectation about Kate's next behavior by clicking on *smile at*. The event

```
Kate[generous,employer],smile at,John[conscientious,employee]
```

is added to John's events list, and the action is implemented immediately.

How close are the emotions that John feels and expects relative to what Kate expects and feels? Does John have a clear preference for who should act next? If John were to act next, do his behavior impulses overlap with Kate's behavior expectations? What is the underlying cause of their different thoughts about behaviors that John should enact next? These are the kinds of questions that might be asked if continuing the analysis.

But there is a better way to unfold interactions, as discussed in the next section.

## Interactions

The *Interactions* option on the **Operations menu** supports creation of impromptu sequences of events in which interactants take account of each other's actions, each from her or his own perspective. This contrasts with *Analyze events* where actions have to be defined in advance.

As an example, consider the affective dynamics of a three-person interaction in a medical setting: a doctor, a nurse, and a patient. To make it more interesting, let's deal with an interpersonal conflict—the doctor sees the nurse as *stupid*, and the nurse sees the doctor as a *quack*. Meanwhile, both doctor and nurse identify themselves and the patient with conventional medical identities, and the patient does, too.

Begin by re-starting *Interact* to clear away any residues from previous analyses.

Go to the *Define interactants* form. Name Person 1 “Doctor” and give him the visage of Male 3. Name Person 2 “Nurse” and give her the visage of Female 3. Name Person 3 “Patient” and give him the visage of Male 2.

On the *Define situation* form have Doctor define himself as *doctor* (male EPA profile: 1.90 0.69 0.05), Nurse as *stupid nurse* (-0.39 -0.09 -0.33), and Patient as *patient* (0.90 -0.69 -1.05).

Make Nurse view Doctor as *quack* (female EPA: -1.25 -0.38 0.39), herself as *nurse* (2.86 1.51 0.20), and Patient as *patient* (1.06 -0.77 -0.89).

Patient should see Doctor as *doctor* (1.90 0.69 0.05), Nurse as *nurse* (1.65 0.93 0.34), and himself as *patient* (0.90 -0.69 -1.05).

Select *Interactions* on the **Operations menu**. This results in a form that looks like Figure 21.

### Initial Display

In *Interactions* mode, two to four interactants can be considered together, with one quarter of the display devoted to each interactant.

The right side of an interactant's region is devoted to that person's current emotion. The emotion's EPA profile is displayed in the **Interactant emotion sentiment box**. The facial expression corresponding to that emotion profile is displayed above the box.

*Interact* analyses begin with each person's transient EPA equal to the person's fundamental EPA. Therefore the facial expressions on this opening screen correspond to characteristic emotions that the interactants would have when perfectly confirmed in the identities that they assign to themselves<sup>6</sup>.

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<sup>6</sup> The next section on Feeling Effects presents a different method for finding characteristic emotions.

Another program implementing affect control theory, *Group Simulator*, allows interactants to begin interaction with emotions brought over from previous situations, instead of characteristic emotions.

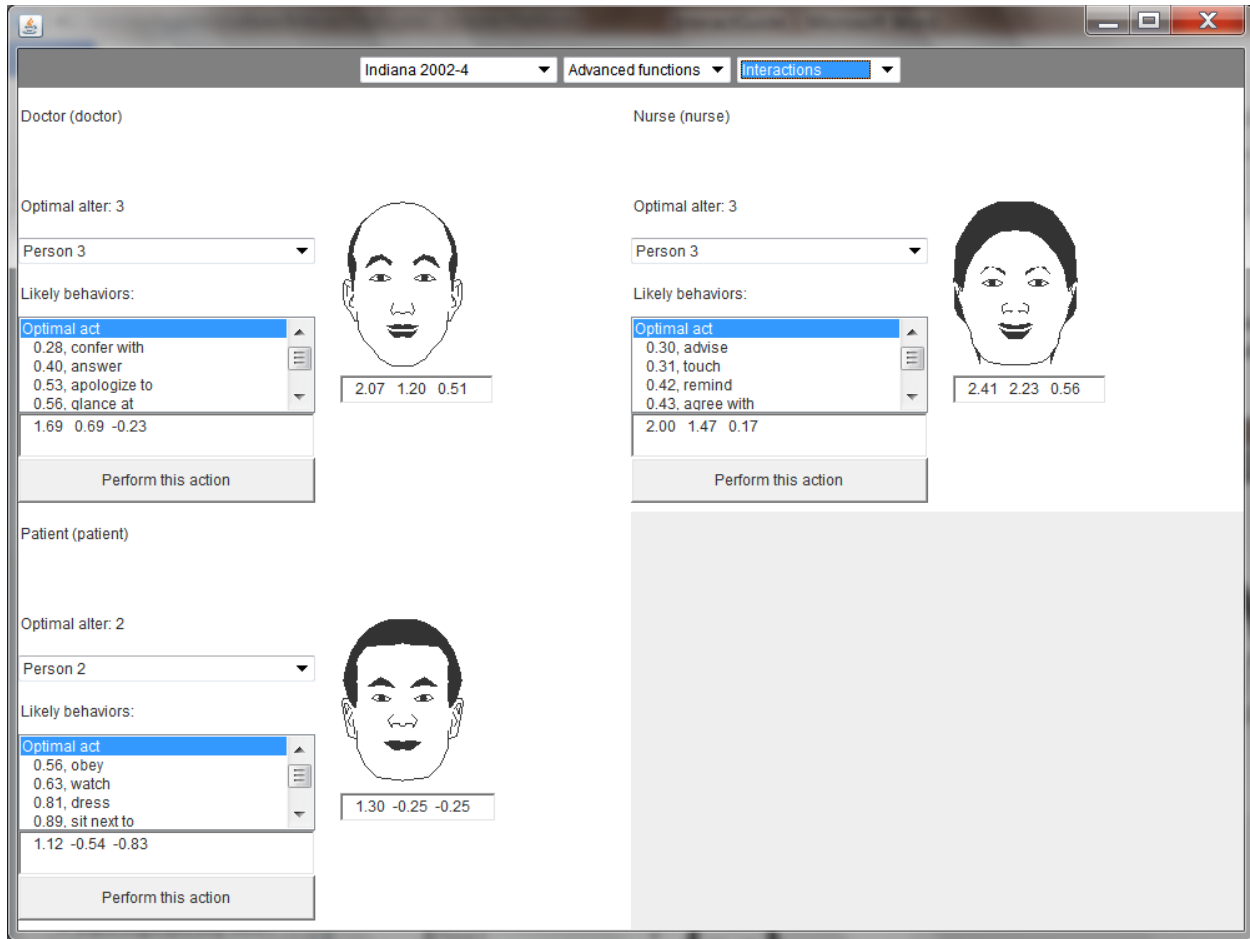


Figure 21. The initial screen in the Doctor-Nurse-Patient interaction.

The left side of each interactant's region reports information relating to that person's behavioral prospects. The components of this display are as follows. (An additional element will appear after the first action.)

On the first line is the interactant's name, followed by the identity that the individual assigns to self.

Next is the number of the *Ideal alter for an action*. The ideal alter is the person at the scene with whom ego can create the most identity-confirming event. Number 1 is the person at the upper left, person 2 is at the upper right, person 3 is at the lower left, and person 4 is at the lower right.

The **Alter menu** on the next line is a drop-down menu that allows you to choose among possible alters for ego's next action if you are analyzing a group larger than a dyad. Ego has two possible alters to serve as objects of action in a three-person group, and three possible alters in a four-person group. The choices on this menu refer to *Person 1*, *Person 2*, etc., with the numbers identifying individuals as described in the last paragraph. The ideal alter is selected initially on the **Alter menu**.

The BEHAVIORS LIST below the **Alter menu** shows ego's likely behaviors toward the selected alter. The first line always is *Optimal act*, referring to an imaginary behavior with the EPA profile that would maximally confirm the identities of ego and alter. Entries below the first show named behaviors with EPA profiles close to the profile for the optimal act. The distance of each behavior from the optimal behavior is printed in front of the behavior name.

Scrolling down the BEHAVIORS LIST reveals fourteen named behaviors. Any one of these, or the optimal act on the first line, may be selected as an act of ego toward alter.

The EPA profile for the behavior that is selected in the BEHAVIORS LIST is presented in the **Behavior sentiment box** below the list. EPA profiles for named behaviors are based on male or female data, depending on ego's gender.

A button named **Perform this action** is at the bottom of the behavioral region. Clicking this button implements ego's action on the selected individual in the **Alter menu**, with the behavior selected in the BEHAVIORS LIST. Implementing an action causes the entire display to be reconstructed for the next round of interaction.

Now let's consider what the display in Figure 21 says about the doctor-nurse-patient interaction.

The emotions indicated for each individual are what might be expected if the individuals encountered one another at the beginning of a work day, before other events have deflected impressions of themselves away from the sentiments associated with their identities of doctor, nurse, and patient.

With regard to prospective actions, Patient is the preferred object of action for both Doctor and Nurse, and Nurse is the preferred behavioral object for Patient. This means that Doctor and Nurse can create lower deflection events by acting on Patient than by acting on each other; and Patient can produce a lower deflection event by directing behavior toward Nurse than toward Doctor.

Doctor's optimal action toward Patient is quite close to *confer with*. Nurse's optimal action toward Patient is quite close to *advise*. Patient's optimal action toward Nurse is quite close to *obey*.

The displayed emotions and behavior options seem to ignore the bad feelings between Doctor and Nurse, but the conflict actually is evidenced in a subtle way. If the doctor saw the nurse simply as *nurse* instead of *stupid nurse*, she would be his preferred interaction partner at this stage of the interaction. By turning his attention to the patient and away from the nurse, the doctor reveals his negative attitude toward the nurse.

The *Interactions* form provides no hints about who will act first in an interaction. One useful rule of thumb is that when the next actor is ambiguous the most potent interactant will take the next turn in order to prevent someone from acting on her or him and causing a large drop in potency with its entailed personal tension.

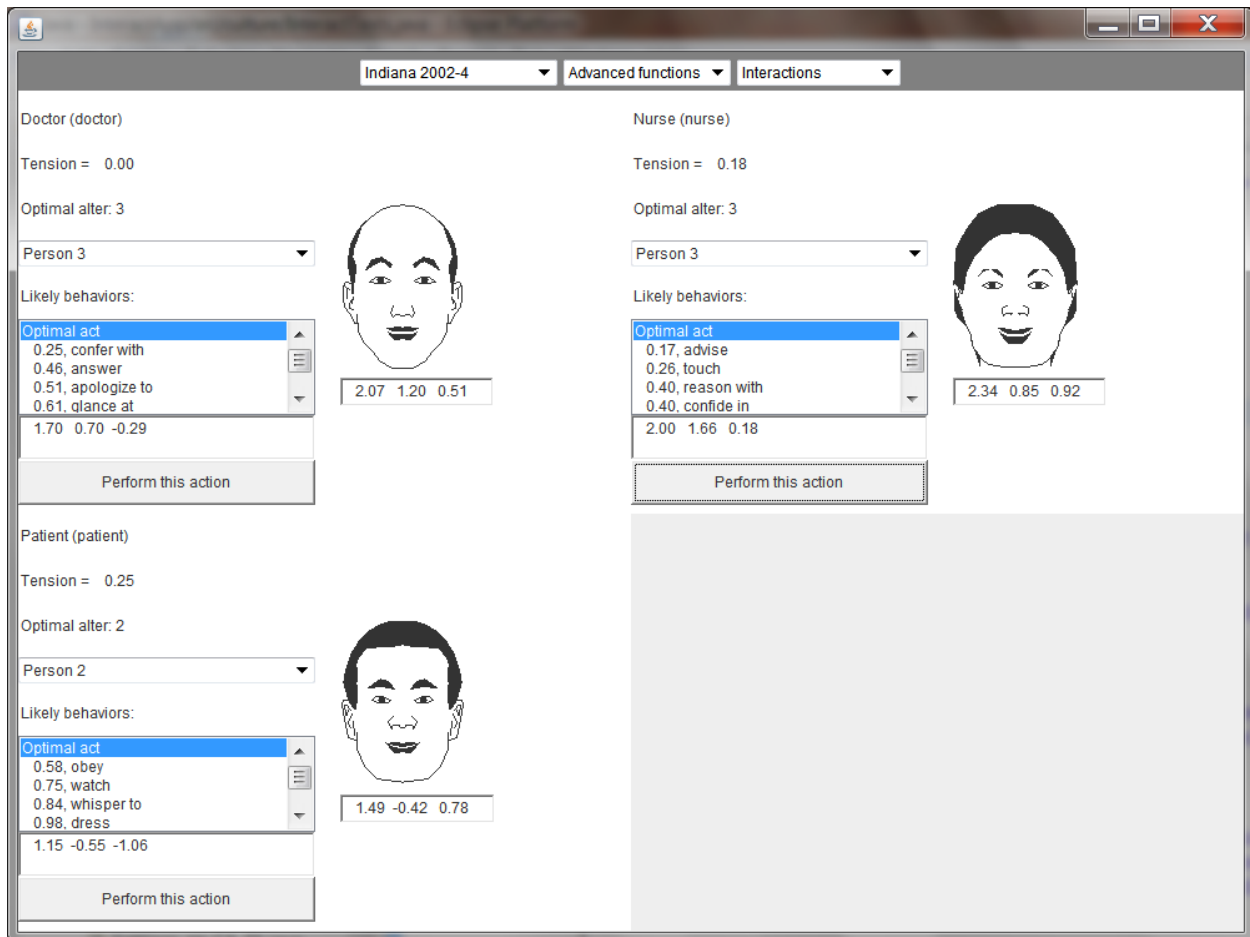


Figure 22. Conditions after Nurse advises Patient.

The Indiana 2002-4 sentiments in use here have the nurse (not the doctor) as the most potent interactant, and so we let her begin the interaction, selecting her optimal named action, advising the patient, and clicking the **Perform this action** button in her sector. The display changes to that shown in Figure 22.

### Effects of Action

Figure 22 displays the emotional consequences of Nurse advising Patient, along with information regarding likely next actions.

The emotions of Nurse and Patient changed as a result of the action, but only a little. That is because Nurse advising Patient is nearly a perfect event in terms of confirming the identities of nurse and patient, so the emotions of both individuals remain near their characteristic emotions. The doctor's emotion stayed the same because he was not involved in the action.

Each interactant's preferred alter remains the same after the first event. Doctor and Nurse continue to prefer Patient as an object of their actions, and Patient prefers Nurse.

Optimal behaviors toward preferred alters changed because the first event changed impressions of Nurse and Patient. Subsequent actions involving either of these interactants therefore have to be designed differently in order to convert the current impressions of the interactants into new impressions confirming their fundamental affective meanings as much as possible. On the other hand, the EPA profiles for optimal behaviors in Figure 22 are quite close to those in Figure 21 because the first event changed impressions of Nurse and Patient so little.

One difference between Figures 21 and 22 is unrelated to the substance of the interaction, in that it always occurs in moving from the initial screen to the screen that appears after an action.

“Tension =” is reported on the second line of a behavioral region. The values reported after “Tension=” are personal tensions measuring the distance between interactants’ transient EPA profiles and their fundamental EPA profiles. This information allows you to employ a second rule of thumb for choosing next actor: an individual with high personal tension is stressed, and thereby is more motivated to act than interactants with substantially lower stresses.

The tensions of Nurse and Patient are nearly zero because of the small impact of the first event on transient impressions. Doctor’s tension is exactly zero because transient EPA profiles equal fundamental EPA profiles at the beginning, and no action has changed Doctor’s transients. Thus, no one is appreciably more motivated than others to take the next turn of action.

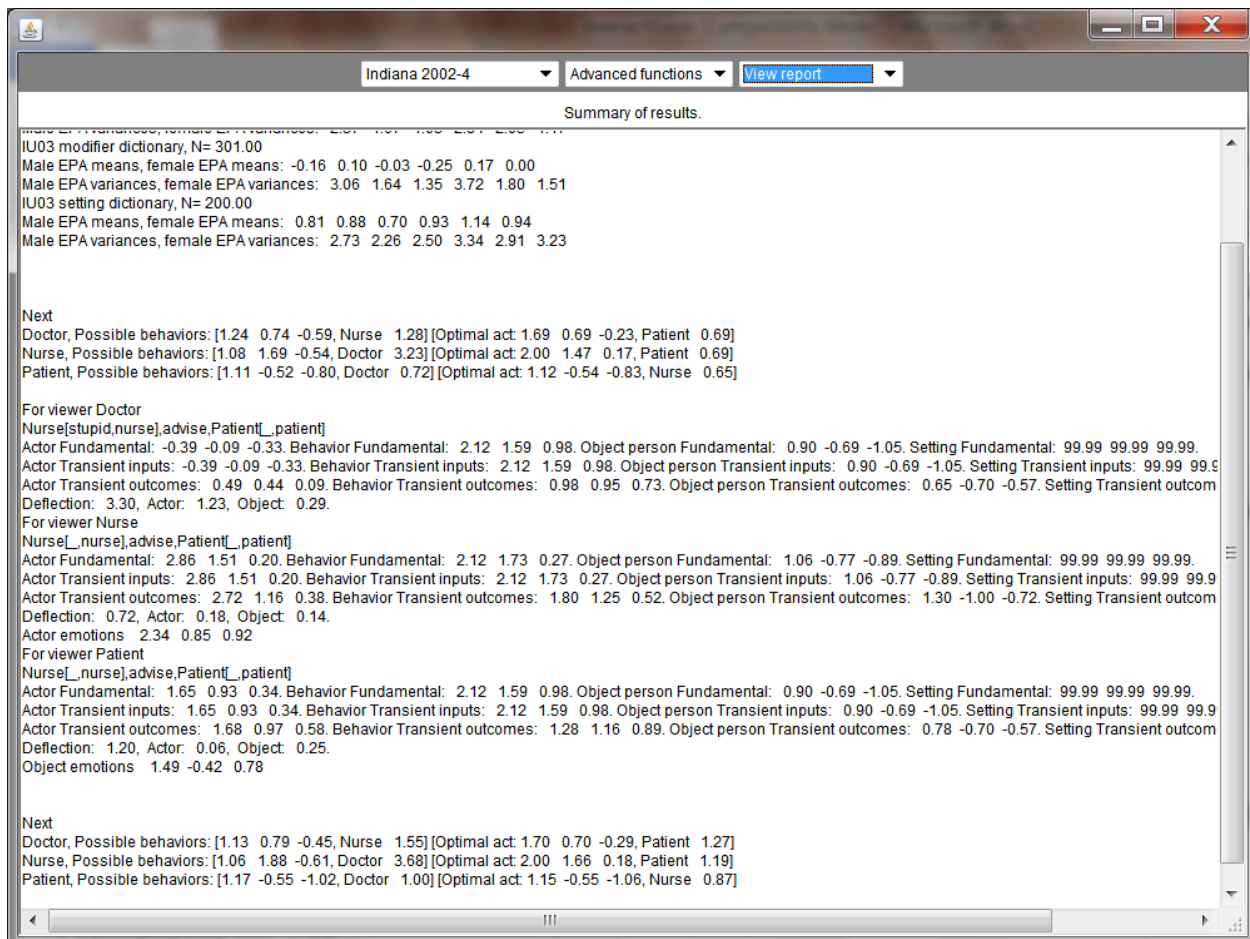


Figure 23. Report about Doctor-Nurse-Patient interaction.

This is a good point to get further information about the interaction, which will allow us to invoke a third rule of thumb regarding who takes the next turn.

## Viewing the Report

Select *View report* on the **Operations menu**. A display like that in Figure 23 appears.

The beginning of the report provides statistics on the EPA dictionaries in use, as discussed in an earlier section. The report on the Doctor-Nurse-Patient interaction begins with the word “Next.”

“Next” is followed by three lines, each starting with the name of an interactant and the phrase “Possible behaviors.” The rest of the line is devoted to characterizing the interactant’s likely actions in terms of the optimal EPA profile for the behavior, the name of the object person, and the deflection that would be produced by the optimal action. The action that would produce the lowest deflection for that interactant is tagged as the “Optimal act.”

Another blank line precedes a report on the action that was implemented on that round of interaction. The cognition of the action by each viewer is listed. Then come fundamental and transient EPAs contributing to the viewer’s experience of the action. Transient outcomes are listed next, followed by the total deflection generated by the event and the actor and object tensions after the event has occurred. The EPA profile for emotion is given when the viewer is the actor or object.

Blank lines precede another occurrence of “Next” heading a set of likely-behavior lines. In Figure 23 these lines concern the imminent action that has not happened yet. Examining these lines allows us to apply the third rule of thumb regarding who will take the next turn: Which individual’s action would yield the lowest overall deflection? This criterion indicates that Patient acting on Nurse is the likely next event since that event will produce a deflection of 0.87 for the Patient, whereas the Nurse’s optimal action would produce a deflection of 1.19 for her, and the Doctor’s optimal action would generate a deflection of 1.27 for him.

## Continuing Interaction

Return to The *Interactions* option on the **Operations menu**. It still looks like Figure 22.

According to the third rule-of-thumb, Patient should act on Nurse next. Select Patient’s named act *obey* and click the **Perform this action** button in the Patient’s sector. The resultant screen is displayed in Figure 24. The Nurse now has notably more tension than Doctor or Patient, so most likely she will act next, training or counseling the Patient. However, for the first time Doctor is inclined to act on Nurse, and it is of interest to examine his behavioral inclinations.

Some of Doctor’s listed behavioral options—*inject with medicine, groom, feed something to, wash, dress, and bathe*—are corporal actions that might be acceptable if directed toward Patient, but such behaviors are unacceptable actions of a doctor toward a nurse. *Interact’s* institutional filtering system successfully selects appropriate behaviors for medical settings, but does not filter corporal acts appropriately for the target of action.



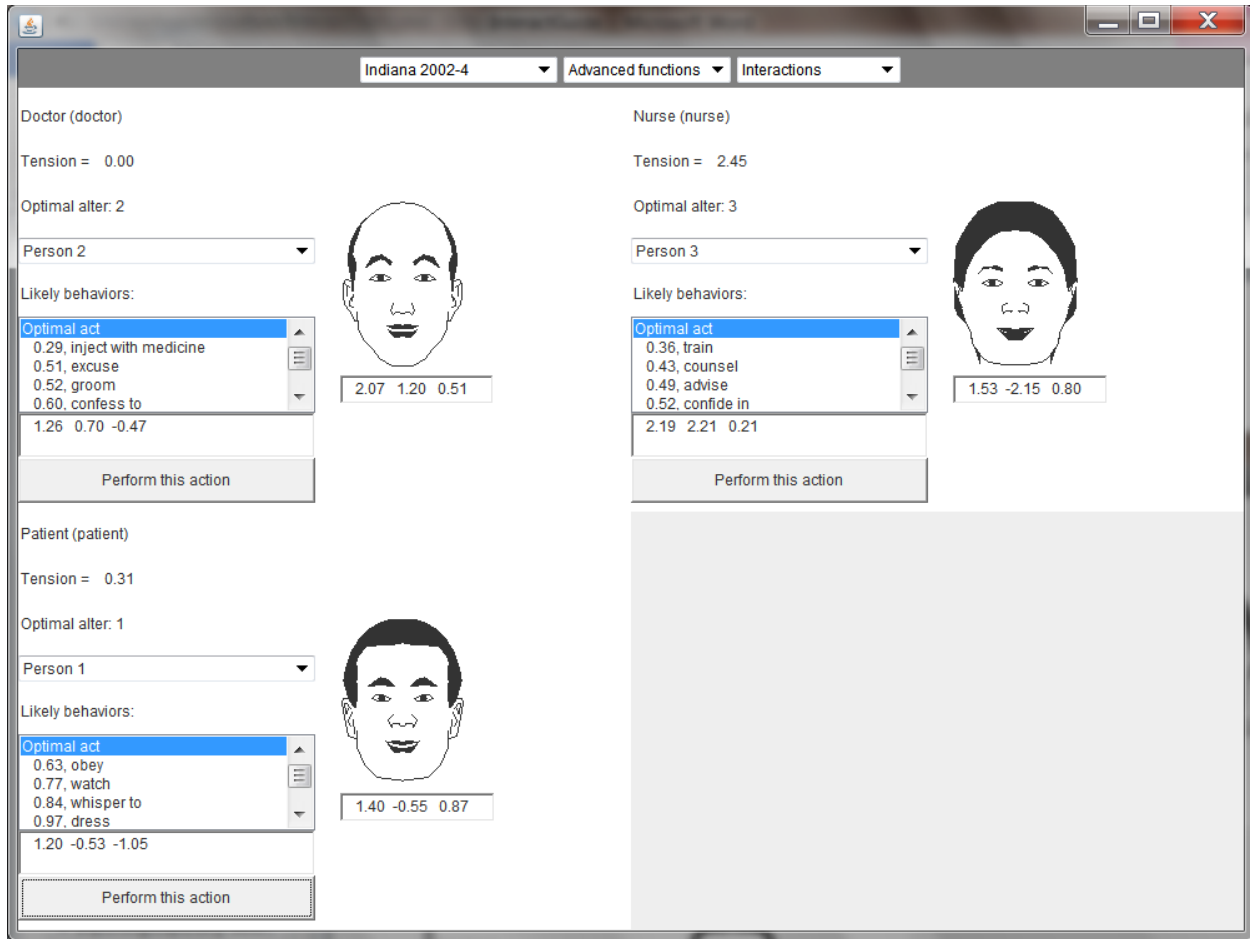


Figure 24. Circumstances after Patient obeys Nurse.

The general issue of limiting corporal actions to appropriate objects is poorly understood in social psychology, though it arises in many institutions – e.g., incest in families, violence in police work, corporal punishment in schools, and sexual harassment in businesses. Lacking a built-in system for dealing with such issues, *Interact* analysts have to apply their own cultural savvy in order to clear away inappropriate specifications of corporal behaviors.

The rest of Doctor's predicted behaviors toward Nurse – *excuse*, *confess to*, *observe*, *confer with*, *glance at*, *address*, *sit next to*, *answer*, and *turn to* – might seem overly positive for a doctor who thinks his nurse is stupid. However, Doctor has to maintain the positivity of his *doctor* role, so he cannot be abusive, only less positive than he would act with a nurse he respected. This psychological constraint on expressing antipathy has pragmatic implications: individuals with personal antipathies nevertheless perform their institutional roles and work together. Collective outcomes still emerge, even if the gratifications and efficiency of their work are lowered.

### More on Turn Taking

You should keep in mind some non-affective factors controlling events when simulating interpersonal encounters with the *Interactions* form.

Decades of research in conversation analysis has established the prevalence of structured turn taking, as in question-answer sequences. If ego asks alter a question, alter is obligated to take the next turn and answer. Moreover, turn-taking structures complicate beyond simple QA, as in QQAA. (Example: "Are you going?" "Are you?" "Yes." "Yes.") As a general rule of thumb, simulations of interaction probably should include some instances of two actors alternating one or more times, regardless of affective considerations in the group.

Temporary changes in group composition constitute another factor that can affect event construction, outside of affective preferences. A group member going absent for one or another reason forces others to forego engaging with that person as an interaction partner, even if the alternatives are affectively more stressful. When the absent party returns to the group, she or he typically will be brought up to date about what happened in her or his absence either explicitly via verbalizations or implicitly by observing others' demeanors.

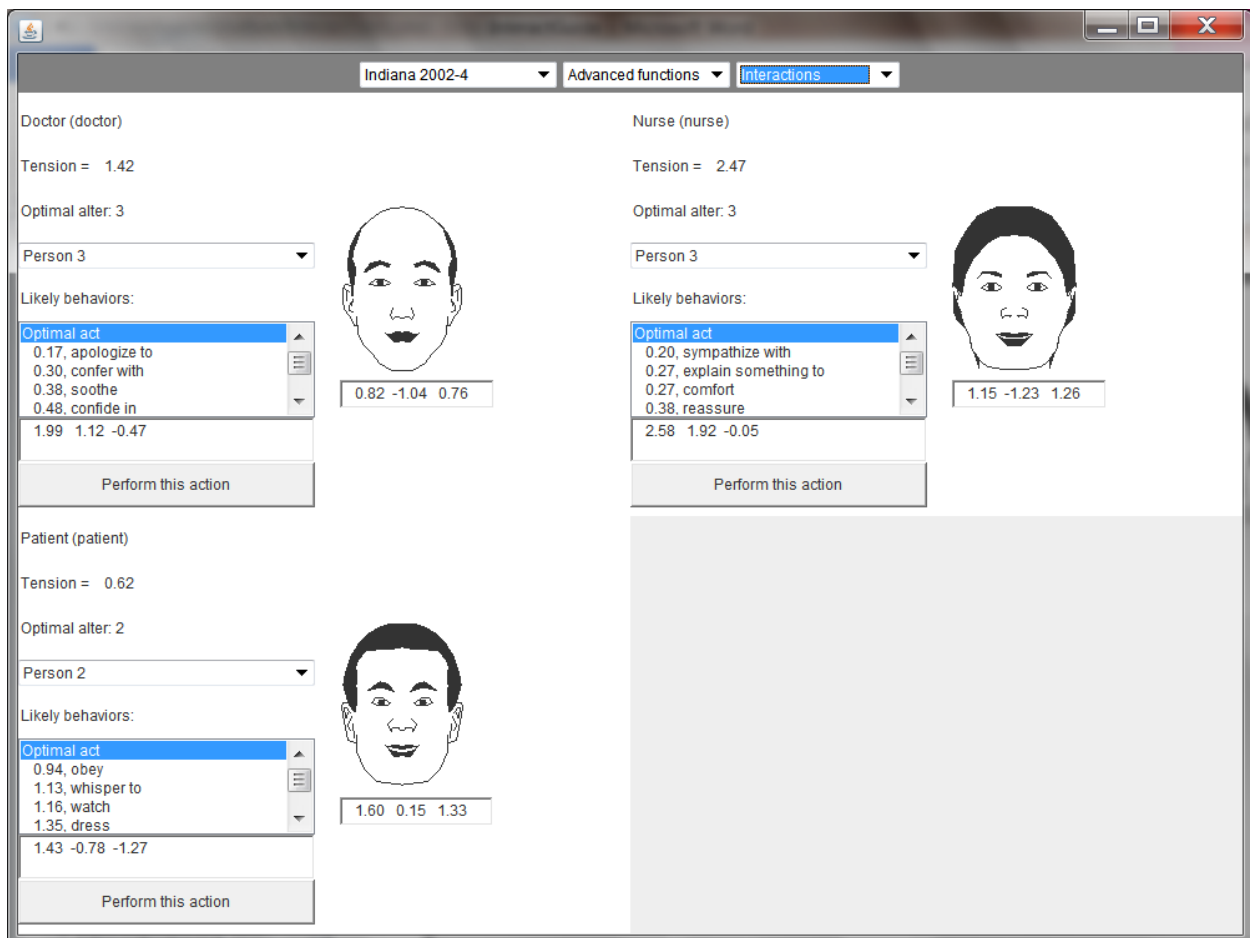


Figure 25. The consultation after Patient's toilet break.

As an example of both of these kinds of constrictions on interactions, suppose that Patient desperately required a toilet break when the medical consultation was at the point shown in Figure 24. Presumably Patient *whispers* his request to Doctor. A turn-taking structure obligates Doctor to respond, and his affectively generated behavior possibilities include some that could be constructed in such a way as to give Patient permission to leave the room, such as *apologize to*, *soothe*, *counsel*, *remind*, *sympathize with*, and *answer*. After, say, Doctor *sympathizes with* Patient, and Patient leaves, the next action must involve Doctor and Nurse, even if they do not want to deal with each other. Nurse has the most personal tension, so she might direct one of her likely acts toward Doctor, say, *promise something to*. Then because she still has highest tension, she *sympathizes with* Doctor.

At that point, Patient returns. He will not be told what happened, but he can infer the emotional consequences of events in his absence from the new facial expressions of Doctor and Nurse, as displayed in Figure 25.

## Feeling Effects

An individual's feelings should be appropriate to the individual's actions, and observers view the individual as aberrant when that is not the case. For example, during the sentencing phase of a criminal trial, juries assess a defendant's mood while the defendant's crimes are reviewed. An amused frame of mind earns the defendant a more severe punishment than displays of sorrowfulness would.

The *Feeling effects* form, Figure 26, reached with the **Operations menu**, helps you analyze such phenomena. You specify two of the three elements of an action – actor, behavior, and object person – and *Interact* solves for the third. While that's similar to the way that the *Analyze events* screen works, this form permits specifying a mood state for both the actor and object, even if an identity is unspecified for one of these individuals.

Figure 26 shows the form as it appears after you select *Feeling effects* on the **Operations menu**.

The first line presents a **Solution** set of radio buttons that determines what kind of analysis will be conducted. The form appears initially with *Behavior* selected and the BEHAVIOR LIST empty. This setup allows you to specify the identities and moods of actor and object, and then click the **Compute solution** button in order to determine what the actor's initial behavior might be in such a situation.

Selecting the *Actor identity* radio button empties the ACTOR IDENTITY LIST. With this setup you may specify the moods of both actor and object person, the identity of the object, and the actor's behavior. *Interact* solves for the kind of identity that the actor might be confirming while maintaining the specified emotional tone and performing the given behavior on an object person with the assigned identity and mood.

Selecting the *Object identity* radio button empties the OBJECT IDENTITY LIST, allowing you to solve for the kind of identity that the object might have in order to justify the specified behavior by an actor with the assigned identity and mood, toward an object person exhibiting the specified mood state.

Figure 26. Form for analyzing actions and moods jointly.

The **Sex** radio buttons let you select the data that you want to use in analyses, *male* or *female*. The choice also selects male or female impression formation equations for *Interact's* calculations.

The **ACTOR EMOTIONS LIST** and the **OBJECT EMOTIONS LIST** present names for moods that you might assign to the actor and object. (Moods are named by their corresponding predominant emotion). The **Actor mood sentiment box** and **Object mood sentiment box** under the lists show the EPA profiles of the moods selected. If nothing has been selected in an emotions list, or if you a selected item is de-selected, the sentiment box for that list shows 0.0 0.0 0.0.

Actor emotion will not enter into a solution if nothing is selected in the **ACTOR EMOTIONS LIST**. Similarly, object emotion will not be part of a solution if nothing is selected in the **OBJECT EMOTIONS LIST**.

The **ACTOR IDENTITY LIST**, the **OBJECT IDENTITY LIST**, and the **BEHAVIOR LIST** each serve dual functions. As indicated above, choosing to solve for actor, behavior, or object empties the corresponding list, and then that list displays *Interact's* solutions. On the other hand, when a list is not empty, it displays identities or behaviors that can be selected when setting up a problem.

Similarly, the **Actor identity sentiment box**, **Behavior sentiment box**, and **Object identity sentiment box** all have dual functions. They display the ideal EPA profile for *Interact*'s solution to a problem – that is, the profile used to retrieve words presented in the list above the box. When setting up a problem, the sentiment boxes show the EPA profile of the selected entry in the list above them.

The **Actor transient box** shows the EPA profile created by amalgamating the EPA profiles in the **Actor mood sentiment box** and the **Actor identity sentiment box**. If you manually enter an EPA profile in the transient box, the **Actor mood sentiment box** shows the profile that combines with the profile in the **Actor identity sentiment box** to produce the profile that you entered. The **Object transient box** works the same.

Clicking a **Characteristic emotion** button finds the emotion that corresponds to perfect confirmation of an identity with an EPA profile as specified in the identity sentiment box above the button. For example, entering 1 1 1 in the **Actor identity sentiment box** and clicking the **Characteristic emotion** button on that side of the screen computes the emotion that amalgamates with an identity having an EPA profile of 1 1 1 and produces a transient EPA of 1 1 1: the emotion's EPA profile (1.90 1.53 1.22) is shown in the **Actor mood sentiment box**, and the closest named emotion (*overjoyed*) is shown at the top of the ACTOR EMOTIONS LIST. You may use the ACTOR IDENTITY LIST or the OBJECT IDENTITY LIST to specify an EPA profile in the corresponding identity sentiment box, but you also may type a profile directly into the sentiment box (in which case, the EPA profile no longer corresponds to the identity selected in the corresponding identity list).

## Courtroom Vignettes

For an example of how to set up the form and interpret results, consider again the sentencing phase of a courtroom trial. Specifically, how might a jury react to a defendant who is convicted of robbing a merchant when the defendant seems amused as his crime is reviewed? How about if he seems miserable?

Select *Actor identity* within the **Solution** radio buttons, in order to solve for the kind of actor who robs a merchant, vicariously in the courtroom, while displaying specific moods. Select *Male* within the **Sex** radio buttons to get the male results presented here.

Specify the crime by selecting *rob* in the BEHAVIOR LIST and *merchant* in the OBJECT IDENTITY LIST. Leave the merchant's mood unspecified by making sure no emotion is selected in the OBJECT EMOTIONS LIST. (If an emotion is selected, click on it to de-select it.)

First give the defendant an affective display that makes him seem particularly bad to observers. Select *amused* in the ACTOR MOOD LIST, and then click the **Compute solution** button. That is, the defendant seems amused as his crime of robbing the merchant is reviewed in court.

The result is shown in Figure 27.

Indiana 2020-4    Advanced functions    Feeling effects

Solve for:  Actor Identity    Behavior    Object Identity

Actor mood: no emotion, afraid, aggravated, agitated, alarmed, **amused**, angry, anguished, annoyed, anxious    2.76 1.28 1.56

Object emotions: no emotion, afraid, aggravated, agitated, alarmed, amused, angry, anguished, annoyed, anxious    0.0, 0.0, 0.0

Male data   Female data

**Compute solution**

Actor identity: 1.14, rapist; 1.54, wife abuser; 2.01, crook; 2.04, robber; 2.20, mugger; 2.32, felon; 2.44, shoplifter; 2.54, masochist; 2.67, thug; 2.77, serial murderer    -4.61 -0.92 0.54

Behavior: reproach, request something from, rescue, restrain, retaliate against, reward, rib, **rob**, ridicule, rough-house with    -3.13 -0.28 0.07

Object identity: masochist, matriarch, mental case, **merchant**, millionaire, minister, miser, mistress, mobster, moron    1.04 0.87 1.00

Transient: -2.99 -0.69 0.58    Transient: 0.12 0.37 0.39

Characteristic emotion    Characteristic emotion

Figure 27. Analysis of defendant's mood.

The **Actor identity sentiment box** displays the EPA profile  $-4.61 -0.92 0.54$  as defining the kind of person who would be amused while reliving his robbing of a merchant. Identities closest to this profile are listed in the ACTOR IDENTITY LIST. The distances printed in front of the identities reveal that none of the identities are close to the profile because the profile is so extreme.

Extreme EPA profiles are common outcomes with this form. Nevertheless, results are meaningful. For instance, the extreme profile retrieves the identities of *crook*, *robber*, and *felon*, among others, suggesting that the jurors will assign an appropriate criminal identity to the defendant. (No institutional filtering of retrievals is done with this form, so you have to select the most sensible identities yourself.)

Now consider an affective display that might make the defendant seem less bad to jurors who watch him while his crime is reviewed. Set the actor's mood to *ashamed*, and click the **Compute solution** button again.

The EPA profile for the defendant's identity changes to  $16.50 -11.83 -11.44$ . Although this is beyond the range of any real identities, the result does indicate that the defendant will seem like someone who is good, though weak and withdrawn. Jurors might seek a corresponding identity

that can be used to explain why the defendant robbed the merchant—e.g., that the defendant is an *old-timer* or *retiree* who needed food, or a *sick person* who needed medicine.

Searching for other mood displays that exculpate the defendant reveals that they mainly are variations of depression with Evaluation, Potency, and Activity all negative. However, quirks in the equations lead to an occasional surprise, as, for instance, if you put the defendant in a *furious* mood.

Does the victim's mood matter? Set the merchant's mood state to *outraged*, the defendant's to *ashamed*, and click **Compute solution** again. The victim's outrage counters the defendant's display of feeling, and the defendant seems like a criminal. In fact, victim outrage is enough to undercut ameliorative effects from virtually any emotion the defendant might display. This result suggests that an outraged victim giving testimony at a sentencing hearing could be devastating for the defendant's future, even if the defendant seems anguished about his act!

A series of experimental studies<sup>7</sup> have demonstrated that these outcomes correspond to sentences assigned to defendants by mock jurors presented with case descriptions. Jurors give harsher sentences to defendants displaying positive feelings in court rather than remorse, especially when their victims express negative feelings.

### Student Collaboration

The *Feeling effects* form can help identify people when an action is performed with participants in various mood states. For example, consider a situation in which a female university student has to collaborate with someone on an assignment, and she is trying to figure out what kind of person she is working with. Select *Object identity* with the **Solution** radio buttons in order to solve for other's identity. Select *Female* in the **Sex** radio buttons to get female results. Specify the defining event by selecting *university student* in the OBJECT IDENTITY LIST and *collaborate with* in the BEHAVIOR LIST. Leave the university student's mood unspecified by making sure no emotion is selected in the ACTOR EMOTIONS LIST.

First give the other party an affective display that makes her seem laid back. Select *at-ease* in the OBJECT MOOD LIST. That is, the university student finds herself collaborating with someone who seems at ease in the situation. Then click the **Compute solution** button.

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<sup>7</sup> Robinson, Dawn T., Lynn Smith-Lovin, and Olga Tsoudis. 1994. Heinous crime or unfortunate accident? The effects of remorse on responses to mock criminal confessions. *Social Forces*, 73: 175-190.

Tsoudis, Olga. 2000. Relation of affect control theory to the sentencing of criminals. *Journal of Social Psychology*, 140(4): 473-485.

Tsoudis, Olga. 2000. The likelihood of victim restitution in mock cases: Are the 'rules of the game' different from prison and probation? *Social Behavior and Personality*, 28: 483-500.

Tsoudis, Olga, and Lynn Smith-Lovin. 1998. How bad was it? The effects of victim and perpetrator emotion on responses to criminal court vignettes. *Social Forces*, 77: 695-722.

Tsoudis, Olga, and Lynn Smith-Lovin. 2001. Criminal identity: The key to situational construals in mock criminal court cases. *Sociological Spectrum*, 21: 3-31.

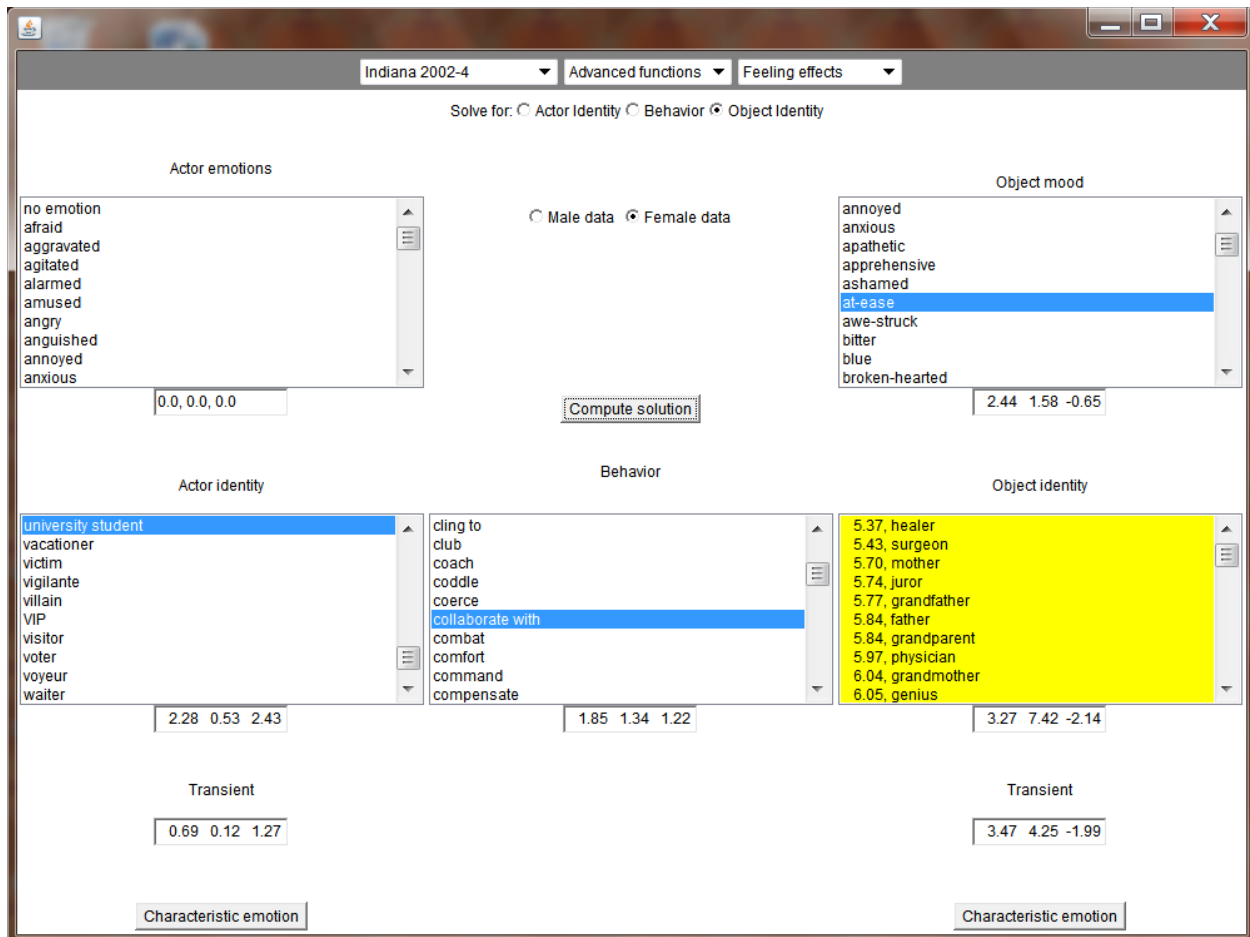


Figure 28. Set up for identifying an object of action.

The results are shown in Figure 28. According to this *Interact* analysis, the university student should be relieved because she has been assigned a *genius* as a partner for the assignment. That is, *genius* is the first identity in the list of proposed object identities that fits an academic situation.

Now change the mood of the university student's partner to *charmed* – the university student finds herself with another who seems charmed by her. The solution in this case suggests that the university student might decide she has been paired with a *role model* or *teacher*.

Next try a mood of gleeful for the university student's partner. This makes the partner seem too shallow, like a *goof-off*.

Finally, suppose the other seems gloomy. *Interact* suggests that the university student may dread the collaboration in this case because she has been assigned a *freeloader*.

This set of analyses shows how emotional states of others can enter into defining a situation, thereby contributing to outcomes of the encounter.



## Identities and Self

Affect control theory focuses on how behaviors confirm the affective meanings of identities. The self-conception form, reached by selecting *Explore a self* on the **Operations menu**, expands the focus to exploring how enacting identities confirms the affective meaning of one's self. The principles are presented in a book by Neil MacKinnon and David Heise, *Identity, Self, and Social Institutions* (New York: Palgrave, 2010).

Figure 29 shows how the form looks when it first appears.

In the middle are two concentric circles with some identities on them. This is part of the EPA space for identities, looking in from the high-activity side. Three scrollbars at the right allow you to rotate the view. The scrollbar closest to the chart rotates the view around the activity dimension. The middle scrollbar rotates the view around the potency dimension. The rightmost scrollbar rotates the view around the evaluation dimension.

On the left are sets of check-boxes for institutional filtering of displayed identities.

The bottom line contains **Presentation** radio buttons determining whether results are displayed in the *Chart* or in *Lists*. **Sex** radio buttons determine whether *Male* or *Female* data are used for analyses.

The **Self EPA sentiment box** on the bottom line shows the self-sentiment being analyzed at the moment. When the form first appears the box shows the average EPA ratings of self by 23 Indiana male undergraduates in 1994. The self-sentiment can be changed to a new value by typing an EPA profile in place of the old one, and pressing Enter.

The **Bounds box** has two numbers. The first sets the radius of the smaller circle in the chart, making that circle larger or smaller. This circle shows the boundaries of *self-actualizing identities* for a person with the given self-sentiment. The second number sets the radius of the larger circle by changing the measurement scales for drawing the circle, rather than the size of the circle. The larger circle sets the boundaries of *sustaining identities* that might feel inauthentic when enacted on their own but that are useful in compensating for earlier inauthenticities.

### Example

Most people think of themselves as good, potent, and lively. Different levels of positivity on the EPA dimensions combine in innumerable ways, making for individuality in self-sentiments among this group. Additional individuals think of themselves as good but quiet, or as good but soft, increasing the diversity of self-sentiments among people with positive self-esteem.

Individuals with negative self-esteem also exist. One type provides an interesting illustration of the *Explore a self* form. Male and female sociopaths in England were asked to rate themselves at mid-twentieth century, and their average profile was -0.17 -0.70 1.30. That is, they saw themselves as neither good nor bad but leaning a little toward bad; as slightly impotent, and as somewhat active.

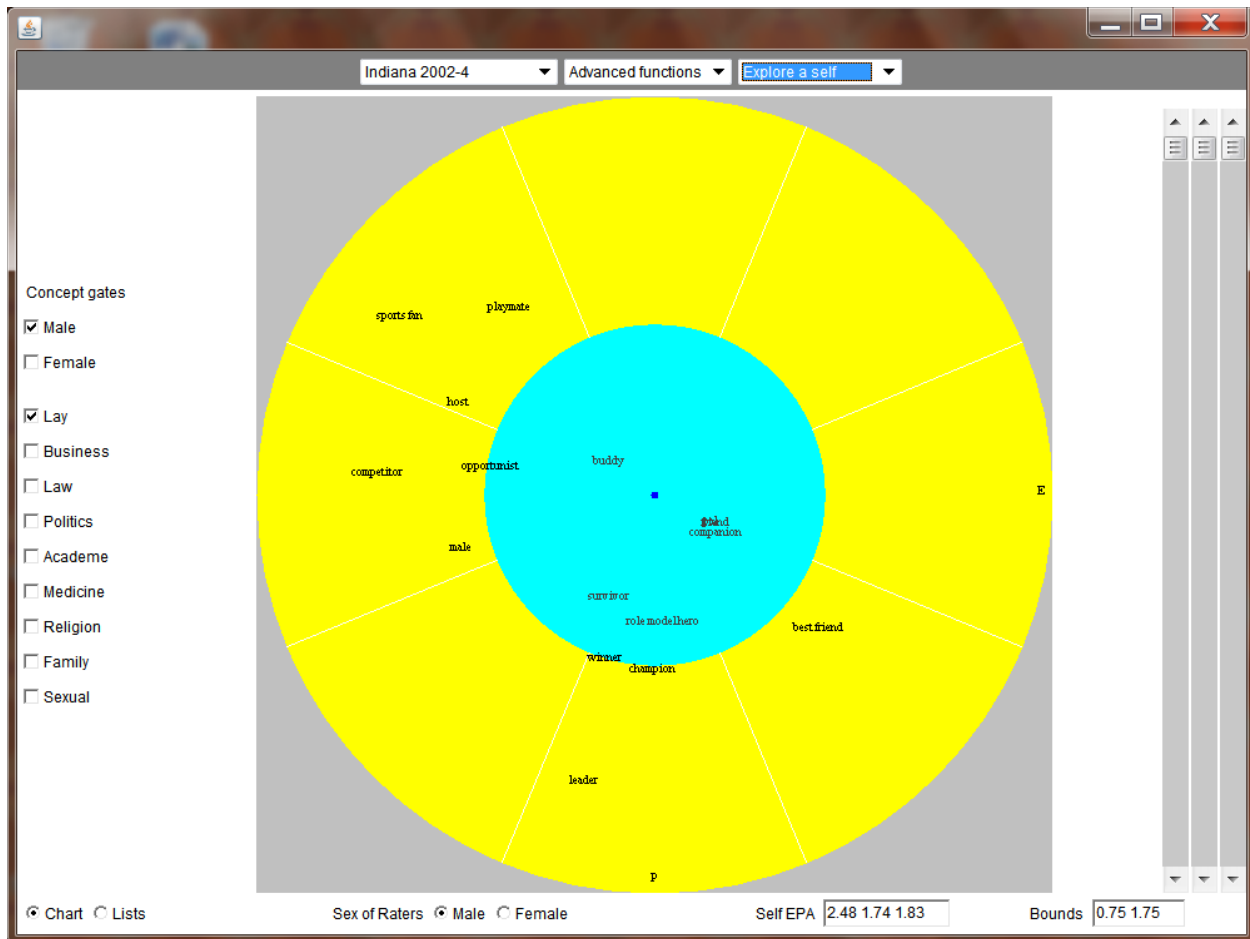


Figure 29. Form for analyzing self and identities.

These individuals displayed many characteristics of sociopaths, like being footloose, sporadically employed, having marital problems, trouble with the law, illicit sexuality, and abuse of alcohol and other substances. Yet none of these sociopaths were murderers, professional thieves, or antisocial vagrants. More extreme deviants presumably have more extreme self-sentiments.

The identities scattered on the circles change when you enter the sociopaths' self-sentiment into the **Self EPA sentiment box**. Two identities printed in gray appear in the self-actualization area – *drunk* and *windbag*, so theoretically taking these identities makes sociopaths feel that they are being themselves. Click all of the institutional checkboxes, and you get one additional self-actualizing identity for sociopaths – *homosexual*. Include female identities by clicking the *Female filter*, and *call girl* also appears.

The outer circle contains many more identities, printed in black rather than gray. These are identities that, while not self-actualizing, are fairly comfortable for sociopaths, especially when the individual needs to compensate for recent inauthenticities.

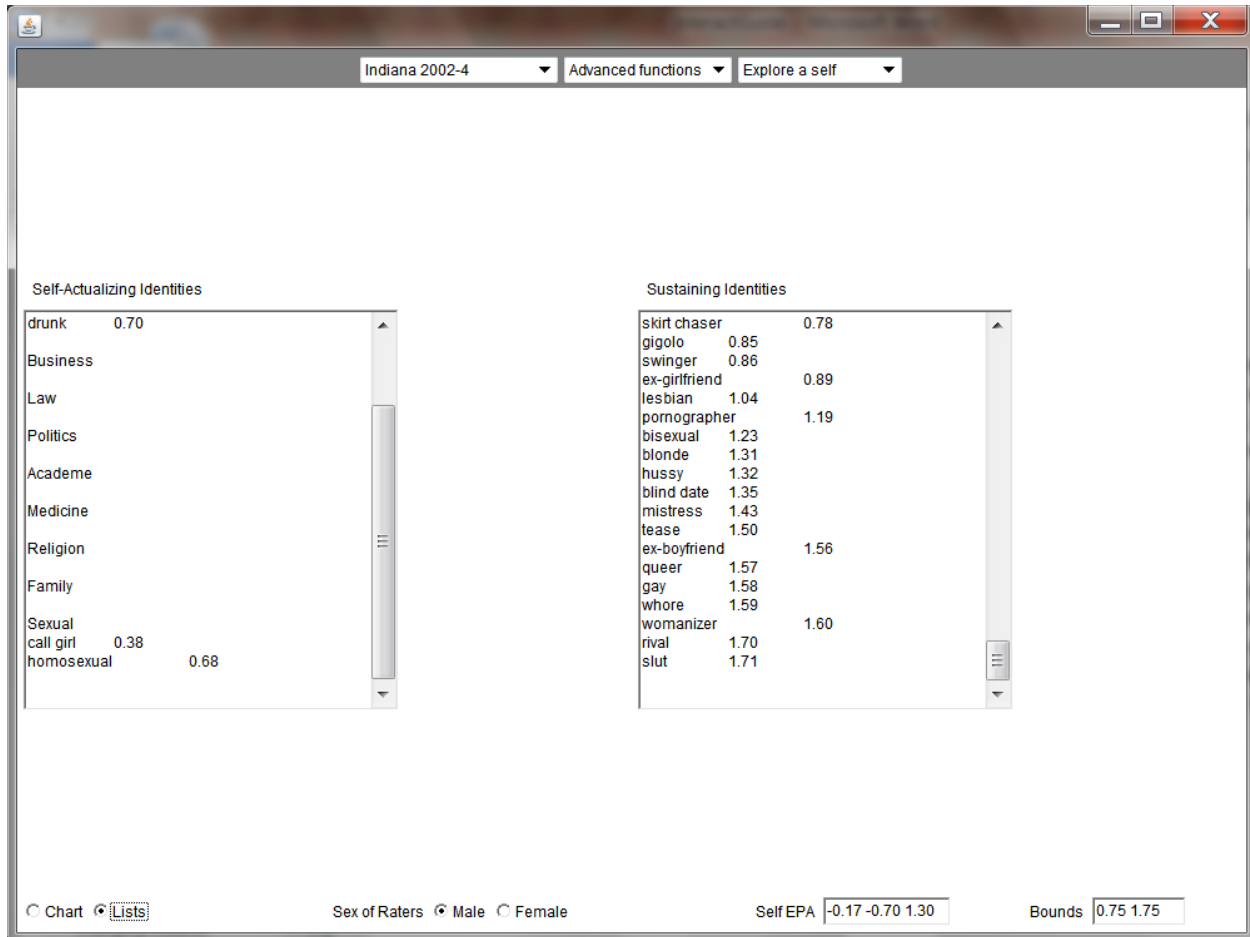


Figure 30. Lists of self-actualizing and sustaining identities for sociopaths.

Move the slider on the outermost scrollbar. All of the identities rotate around the horizontal axis. As they rotate, some identities move into the inner circle, but you can tell that these are not self-actualizing identities since they are printed in black rather than gray.

As the system rotates, some identities appear and others disappear. That is because you are looking at a slab cut out of the sphere represented by the outer circle. The slab is as thick as the inner circle is wide, so identities move around during rotation, until they reach the boundary of the slab and disappear. Meanwhile, other identities that were outside the slab get rotated in.

What identities are sustaining for sociopaths? The display of identities may be too crowded to read them all, especially if you opened filters by clicking on checkboxes. To deal with this problem, click *Lists* in the **Presentation** group of radio buttons.

Figure 30 shows the lists of identities for sociopaths, as it looks when the form first appears. The lists are made with all institutional filters open. Use the scrollbars to move upward in the lists in order to see additional entries.

Self-actualizing identities are listed within social institutions, with each identity followed by its distance from the self-sentiment being analyzed. This format makes it is easy to see that sociopaths have self-actualizing identities only in the world of sexuality and lay relations. However, if you expanded the boundary of self-actualizing identities by entering, say, 1.25 in place of 0.75 in the **Bounds box**, then the number of self-actualizing identities increases in the sexual and lay categories, and some self-actualizing identities also appear in the worlds of family, academe, politics, and business.

The list labeled “Sustaining identities” shows all of the identities in the chart’s outer sphere, including those that are invisible with some rotational views. Again, the identities are classified into institutional worlds, and each is followed by its distance from the self-sentiment being analyzed. You can see that sociopaths have substantial numbers of sustaining identities in all institutional worlds, indicating that you might find sociopaths nearly anywhere.

Sustaining identities are only partly self-actualizing. Therefore an individual taking one of these identities has to compensate later for misrepresented aspects of the self by taking another sustaining identity that balances the inauthenticities of the first. Thereby individuals get caught up in sequences of identities.

## Identity Sequences

Return to the *Chart* presentation, and click anywhere in the gray area surrounding the outer circle in order to clear memory of recently clicked identities.

Click on *teenager* on the right side of the circle. A red background highlights the identity you clicked. At the same time, a black background highlights four identities on the left – *goof-off*, *punk*, *anti-Semite*, and *know-it-all*. For a sociopath, the identities highlighted in black are complements to the *teenager* identity, in the sense that they correct the excessively nice image created by acting as a teenager. For instance, first acting as a *teenager* and then as a *goof-off* is self-actualizing for a youthful sociopath.

Click on *goof-off* while it is highlighted in black. The highlighting changes to red indicating that it is the most recently clicked identity. Additionally, an at-sign (@) appears in the inner circle. The @ plots the average EPA profile for *teenager* and *goof-off*, showing the deviation of the average away from the sociopathic self-sentiment.

Clicking on *goof-off* also highlighted several new identities in black: *know-it-all*, *windbag*, *chatter-box*, *hotshot*, and *opponent*. These identities could be added to the sequence and maintain the sociopathic self-sentiment. For instance, clicking on *know-it-all* averages its EPA profile with the profiles for *teenager* and *goof-off*. The @ shows the deviation of the three-identity average from sociopaths’ self-sentiment.

Ordinarily the EPA profile of each newly selected identity gets included in the average. Suppose that you don’t want EPA profiles averaged over all identities in a sequence but just over the last few? Hold down the Control key while clicking on a new identity in order to drop the first identity in the sequence at the same time that you add the new identity. For instance, if you hold down Control while clicking on *know-it-all*, after clicking on *teenager* and *goof-off*, then *teenager* is dropped and the average is based on *goof-off* and *know-it-all*. Then if you hold down Con-

trol while clicking on, say, *youth*, *goof-off* is dropped and the average is based on *know-it-all* and *youth*.

Flipping back and forth from the *Chart* presentation to the *List* presentation helps you track an identity sequence.

For instance, clear memory by clicking in the gray area around the circle, and then select *teenager* and *goof-off*, in sequence. Now switch to the *List* view. The list on the left—renamed “Re-deeming identities”—begins with two EPA profiles: the self-sentiment being analyzed, and a profile assessing the difference between the self-sentiment and the current average profile for selected identities.

Below the EPA profiles are identities that could be selected next to maintain self-actualization, each followed by its distance from the ideal self-actualizing profile, given prior identities in the sequence. The identities in this list include the identities highlighted with black on the chart, plus additional identities that were filtered out by institutional filters.

The list on the right—renamed “Other possible identities”—lists additional sustaining identities, each followed by its distance from the identity profile that would be perfectly self-actualizing at this point in the sequence. Identities in this list would not achieve self-actualization, but might be selected anyhow because of practical considerations.

## Changing Cultures

*Interact*'s repositories of sentiments span six nations and a quarter of a century, enabling cross-cultural and historical studies. For an illustration, select *N. Ireland 1977* on the **Cultures menu**. This produces a screen like the one in Figure 31.

You can see on the *Define situation* screen that identities vary from one culture to another, and flipping to the *Define events* screen would reveal that behaviors do as well. Nevertheless, *Interact* repositories do share a few identities and behaviors, permitting comparative analyses.

The Irish repository lacks sentiment measures for settings and modifiers, other than entries with EPA profiles of 0 0 0. The lack of data regarding settings is fairly common: six of *Interact*'s eleven cultural repositories contain no setting sentiments. On the other hand, except for Ireland, all repositories include sentiment measurements for at least emotion modifiers.

Impression-formation equations were never estimated in Ireland, so Irish analyses of events employ U.S. equations estimated from data acquired during the 1970s. The U.S. equations also are used in analyses of Chinese sentiments. Otherwise, indigenous equations are used to analyze repositories of sentiments from the various nations. The U.S. 1970s equations are used for American analyses, Canadian analyses use equations estimated in Canada during the 1990s, Japanese analyses use equations estimated in Japan during the 1990s, and German analyses use equations estimated in Germany in 2007.

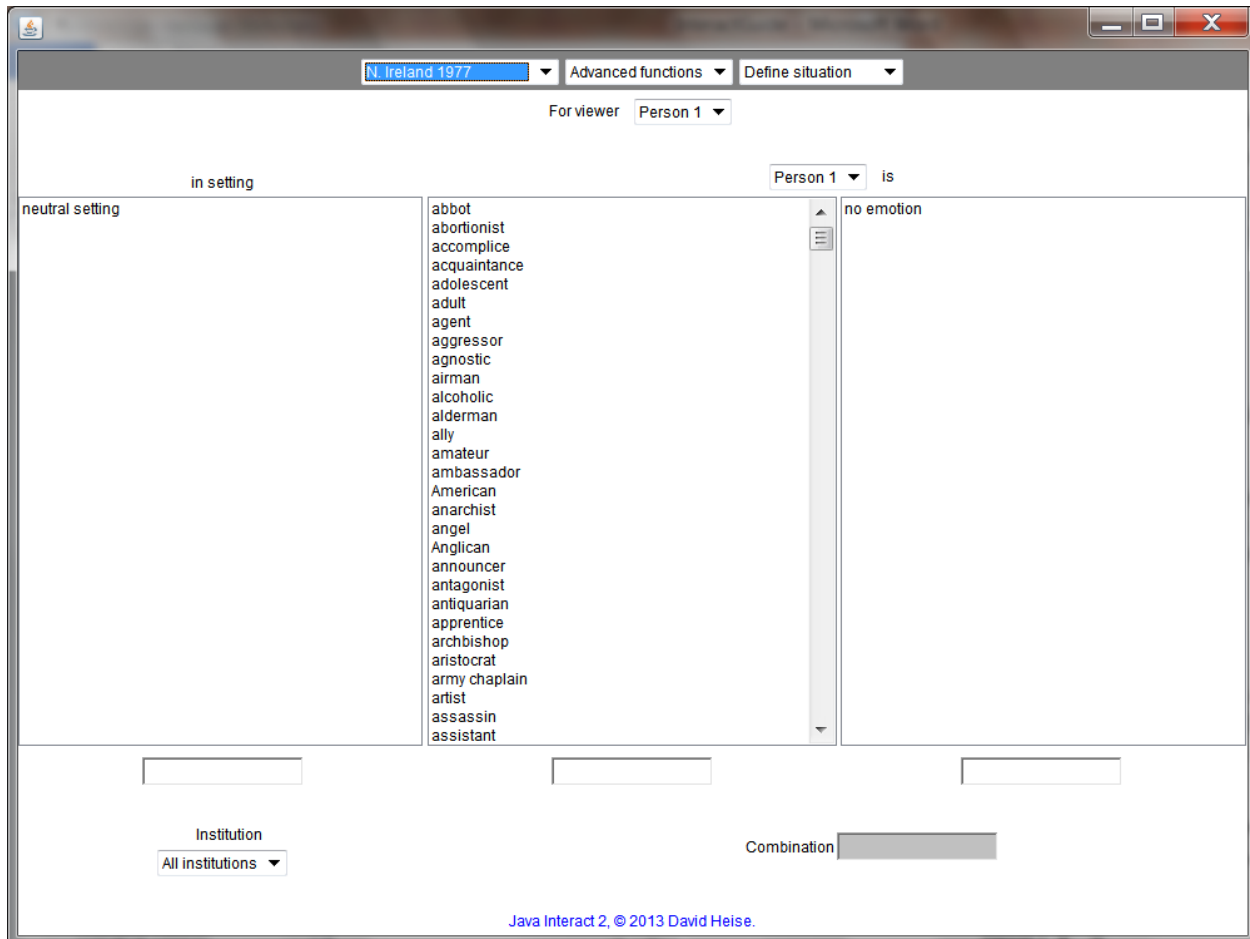


Figure 31. Opening form for analyzing Irish sentiments.

Cross-cultural analysis of events can be conducted with identities and behaviors present in the repositories of two or more societies. For example, *customer*, *merchant*, and *paying (for something)* are in the repositories of both the *Indiana 2002-4* and the *N. Ireland 1977* repositories, so we can cross-culturally analyze the experience of a customer paying a merchant.

The easiest approach is to load *Interact* twice, creating two different windows, and run the American analysis in one window while running the Irish analysis in the other.

In each society define the situation as *Person 1 is a customer* and *Person 2 is a merchant*.

Define the American event as

```
Person 1[_,customer],pay for something,Person 2[_,merchant]
```

and the Irish event as

```
Person 1[_,customer],pay,Person 2[_,merchant]
```

Use the **Operations menu** to go to the *Analyze events* screen, and click on the event. The following, copied from the *View report* screen selected with the **Operations menu**, shows the results when working with *Indiana 2002-4*.

Experiences of Person 1 Male.  
 Person 1[\_,customer],pay for something,Person 2[\_,merchant]  
 Actor Fundamental: 1.45 1.47 0.94. Behavior Fundamental: 1.03 0.78 -0.13. Object person Fundamental: 1.04 0.87 1.00. Setting Fundamental: 99.99 99.99 99.99.  
 Actor Transient inputs: 1.45 1.47 0.94. Behavior Transient inputs: 1.03 0.78 -0.13. Object person Transient inputs: 1.04 0.87 1.00. Setting Transient inputs: 99.99 99.99 99.99.  
 Actor Transient outcomes: 1.02 1.05 0.72. Behavior Transient outcomes: 0.66 0.79 0.26. Object person Transient outcomes: 0.73 0.32 0.69. Setting Transient outcomes: 99.99 99.99 99.99.  
 Deflection: 1.20, Actor: 0.41, Object: 0.50.  
 Actor emotions: 1.32 0.78 0.74. 0.15, contented.  
 Object emotions: 1.20 -0.26 0.58. 99.99, No words in range.  
 Actor behaviors: 1.85 1.17 0.45. 0.23, reassure.  
 Object behaviors: 1.66 0.58 0.73. 0.11, chitchat with.  
 Actor labels: 0.84 0.59 -0.08. 0.24, shopkeeper.  
 Actor attributes: 0.61 -0.02 -0.92. 0.49, obedient.  
 Object labels: 1.15 -0.79 0.44. 0.30, flight attendant.  
 Object attributes: 0.56 -1.63 0.17. 99.99, No words in range.

Now here are the results of the same event happening in 1970s Northern Ireland.

Experiences of Person 1 Male.  
 Person 1[\_,customer],pay,Person 2[\_,merchant]  
 Actor Fundamental: 1.02 -0.48 0.08. Behavior Fundamental: 0.92 0.06 -0.18. Object person Fundamental: 0.59 1.64 0.65. Setting Fundamental: 99.99 99.99 99.99.  
 Actor Transient inputs: 1.02 -0.48 0.08. Behavior Transient inputs: 0.92 0.06 -0.18. Object person Transient inputs: 0.59 1.64 0.65. Setting Transient inputs: 99.99 99.99 99.99.  
 Actor Transient outcomes: 0.75 -0.37 0.14. Behavior Transient outcomes: 0.51 -0.03 0.10. Object person Transient outcomes: 0.42 0.93 0.40. Setting Transient outcomes: 99.99 99.99 99.99.  
 Deflection: 0.95, Actor: 0.09, Object: 0.60.  
 Actor emotions: 1.28 0.19 0.70. 99.99, No words in range.  
 Object emotions: 1.08 0.21 0.46. 99.99, No words in range.  
 Actor behaviors: 1.42 -0.84 -0.20. 0.77, praise.  
 Object behaviors: 0.91 1.90 0.27. 0.44, assure.  
 Actor labels: 0.68 -0.18 -0.19. 0.21, proprietor.  
 Actor attributes: 0.97 0.72 -0.26. 99.99, No words in range.  
 Object labels: 0.83 -0.64 0.37. 0.25, caddie.  
 Object attributes: 0.15 -2.20 0.50. 99.99, No words in range.

Irish versus American sentiments are the sole sources of differences in these analyses. The question of whether Americans and Irish interpret the events differently, apart from applying different sentiments, cannot be answered because of the lack of indigenous impression formation equations for Ireland.

Comparing the numbers in the two summaries reveals that the American customer is somewhat nicer, much more potent, and livelier than the Irish customer. The American merchant is a little nicer, less potent, and a little more active than the Irish merchant. The behavior of paying someone is about the same in the two societies with regards to niceness and activity, but less potent in Ireland.

Because of these differences in sentiments, the American customer has a more potent emotional experience when paying the merchant than does the Irish customer.

Comparing the personal tensions (parenthesized in the behavior sentiment boxes) reveals that, in both societies, the merchant is the likely next actor because of losing so much potency as the object of the initial action, though the personal tensions are not much different in the American interaction. “Object behaviors” indicate that the American merchant will behave nicer and more active than the Irish merchant, while the Irish merchant will behave with more potency than the American merchant.

Only a single object behavior is listed on the advanced version of the report, but you can get a longer list by selecting *Basic functions* on the **Complexity menu**, while *View report* stays selected on the **Operations menu**. Doing so indicates that the American merchant has the option of *chit-chatting with, chatting with, placing order with, or showing something to the customer*, while the Irish merchant’s options are *assuring, reinstating, excusing, or recommending*.

Continuing the interaction in parallel across societies is difficult because behaviors for the next event are not the same cross-culturally. One way around this problem is to implement ideal events in each culture. In the example this would be accomplished by creating the following series of events with the *Define events* form.

```
Person 1[_ ,customer] , _ , Person 2[_ ,merchant]
Person 2[_ ,merchant] , _ , Person 1[_ ,customer]
Person 1[_ ,customer] , _ , Person 2[_ ,merchant]
Person 2[_ ,merchant] , _ , Person 1[_ ,customer]
```

Go to the *Analyze events* form and click on the first event in the series. A set of behaviors is listed, topped by a hypothetical behavior represented by the ideal EPA profile for the customer’s initial behavior toward the merchant in the given culture. Click on that behavior, and it will be implemented. Repeat the process for the second event in the series, merchant acting toward customer. In this case the top behavior represents the ideal behavior of the merchant toward the customer, after the customer engaged in the first action. Click on the top behavior, and that ideal hypothetical behavior will be implemented. Continuing this way in both cultures gives two sets of results that can be compared to uncover cultural differences in similar interactions.

## Importing/Exporting Sentiments

Selecting *Import/Export* on the **Operations menu** takes you to a screen where you can view and download *Interact’s* repositories of sentiments, or temporarily incorporate sentiment measurements from outside sources.

The form contains a set of radio buttons for selecting *Identities, Behaviors, Modifiers, or Settings* as the content that is displayed in the DATA LIST box occupying most of the screen. Viewing, and perhaps downloading, sentiments is accomplished with a **Show current entries** button. Incorporating outside sentiments is accomplished with an **Import entries below** button, in conjunction with a *Replace current entries* checkbox.



## Exporting

First, try downloading behavior sentiments. Choose a repository with the **Cultures menu** and go to the *Import/Export* screen with the **Operations menu**.

Click the *Behaviors* radio button, and then the button labeled **Show current entries**. The screen will look something like Figure 32.

The DATA LIST begins with an instruction to view the terms of use, which are printed in this book as Appendix C.

Then the DATA LIST shows all of the behaviors in the cultural repository that you chose, one behavior per line. On each line the word naming the behavior is followed by three numbers defining the male EPA sentiment regarding the behavior, then by three numbers defining the female EPA sentiment regarding the behavior.

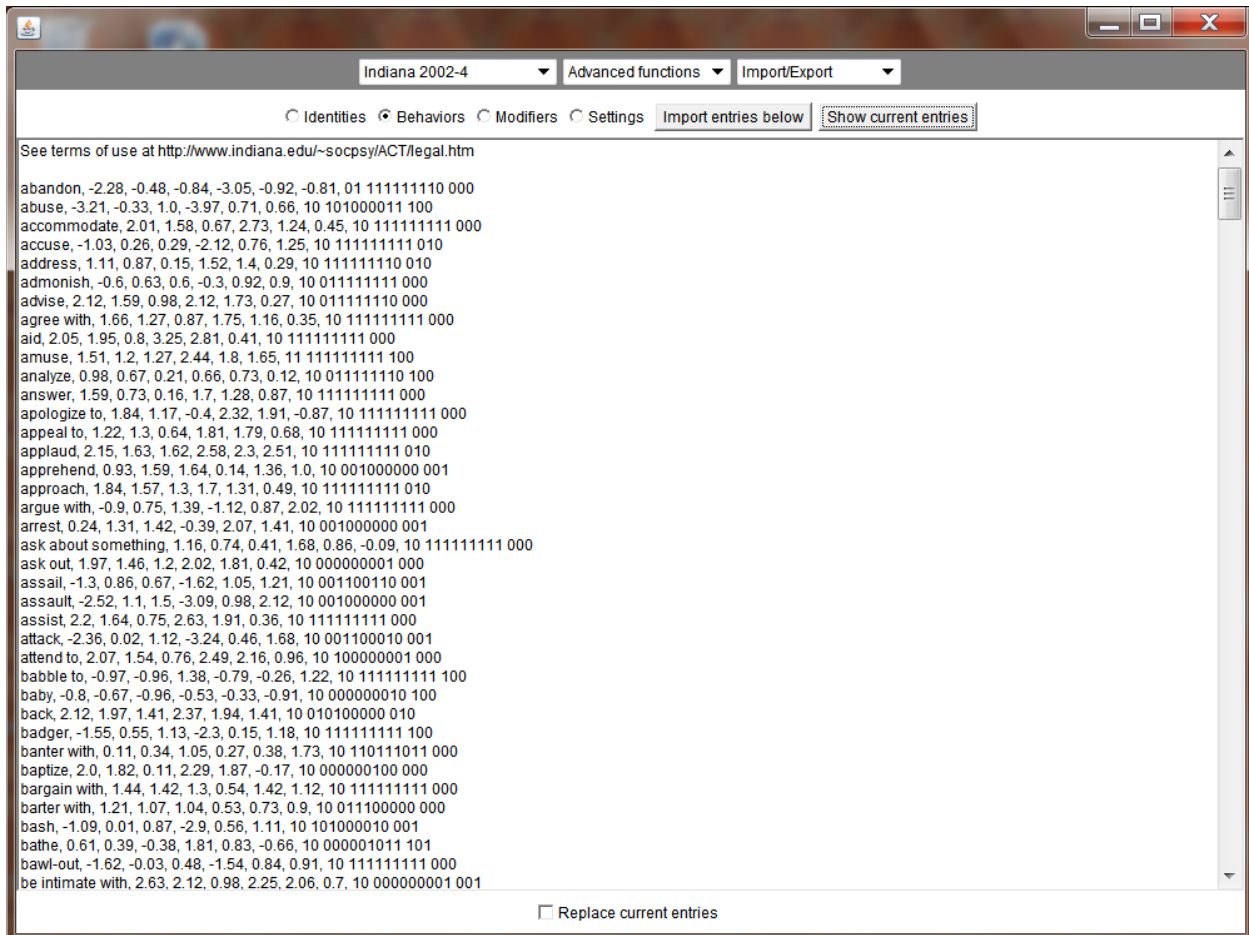


Figure 32. Sentiments for Indiana 2002-4 behaviors.

At the end of the line are sixteen zero-one digits. These show how the behavior has been coded semantically, with each digit corresponding to one of the behavior filters listed below. A one indicates the filter applies, and a zero indicates that the filter is irrelevant for that concept.

For example, the behavior “abandon” is coded in the first filter group as not overt (0) but rather surmised (1). In the second filter group, it is deemed a sensible behavior (1) in all social worlds except the sexual (0). In the third group, it is coded as not monadic (0), not triadic (0), and not corporal (0).

To use this dataset outside of *Interact*, click inside the DATA LIST box, then Select all, Cut to the clipboard, and Paste into a text file. The fields in each line are comma-delimited, so save the text file in comma-delimited format. Then you can read the file directly into a spreadsheet for data analysis.

#### *Filter List*

**Identities:** Male, Female; Lay, Business, Law, Politics, Academe, Medicine, Religion, Family, Sexual; Monadic, Triadic, Corporal.

**Behaviors:** Overt, Surmised; Lay, Business, Law, Politics, Academe, Medicine, Religion, Family, Sexual; Monadic, Triadic, Corporal.

**Settings:** Place, Time; Lay, Business, Law, Politics, Academe, Medicine, Religion, Family, Sexual; Monadic, Triadic, Corporal.

**Modifiers:** Adjective, Adverb; Emotion, Trait, Status, Feature, Emotion-Spiral. (The last category indicates emotions on an emotion self-rating program no longer in use.)

## Importing

The *Import/Export* form allows you to import sentiment measurements for identities, behaviors, modifiers, or settings. Data can be from published sources, or from your own research efforts. The Affect Control Theory website provides some datasets that you can import. These are listed at:

[http://www.indiana.edu/~socpsy/ACT/interact/importable\\_data.htm](http://www.indiana.edu/~socpsy/ACT/interact/importable_data.htm)

One of the datasets provided there, “Family and Household,” is used for this example of importing data. The dataset offers a set of identities and a set of behaviors, but just the identities are considered here.

In your browser, on the web page for the Family and Household dataset, Select the family and household identity list by positioning the mouse pointer at the top of the list and dragging to the end. Copy the selected lines to the clipboard. Return to the *Import/Export* form in *Interact*, click in the empty DATA LIST box, and Paste.

Now click the *Replace current entries* checkbox at the bottom of the form, and the screen should look like Figure 33.

Each line in this data list has the following characteristics.

- The first field is a word or phrase, the next three fields are EPA values for males, and the last three fields are EPA values for females. The fields are separated by spaces or commas.
- No semantic codes are imported. Analyses treat each concept as being excluded from nothing: 11 11111111 111.
- The first field never contains spaces. Words in a phrase either are run together, or separated by underscore characters.

Click the **Import entries below** button. If an entry violates any of the rules above, an error message will appear. In that case, correct the error and try again.

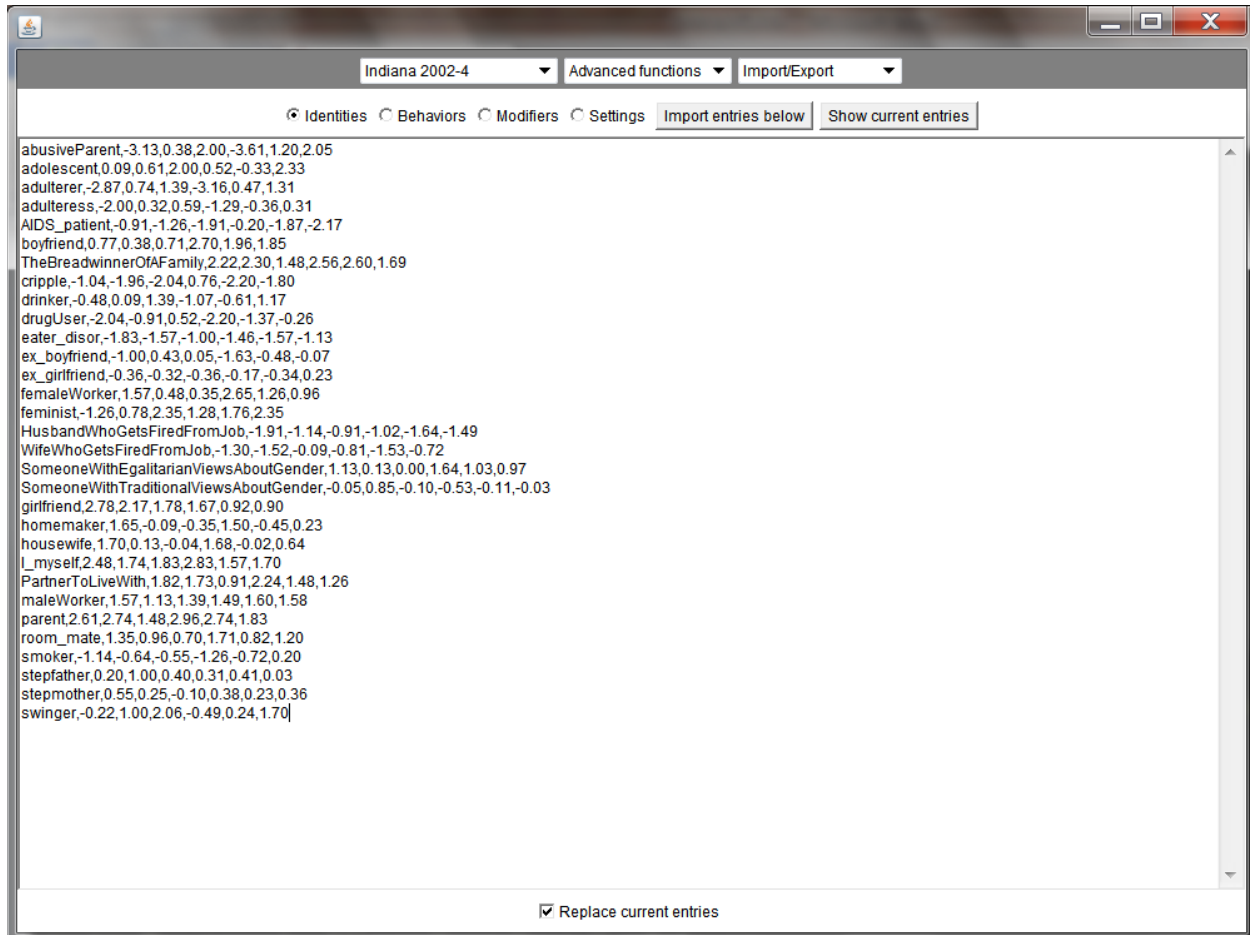


Figure 33. A dataset ready to be imported.

If all is well, a message will appear saying “Done,” and then the contents of the data box will be filled with a listing of the current *Interact* repository, with your new entries heading the list. If you marked the *Replace current entries* checkbox, the listing contains only imported identities. If the checkbox is unmarked, then the imported identities are added to pre-existing identities. Either way, the new entries are ready for use in *Interact*.

## Impression-formation Equations

Selecting *View equations* on the **Operations menu** takes you to a screen where you can examine the impression-formation equations being used in analyses, and temporarily replace the equations with others.

The **Family of Equations Menu** on the form allows you to select a group of equations that you want to examine or change: *U.S.A. 1978, Japan 1984, Canada 1985, China 2000, or Germany 2007*. (When analyzing events in a particular culture, *Interact* automatically chooses the family of equations that is most appropriate.)

An **Equations menu** instructs you to *Select a set of equations*. Clicking on the **Equations menu** to open it, you are presented with the following options.

- Male Actor-Behavior-Object, Female Actor-Behavior-Object,
- Male Actor-Behavior-Object-Setting, Female Actor-Behavior-Object-Setting,
- Male Self-Directed Action, Female Self-Directed Action,
- Male Trait-Identity, Female Trait-Identity,
- Male Emotion-Identity, Female Emotion-Identity.

Each type of equation has been estimated separately for males and females, and you can choose to see either the male or female version.

The first kind of equation defines how an actor-behavior-object event changes people's current impressions into new impressions. The second kind of equation does the same thing when people think of the setting as an integral part of the event. The third kind of equation deals with an actor behaving toward the self rather than toward another person (e.g., "the man praised himself"). The fourth kind of equation describes how people combine sentiments about a trait and an identity into an amalgamated feeling. The fifth kind of equation describes how emotions and identities amalgamate.

When you arrive at the screen the box for the COEFFICIENTS LIST is empty. Figure 35 shows the kind of display you see after selecting *Male Actor-Behavior-Object* on the **Equations menu**, and *U.S.A. 1978* on the **Family of Equations Menu**. (Note: one line has been changed, as discussed in the next section.)

Each column of decimal numbers in the table specifies a different equation, and the numbers are the coefficients for different terms in the equation. The first column of decimal numbers defines the equation for predicting how an actor will be evaluated after an event,  $Ae'$ . The second column gives the equation for predicting how powerful an actor will seem after an event,  $Ap'$ . The third column is for predicting an actor's activity after an event,  $Aa'$ . Similarly, the next three columns are for predicting the post-event EPA profile for the behavior involved in the event,  $Be'Bp'Ba'$ , and the last three columns define EPA outcomes for the object person in the event,  $Oe'Op'Oa'$ . There would be three more columns corresponding to  $Se'Sp'Sa'$  if we had selected an Actor-Behavior-Object-Setting option on the **Equations menu**.

The column of zero-one numbers, preceded by "Z" identifies the terms that are in the equations<sup>8</sup>. The first digit after Z relates to the pre-event evaluation of the actor, *Ae*; the second digit relates to the pre-event potency of the actor, *Ap*; the third to pre-event activity of the actor, *Aa*. Similarly, the fourth, fifth, and sixth digits relate to the pre-event impressions of the behavior: *Be*, *Bp*, and *Ba*. The seventh, eighth, and ninth digits relate to pre-event impressions of the object: *Oe*, *Op*, and *Oa*. When examining Actor-Behavior-Object-Setting equations, the tenth, eleventh, and twelfth digits correspond to *Se*, *Sp*, and *Sa*.

A digit-one indicates that the symbol is part of the equation term specified for that row. A digit-zero indicates that the equation term does not contain the symbol. For example, the first row in Figure 28 begins with Z000000000, and since only zeros follow the Z, the equation term contains none of the symbols – it is the equation constant. The second row begins with Z100000000; the digit-one followed by zeros indicates that this term contains *Ae*, and nothing else.

The eleventh row begins with Z100100000, which indicates that the term contains both *Ae* and *Be*. Co-occurrence of two or more symbols in the same term signifies an interaction in which terms are multiplied, in this case, *Ae* · *Be*.

In principle, an equation can have up to 64 different terms. The translation of each of these to Z-code is as follows.

```

Constant: Z000000000;
Ae: Z100000000;      Ap: Z010000000;      Aa: Z001000000;
Be: Z000100000;      Bp: Z000010000;      Ba: Z000001000;
Oe: Z000000100;      Op: Z000000010;      Oa: Z000000001;
Ae · Be: Z100100000; Ae · Bp: Z100010000; Ae · Ba: Z100001000;
Ae · Oe: Z100000100; Ae · Op: Z100000010; Ae · Oa: Z100000001;
Ap · Be: Z010100000; Ap · Bp: Z010010000; Ap · Ba: Z010001000;
Ap · Oe: Z010000100; Ap · Op: Z010000010; Ap · Oa: Z010000001;
Aa · Be: Z001100000; Aa · Bp: Z001010000; Aa · Ba: Z001001000;
Aa · Oe: Z001000100; Aa · Op: Z001000010; Aa · Oa: Z001000001;
Be · Oe: Z000100100; Be · Op: Z000100010; Be · Oa: Z000100001;
Bp · Oe: Z000010100; Bp · Op: Z000010010; Bp · Oa: Z000010001;
Ba · Oe: Z000001100; Ba · Op: Z000001010; Ba · Oa: Z000001001;
Ae · Be · Oe: Z100100100; Ae · Be · Op: Z100100010; Ae · Be · Oa: Z100100001;
Ae · Bp · Oe: Z100010100; Ae · Bp · Op: Z100010010; Ae · Bp · Oa: Z100010001;
Ae · Ba · Oe: Z100001100; Ae · Ba · Op: Z100001010; Ae · Ba · Oa: Z100001001;
Ap · Be · Oe: Z010100100; Ap · Be · Op: Z010100010; Ap · Be · Oa: Z010100001;
Ap · Bp · Oe: Z010010100; Ap · Bp · Op: Z010010010; Ap · Bp · Oa: Z010010001;
Ap · Ba · Oe: Z010001100; Ap · Ba · Op: Z010001010; Ap · Ba · Oa: Z010001001;
Aa · Be · Oe: Z001100100; Aa · Be · Op: Z001100010; Aa · Be · Oa: Z001100001;
Aa · Bp · Oe: Z001010100; Aa · Bp · Op: Z001010010; Aa · Bp · Oa: Z001010001;
Aa · Ba · Oe: Z001001100; Aa · Ba · Op: Z001001010; Aa · Ba · Oa: Z001001001

```

As an example, use the first numerical column of Figure 34 to put together the beginning of the male equation for predicting the outcome evaluation of an actor, *Ae'*, as a result of an event. We begin with the equation constant.

$$Ae' = -0.26$$

<sup>8</sup> Amalgamation equations describing how modifiers combine with identities are specified similarly. The first three digits after Z refer to the evaluation, potency, and activity of the modifier. The second three digits refer to the evaluation, potency, and activity of the identity.

Then the term for  $Ae$  is added.

$$Ae' = -0.26 + 0.41 \cdot Ae$$

Continuing to build this equation, with the terms and coefficients on the first eleven rows, produces the following.

$$Ae' = -0.26 + 0.41 \cdot Ae + 0.42 \cdot Be - 0.02 \cdot Bp - 0.10 \cdot Ba + 0.03 \cdot Oe + 0.06 \cdot Op + 0.05 \cdot Ae \cdot Be + \dots$$

Interaction terms like  $Ae \cdot Be$  represent non-linear effects in impression formation processes. For example, this term in this equation indicates that a good person behaving pleasantly gets some evaluative extra credit, as does a bad person behaving unpleasantly; while a good person behaving unpleasantly, or a bad person behaving pleasantly, gets some extra downgrading. If we continued building the equation we also would encounter third-order interactions such as the one represented on the last line,  $Ae \cdot Be \cdot Op$ . Third-order interactions represent complex processes that are difficult to describe succinctly.

## Importing Equations

An **Import** button labeled *Import the coefficients below* on the *View equations* form allows you to change the equations that *Interact* uses in computations.

Figure 34 provides an example of how imported equations might be used in social psychological analyses.

The second-order interaction,  $Be \cdot Oe$ , is of particular interest social psychologically because it appears in all sets of impression-formation equations that have been estimated so far, regardless of culture, though it is smaller in some cultures, like Germany, than in others, like America. This effect improves evaluation of an outcome if someone behaves pleasantly toward a nice person or unpleasantly toward an awful person; and worsens the outcome evaluation when pre-event evaluations of behavior and object person are inconsistent – when one evaluation is negative and the other is positive.

Equation ID	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Z000000000	-0.26	-0.10	0.14	-0.19	0.06	0.11	-0.11	-0.27	0.02	
Z100000000	0.41	0.00	0.05	0.11	0.00	0.02	0.00	0.00	0.00	
Z010000000	0.00	0.56	0.00	0.00	0.16	-0.06	0.00	0.00	0.00	
Z001000000	0.00	0.06	0.64	0.00	0.00	0.27	0.00	0.00	0.00	
Z000100000	0.42	-0.07	-0.06	0.53	-0.13	0.04	0.11	0.18	0.02	
Z000010000	-0.02	0.44	0.00	0.00	0.70	0.00	0.00	-0.11	0.00	
Z000001000	-0.10	0.00	0.29	-0.12	0.00	0.64	0.00	0.00	0.00	
Z000000100	0.03	0.04	0.00	0.00	0.03	0.00	0.61	-0.08	0.03	
Z000000010	0.06	0.00	0.00	0.05	0.01	0.00	0.00	0.66	-0.05	
Z000000001	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.66	
Z100100000	0.05	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	
Z100000010	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Z010010000	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Z001001000	0.00	0.00	-0.06	0.00	0.00	0.00	0.00	0.00	0.00	
Z000100100	0	0	0	0	0	0	0	0	0	
Z000100010	-0.05	0.00	0.00	-0.05	0.00	0.00	0.00	0.03	0.00	
Z000010100	-0.05	0.00	0.00	-0.02	0.00	0.00	-0.03	0.00	0.00	
Z000001010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	0.00	
Z100100100	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	
Z100100010	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Figure 34. Modified equations ready to import.

Suppose this kind of processing were not part of impression formation. How would that influence emotions and behaviors? This question can be answered with *Interact* by viewing the actor-behavior-object equations, modifying one line, and importing the revised set of equations back into *Interact* for use in analyses.

The line that needs to be changed is the one for the  $Be \cdot Oe$  term, beginning with Z000100100. Changing all of the coefficients in that row to zero, as in Figure 34, and clicking the **Import the coefficients below** button removes the  $Be \cdot Oe$  term from all nine equations, creating a psychology for interactants that is unaffected by behavior-object evaluation consistency.

Now go to the *Define situation* form and set up an interaction between John, a *conscientious employee*, and Kate, a *generous employer*. LEAVE THE SETTING UNSPECIFIED, so that impression-formation processes will be based on the actor-behavior-object equations that were just modified.

Analyze the event *John addresses Kate* from John's viewpoint. Some differences in facial expressions are evident when compared with those obtained in the parallel earlier analysis. However, the changes are subtle, so it is better to examine them via a table.

Table 1

## Results of Computational Experiment

	John			Kate		
	E	P	A	E	P	A
<b>Standard Equations</b>						
John addresses Kate: Emotion	1.76	1.30	0.81	1.21	-0.36	0.57
John addresses Kate: Next Behavior	1.62	-0.22	0.31	2.00	1.90	0.51
<b>No Be-Oe Effect</b>						
John addresses Kate: Emotion	1.31	1.23	0.83	1.10	-0.58	0.58
John addresses Kate: Next Behavior	1.46	-0.45	-0.01	1.72	1.85	0.27

Table 1 presents the EPA profiles for male expectations regarding each interactant's predicted emotions and behaviors, first when the male has a psychology defined by the usual actor-behavior-object impression-formation equations for males, and second when the male's psychology excludes effects from behavior-object evaluation consistency.

The emotions of both parties, but especially the actor, are somewhat more pleasant and potent when impression formation includes the consistency effect. For both parties, the next behavior is somewhat nicer, more potent, and more active with the consistency effect than without it.

These tendencies become more pronounced if the interaction is continued with *Kate smiles at John*. Try other event sequences to further explore effects of excising behavior-object evaluative consistency from impression formation.

## Research Applications

*Interact* has some additional capabilities that mainly are useful in research projects. In particular, *Interact* can process long lists of events automatically, it can write selected results of analyses to a window where the results can be copied and transferred to other programs, and it can conduct analyses in which events change the sentiments that are operative in analyses.

### Creating Event Lists

The *Define events* screen, accessed via the **Operations menu**, can be used to import long lists of events for automatic analyses, as discussed in the next section.

Prepare the event definitions in a word-processing program, so that you can save them in a permanent file. Then Select and Copy the list of events from the word-processing program, and Paste them into the EVENTS LIST box on the *Define events* screen.



Each line in an event list must have the following format:

```
Field-1[Field-2,Field-3],Field-4,Field-5[Field-6,Field-7]
```

where

- Field-1 and Field-5 are identifiers for the actor and object, respectively. If you use a name rather than "Person *i*" (*i* = 1, 2, 3 or 4), then you will have to specify that name on the *Define interactants* form before you run the events.
- Field-2 and Field-6 each can be the character "\_" or else a modifier existing in the cultural repository that you are using. These fields define the interactants' attributes during the event specified on this line, regardless of attribute definitions on other lines, or of attributes selected on the *Define situation* form.
- Field-3 and Field-7 each must be an identity existing in the cultural repository that you are using. These fields define the interactants' identities in the event specified on this line, regardless of identity definitions on other lines, or of identities selected on the *Define situation* form.
- Field-4 must be a behavior existing in the cultural repository that you are using. The character "\_" (used to compute an ideal behavior) causes an error during automatic runs.

An additional option is to begin a line with "\$," in order to stop effects of prior events and start anew. For example, the lines

```
Person 1[_ ,professor],test,Person 2[_ ,student]
$,Person 1[_ ,professor],advise,Person 2[_ ,student]
```

will run two events, unrelated to one another. The \$ at the beginning of the second event starts the encounter anew, as if the second event were the initial event. The restarting option allows multiple analyses to be conducted within a single automatic run.

The character "&" can be used at the beginning of several consecutive lines in order to define a set of events occurring simultaneously. For example, the list of lines

```
Person 2[_ ,sweetheart],greet,Person 1[_ ,sweetheart]
&,Person 1[_ ,sweetheart],kiss,Person 2[_ ,sweetheart]
&,Person 2[_ ,sweetheart],kiss,Person 1[_ ,sweetheart]
Person 1[_ ,sweetheart],compliment,Person 2[_ ,sweetheart]
```

causes *Interact* to do the following.

First, the EPA profile for sweetheart is used to set the initial transient impression of both people, and then the transient impressions resulting from *Person 2 greeting Person 1* are computed.

Second, the transient impressions produced by *Person 1 kissing Person 2* are computed, based on the transient impressions produced in the first step.

Third, the transient impressions produced by *Person 2 kissing Person 1* are computed, based on the transient impressions produced in the first step.

Fourth, the transient impressions of *Person 1* produced in the second and third steps are averaged. Additionally, the transient impressions of *Person 2* produced in the second and third steps are averaged. These mean transient impressions are the outcome transients for the simultaneous events.

Fifth, the transient impressions produced by *Person 1 complimenting Person 2* are computed, based on the averaged transient impressions from the simultaneous events.

Two sets of simultaneous events in a row can be distinguished by extra characters after the ampersand, as in this example.

```
&>,Person 1[_ ,sweetheart],kiss,Person 2[_ ,sweetheart]
&>,Person 2[_ ,sweetheart],kiss,Person 1[_ ,sweetheart]
&<,Person 1[_ ,sweetheart],hug,Person 2[_ ,sweetheart]
&<,Person 2[_ ,sweetheart],hug,Person 1[_ ,sweetheart]
```

More than two simultaneous events can be in a set, if the experiencer is aware of all events at the same time. Consider the next list of events.

```
&,Person 1[_ ,sweetheart],kiss,Person 2[_ ,sweetheart]
&,Person 2[_ ,sweetheart],kiss,Person 1[_ ,sweetheart]
&,Person 3[_ ,stranger],watch,Person 2[_ ,sweetheart]
Person 2[_ ,sweetheart],compliment,Person 1[_ ,sweetheart]
```

In this case, the outcome for *Person 2* is averaged over all three simultaneous events. Thus, in the last event shown, the input transient for *Person 2* is the average outcome from all three prior events, even though the input transient for *Person 1* is the outcome from just the one prior event in which *Person 1* was involved.

Restarting can be combined with simultaneous events by listing the special characters in sequence. For example,

```
,$,&>,Person 1[_ ,mother],talk to,Person 2[_ ,child]
```

would be an event following other events. The \$ indicates that transients should be set to fundamentals; the &> indicates that this is the first of a set of events occurring simultaneously.

## The Options Form

Choosing *Select options* on the **Operations menu** opens the screen displayed in Figure 35.

### Processing

The “Processing” column in the middle of the form consists of two checkboxes and a box for typing numbers.

Initially the box labeled *Run events automatically* is unchecked. That means that you have to implement each event separately on the *Analyze events* form. You click the first event in the EVENTS LIST, and *Interact* shows the results and stops. Then you click the next event, and *Interact* shows results and stops. And so on.

The screenshot shows a software window titled "N. Ireland 1977" with a "Select options" dropdown menu. The main content area is divided into three columns:

- Write To**
  - Java Console**
    - Fundamentals, impressions
    - Deflections
    - Actor emotions
    - Object emotions
    - Actor behaviors
    - Object behaviors
    - Actor labels
    - Object labels
    - Actor attributes
    - Object attributes
    - Verbal events
- Processing**
  - Run events automatically
  - Record all events
  - Search cut-off distance:
- Sentiment Formation**
  - From labelings
  - From transients
  - Number of events to remember:

Figure 35. The Options form.

Checking *Run events automatically* causes all events to be implemented without action on your part, after you click the first item in the EVENTS LIST. *Interact* processes events as usual, using earlier outcomes as inputs for later events, but *Interact* does not stop and show results between events.

Automatic processing operates within the sex of the experiencer that you select before clicking the first event. Sentiments for that person's sex are used to compute outcomes of all events.

Automatic processing computes results without consideration of settings, whether or not settings have been selected for interactants.

The other checkbox in the "Processing" column of this form, labeled *Record all events*, is checked initially. The checkmark means that results of all implemented events are stored so that you can review them by visiting the *View report* form.

Unchecking this box stops the archiving process, and the *View report* form stays empty, other than showing general statistics concerning the sentiment repository that you are using. Archiv-

ing slows processing when you are running long lists of events automatically, so unchecking this box speeds up automatic runs.

The **Search cut-off distance box** allows you to change how far *Interact* searches from a reference EPA profile when compiling a list of retrievals. If you enter zero, no concepts are listed; if you enter 16, all repository concepts of the appropriate type will be listed, sorted for their nearness to the reference profile.

The **Search cut-off distance box** on this form serves the same function as the **Maximum distance box** on the *Find concepts* form. You can change the cut-off distance at either place.

#### *Write To Java Console*

The “Write To Java Console” column of checkboxes allows you to output selected analytic results to an auxiliary window – the Java console, for copying and pasting elsewhere. The Java console is available whenever your browser is running *Interact*, because *Interact* is a Java applet. Some browsers (e.g., Firefox) present an option in the browser’s Tool menu for displaying the Java console.

The materials that can be written to the Java console are as follows. Selecting multiple options causes multiple items to be written for each event.

*Fundamentals, impressions.* Clicking this checkbox causes *Interact* to print fundamentals and transient impressions for each event in the Java console. The following shows the kind of text that is produced for an event.

```
Person 1[_,Army officer],supervise,Person 2[_,Army enlistee]
Actor Fundamental:  0.72  1.87  1.41. Behavior Fundamental: 1.30  1.30  1.14. Object per-
son Fundamental:  1.39  0.88  0.96. Setting Fundamental: 99.99 99.99 99.99.
Actor Transient inputs:  0.72  1.87  1.41. Behavior Transient inputs:  1.30  1.30  1.14.
Object person Transient inputs:  1.39  0.88  0.96. Setting Transient inputs: 99.99
99.99 99.99.
Actor Transient outcomes:  0.75  1.59  1.15. Behavior Transient outcomes:  0.76  1.21
1.05. Object person Transient outcomes:  0.93  0.32  0.63. Setting Transient outcomes:
99.99 99.99 99.99.
```

Transients change from one event to the next. Fundamentals ordinarily stay the same in sequences of events, except when reidentifications occur, or when Sentiment-Formation analyses are in progress.

*Deflections.* Clicking the Deflections checkbox causes the following kind of result to print in the Java console when an event occurs.

```
Deflection:  1.08, Actor:  0.15, Object:  0.63.
```

The first number is the overall deflection produced by the event, the second number is the amount of the deflection that comes from the actor’s situational identity being stressed, and the third number is the amount from stressing of the object person’s situational identity. (The remainder of the deflection derives from stressing of the behavior’s affective meaning, and of the setting’s affective meaning when the setting is part of the event.)

*Emotions.* Clicking the third or fourth checkboxes on the left causes each event to produce the following kind of result in the Java console.

```
Actor emotions  1.69  1.39  0.71
```

The numbers are the ideal EPA profile for the emotion expected in the circumstances.

*Behaviors.* Clicking the fifth or sixth checkboxes on the left causes the following kind of result.

```
Actor behaviors  1.33  1.21  1.04
```

The numbers are the EPA profile for the optimal behavior in the circumstances.

*Labels.* Clicking the seventh or eighth checkboxes on the left causes the following kind of result.

```
Actor labels  1.51  1.18  1.32
```

The numbers are the EPA profile for the interactant's optimal identity in the event.

*Attributes.* Clicking the ninth or tenth checkboxes on the left causes the following kind of result.

```
Actor attributes  2.47  0.96  1.15
```

The numbers are the EPA profile for the interactant's optimal attribute in the event, given the interactant's current identity.

*Verbal Events.* Clicking the Verbal events checkbox causes the following kind of output in the Java console for each event.

```
Person 1[_,Army officer],supervise,Person 2[_,Army enlistee]
```

The line is printed above any other information listed in the Java console for that event.

## Sentiment Formation

The "Sentiment Formation" column of the *Select options* form contains a pair of radio buttons and a box for typing a number. These are controls for an *Interact* function that estimates new sentiments for interactants, based on their participation in a series of events. A book chapter by David Heise reports the basic ideas and some empirical results: "Sentiment formation in social interaction," pp. 189-211 in *Purpose, Meaning, and Action: Control Systems Theories in Sociology*, edited by Kent A. McClelland and Thomas J. Fararo, New York: Palgrave Macmillan, 2006.

The essential idea is that sometimes individuals stop making events affirm sentiments, and instead let events generate sentiments. This may happen when ongoing events fail to coordinate with an individual's current affective meaning for a concept, so the individual sets the concept's affective meaning to fit the events.

An *Interact* analysis of sentiment formation requires a list of interpersonal events that are thought to generate new sentiments for one or more interactants. For example, the series of events occurring after Ego initially meets Alter presumably change Ego's sentiment about Alter

away from neutrality. Or events that make an old acquaintance, Alter, seem like a different individual could prompt Ego to form a new sentiment about Alter based on those events.

Sentiment formation can be turned on in *Interact* by entering a number greater than zero in the **Number of events to remember box**. Sentiment formation can be turned off by entering zero in the box. *Interact* computes an immediate sentiment for an individual by averaging over outcomes in the number of prior events being remembered, but uses a culturally-defined sentiment if zero prior events are being remembered.

If the *From labelings* radio button is selected then new sentiments are generated by averaging EPA profiles for labelings of participants in past events. If *From transients* is selected then new sentiments are generated by averaging impressions of participants in past events. The Heise report mentioned at the beginning of this section concluded that sentiment formation operates via labelings (i.e., reidentifications) rather than via transients.

A number of things happen when you conduct a sentiment-formation analysis in *Interact*.

First, special concepts are added to the *Interact* identity dictionary when you use the *Define situation* form. Each new concept consists of the word *Mutator* followed by a number representing the person who experiences that concept and another number indicating who the concept identifies. For example, the identity *Mutator\_1\_1* represents Person 1's view of self; *Mutator\_1\_2* represents Person 1's view of Person 2, and *Mutator\_2\_1* represents Person 2's view of Person 1. The EPA fundamental profiles for these identities will change as events occur.

The *Define situation* form sets individuals' identities in a two-step process. The profile for a selected identity is attached to a *Mutator* concept, and that *Mutator* concept is assigned to the person whose identity is being defined. For example, if the viewer is Person 1 and *child* is selected to identify Person 2, then the EPA profile for *child* will be assigned to *Mutator\_1\_2*, and *Mutator\_1\_2* will be Person 1's situational identity for Person 2.

Prefix the first event definition on the events list with the characters "#," to start a sequence with all fundamentals set to zero. For example,

```
#,Person 1[_ ,Mutator_1_1],amuse,Person 2[_ ,Mutator_1_2]
```

sets the initial EPA profile of all *Mutator* sentiments to 0 0 0.

*Interact* insists that every interactant has a *Mutator* identity when the sentiment-formation option is on. If you try to change an interactant's identity to something else on the *Define situation* form, *Interact* changes it back to *Mutator*. Consequently sentiments for all interactants change together in the analysis. However, this default mode of operation can be circumvented by replacing *Mutator* identities with actual identities on the events list. For example, if this event definition

```
Person 1[_ ,Mutator_1_1],amuse,Person 2[_ ,Mutator_1_2]
```

is replaced with

```
Person 1[_ ,mother],amuse,Person 2[_ ,Mutator_1_2]
```

then only the sentiment for Person 2 will change. Changing all instances of *Mutator\_1\_1* to *mother* makes the sentiment for Person 1 stay the same throughout the sequence.

Events implemented on the *Analyze events* form change the sentiments attached to relevant Mutator identities for future events. Specifically, if we are analyzing dyadic events of Person 1 and Person 2 as viewed by Person 1, and the number of events to remember has been set equal to  $R$ :

- *First implemented event.* If *From labelings* is selected, *Interact* computes the ideal labeling profile for the actor and object in the first event, and these profiles become the fundamental sentiments for the interactants in the second event. If *From transients* is selected, then Person 1's event-1 transients of actor and object become fundamentals for the next event involving these persons. As a result, fundamentals are the same on the second event as on the first event, since *Interact* sets transients equal to fundamentals on the first event.
- *Second implemented event.* If *From labelings* is selected, *Interact* averages the labeling EPA profiles from the first two events for each interactant and sets that average profile as the interactant's fundamental for the next event. If *From transients* is selected then the transient EPA profiles from the first two events are averaged and used as the fundamental for the next event.
- *Third implemented event.* For each interactant, *Interact* averages the labeling EPA profiles – or transient EPA profiles – from the first three events and sets that average profile as the fundamental for the next event.
- *m-th implemented event where m is not more than R.* For each interactant, *Interact* averages the labeling EPA profiles – or transient EPA profiles – from the first  $m$  events and sets that average profile as the fundamental for the next event.
- *n-th implemented event where n is more than R.* For each interactant, *Interact* averages the labeling EPA profiles – or transient EPA profiles – from the last  $R$  events and sets that average profile as the fundamental for the next event.

Following are some events that were used in the Heise study, which examined a changed relationship between Israel and Egypt, emerging in the 1970s. The behaviors in the study were EPA profiles for international actions.

```
&,Egypt[_,Mutator_1_2]_-1.10_0.65_0.55,Israel[_,Mutator_1_1]
&,Israel[_,Mutator_1_1]_-0.55_0.32_0.57,Egypt[_,Mutator_1_2]
Egypt[_,Mutator_1_2]_-0.80_1.30_1.30,Israel[_,Mutator_1_1]
Israel[_,Mutator_1_1]_-1.10_0.60_1.10,Egypt[_,Mutator_1_2]
Israel[_,Mutator_1_1]_1.20_0.50_0.40,Egypt[_,Mutator_1_2]
&,Egypt[_,Mutator_1_2]_-0.35_0.50_1.05,Israel[_,Mutator_1_1]
&,Israel[_,Mutator_1_1]_-0.60_0.47_1.10,Egypt[_,Mutator_1_2]
```

For illustrative purposes suppose that sentiments are estimated as average labeling profiles computed over three events. Then the above list is processed as follows, focusing just on the derivation of a sentiment for Egypt.

Lines 1 and 2 begin with ampersands because the events occurred on the same day, so *Interact* combined the pair into a single averaged event. That is, *Interact* computed the EPA profile for an actor who would engage Israel with an act having EPA profile -1.10 0.65 0.55; computed the profile for an object toward whom Israel would perform an act having profile -0.55 0.32 0.57; and averaged these two EPA profiles to obtain the fundamental sentiment for Egypt in the next event on the list.

At event 3 *Interact* computed the kind of actor who would engage in act -0.80 1.30 1.30 toward Israel; averaged this profile with Egypt's estimated sentiment in the event 1-2 pair; and assigned the average profile as the sentiment for Egypt in event 4.

In event 4 *Interact* computed the kind of object on whom Israel would perform an act having profile -1.10 0.60 1.10; averaged this with Egypt's sentiment in act 3, and its sentiment combining acts 1 and 2; and set this profile as Egypt's sentiment in event 5.

In event 5 *Interact* computed the kind of object that would receive an act with profile 1.20 0.50 0.40 from Israel; averaged this with the sentiments about Egypt in events 3 and 4; and set this as the sentiment toward Egypt in the simultaneous events 6 and 7.

Averages are computed only over the events in which an interactant actually participated. For example, if Person 3 did not participate in events five through ten, then those events would be ignored while computing the fundamental sentiment applying to Person 3.

## Appendix A. History of *Interact*

The following narrative gives David Heise's recollections concerning the program's development through 2007.

The first version of *Interact* was built in 1972 as an experiment to see if the basic ideas of Affect Control Theory could predict actual behaviors in social interaction. I actually didn't have much hope that it would succeed because at that time nobody tried to predict actual behaviors that might occur in social situations.

Electronic hand calculators had come on the market a couple of years before. I bought one and worked through equations for a social situation involving two people. It took days, and I wasn't sure my calculations were correct. I translated numerical results into words by visually scanning lists of numerical measurements for behaviors, and I wasn't certain if I was selecting the right behaviors to fit the computed numbers. Results seemed promising, but I could be sure that they were right only by writing a computer program to do the calculations and to search the dictionaries automatically.

So I wrote the program. After a few months' work, the program seemed to be harboring its last bugs. I set up an analysis: two enemies, Mac and Bob; Bob insults Mac; what will Mac do? In those days you set up an analysis, submitted it to a university computer, and came back hours later to find out what happened. I went out to dinner with my wife Elsa and stopped at the computer center on the way home to pick up the printed output, fully expecting another bug. But there was no bug this time! The program ran, and there on the results page was the outcome—Mac hits Bob!

That first *Interact* outcome seemed the best behavior given the limited choices in that version of the program. In the next couple of years I assembled dictionaries of identities and behaviors, got better equations to use in calculations, and rewrote the program so it was easier to run. This work was reported in my 1978 book, *Computer-Assisted Analysis of Social Action: Use of Program INTERACT and SURVEY*. UNC75, Chapel Hill, NC, Institute for Research in the Social Sciences.

In the late 1970s the National Institute of Mental Health provided financial help. Lynn Smith-Lovin, Chris Averett, Beverly Wiggins, Bernadette Smith, and others joined in working on the theory. Bigger dictionaries and better equations were assembled; data were collected in non-American cultures; personal traits and settings were added to the conditions used for predicting future phenomena; the theory expanded to predict labeling, attribution, and emotions, as well as behaviors; and experiments tested hypotheses derived from the theory. Neil MacKinnon began work that culminated in a set of Canadian dictionaries and a cross-national replication of the equations.



Then microcomputers appeared, and I translated program *Interact* from PL/1 for mainframes to a combination of Basic and 6502 assembler language so that it could run on personal computers. However, back then microcomputer technology changed almost yearly, and by the mid-1980s, I'd translated the program back to PL/1 to run on a CP/M personal computer, and then translated it to Pascal to run on MS-DOS systems. The MS-DOS program was marketed by Wm. C. Brown Publishers of Dubuque, Iowa in 1988 (with distribution being discontinued in 1993).

In order to develop a graphical user interface for *Interact*, I transferred my work to a Macintosh computer and developed a version of *Interact* using HyperCard and HyperTalk during the mid-1990s. The Macintosh program was the first to display facial expressions besides listing words describing emotions.

Development of the World Wide Web in the 1990s raised new opportunities. I realized that publishing the program on the Web would make it easier to distribute to students and researchers anywhere in the world and would reduce the cost to zero. So I re-wrote *Interact* as a Java applet and put the Java version on the Web in 1997.

I added a learning capability to *Interact* in 2005 in order to support a project considering how sentiments might accommodate to events, rather than controlling events.

In 2007 I expanded *Interact* so that it can be used to analyze relations between an individual's self-sentiment and the identities that the individual adopts in order to actualize the self in social interactions. The facility additionally predicts identities that the individual might adopt in order to compensate for recent inauthentic identities.

The milestones in the development of *Interact* are indicated in the following list.

1971: First *Interact* computations, using an electronic hand calculator. A single behavior prediction required days to compute.

1972: First *Interact* computer program, written in PL/1 for a mainframe computer. Several hours between each behavior prediction.

1975: Prediction of social labeling in addition to behaviors.

1976: *Interact* runs at a computer terminal. Several minutes are required between each round of behavior predictions.

1979: First *Interact* microcomputer program, written in BASIC and assembler language for a tiny computer. Several seconds are required between each round of behavior predictions.

1980: Settings and modifiers included in *Interact* analyses.

1983: Program for CP/M microcomputers, written in PL/1.

1984: Attributions and emotions included in *Interact* analyses.

1985: *Interact* for MS-DOS microcomputers written in Pascal.

1986: Public distribution of *Interact* by the National Collegiate Software Clearinghouse.

1988: *Interact* marketed by Wm. C. Brown Publishers, Software, Dubuque, Iowa.

1991: *Interact* incorporates cross-national data, predicts behavior and labelings that reflect observed emotions, and deals with self-directed acts.

1995: Public distribution of *Interact* software on the World Wide Web.

1996: Macintosh version of *Interact*, written in HyperTalk with Pascal add-ons. Program displays facial expressions of emotions, graphs deflections.

1997: World Wide Web publication of the on-line version of *Interact*, written as a Java applet.

2001 Java *Interact*'s interface internationalized so that it can run in multiple languages.

2005: *Interact* tracks growth and change in sentiments during social interactions.

2007: *Interact* predicts identities that an individual adopts in social situations, based on the individual's self-sentiment and on the individual's recent experiences of inauthenticity.

## Appendix B. Changes in the 2013 edition

In 2013 *Interact* was converted from a Java applet running within internet browsers into a Java application. The application may be downloaded at

[http://www.indiana.edu/~socpsy/public\\_files/Interact.jar](http://www.indiana.edu/~socpsy/public_files/Interact.jar)

**Interact.jar** is a runnable jar file which you may store in a directory of your choice. Double-click the program's name or icon, and *Interact* will open in a new window like other programs you run on your computer. You may create a shortcut on your desktop pointing to **Interact.jar**, and double-clicking the shortcut will run the program.

The 2013 revision included the following additions and modifications to *Interact*'s functioning, compared to the applet.

### Initial Display

The *Interact* application starts up in advanced mode, immediately showing everything related to defining a situation – identities, settings, modifiers, EPA profiles, and an institution selector. That contrasts with the applet that started in basic mode, with an initial display that showed just identities.

The basic mode still is available for use in instruction. Just change the menu saying *Advanced functions* to *Basic functions*.

### Equations

The American actor-behavior-object equations were changed to those reported in the Heise white paper on the methodology of specifying and estimating impression formation equations (D. Heise, 2011, "Methodological Issues in Impression-Formation Research", Bloomington IN,

Indiana University). The American emotion equations were re-estimated with the new methodology, and the re-estimated emotion equations are the ones included in the 2013 edition of *Interact*.

The ABO equations have 20 terms compared to 29 previously. The emotion equations have a couple of new interaction terms. Thus numerical results computed with the *Interact* application differ somewhat from results obtained with the applet. The differences are small, however, and I have detected no substantive changes in outcomes.

## **Faces**

Anatomical bounds have been set on facial expressions so that extreme emotion profiles computed by *Interact* no longer cause anomalies like eyebrows rising above the hairline.

In general, emotional expressions corresponding to any particular emotion EPA are less extreme in the application than they were in the applet. The rules for computing facial expressions are the same, but the application moves facial features a little less than the applet did.

The faces of *Interact*'s Male-2 and Female-2 have been adjusted to look a bit more conventional in their neutral states, and to provide more identifiable emotion expressions.

## **Extemporaneous Interaction**

A new form was added to *Interact* for unfolding the ongoing interaction of individuals. Previously, *Interact* required specifying each individual's events in advance, and computing individuals' experiences separately. (The old functioning still is available.) Now alternatively you can see how an interaction might develop without prior notions about what events might occur.

The new page was inspired by *GroupSimulator*, and uses ideas developed with *GroupSimulator*. In particular, it is likely that the individual with the greatest personal tension will be next actor, so personal tensions are reported at each round of interaction. And it is likely that the object of an individual's action will be the one who produces optimal deflection reduction, so that object is suggested as the probable target. Preferred behaviors for a person's action toward an object are presented in a list, and any one of the behaviors may be selected to generate the next event.

Analyzing the interaction of people with different definitions of the situation is easy with the new function. Each interactant's definition of the situation is set up with the standard page in *Interact*, varying the views of different participants as desired. Then, on the *Interactions* page, the varying definitions are incorporated into each individual's performances and interpretations.

## **Germany**

The *Interact* application incorporates Tobias Schröder's 2007 dictionary of German sentiments in English translation. Thus that dictionary is available in the program in two forms: with words translated to English, and with the original German words. The application also eliminates a bug that interfered with use of the German version of the dictionary.

## Feeling Effects

Code for the *Feeling effects* form was debugged in order to provide correct solutions.

## *Interact* Guide

The guide to using *Interact*—i.e., the manual you are reading—was edited and expanded to deal with the above changes in the program.

## Appendix C. Terms of use

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