

Acting in Character

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1. Personality in Improvisational Actors

Personality is the set of psychological traits that uniquely characterize an individual. Personality distinguishes each individual from all others and colors his or her behavior in a pervasive and recognizable fashion. It is a persistent phenomenon that changes little and slowly, if at all, over time. Personality makes people fascinating to one another.

We are studying personality in the context of synthetic agents that function as actors [5]. Like human actors, these agents assume prescribed roles. They follow scripts, scenarios, and directions. They strive to “breathe life into their characters.”

In this context, it is not the personality of the actor that interests us, but the personality of the character he or she portrays. Thus, when we say that an actor is “in character,” we mean that the actor is behaving in accordance with a personality created by an author, shaped by a director, and assumed by an audience, for purposes of a particular performance. A good actor creates and communicates a consistent and compelling personality throughout a performance of a given role and creates different personalities for different roles.

Of course, the distinction between the personality of the actor and the personality of the character is not always sharp. Many old-fashioned movie stars, such as Katharine Hepburn and Cary Grant, carried distinctive features of their own “professional personalities” into every role they played. Indeed, their fans would otherwise have been disappointed. Even great character actors, ultimately constrained by their own identities, are better able to create some characters than others. In a very real sense, each unique combination of actor and role yields a unique character. Thus, we enjoy seeing how gifted new actors reinterpret classic roles as compelling characters largely of their own making.

A similar phenomenon occurs when great stories are rendered in new forms. However well we “know” Shakespeare’s Juliet from the performances of traditional theater actresses, we are enchanted to meet each new Juliet in each new art form, for example: Olivia Hussey in Zeffirelli’s faithful period film; Natalie Wood in the film of the Bernstein and Robbins modern retelling, *West Side Story*; and three different prima ballerinas: Natalia Makaravo, Evelyn Cisneros, and Marcia Haydee dancing the distinctive choreographies of *Petipa* (American Ballet Theatre), *Smuin* (San Francisco Ballet), and *Cranko* (Stuttgart Ballet). Although each of these works offers its own intrinsic beauty and art, much of our pleasure comes from the chance to see beloved characters recreated by new performers in new forms.

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We are particularly interested in agents that function as improvisational actors who spontaneously and cooperatively generate their stories at performance time. Like human improvisers, our agents are intended to work closely together and to exploit known heuristics for producing engaging performances, for example: *accept all offers, don't block your partner, do the natural thing, don't try to be clever, and reincorporate previously generated elements* [1, 3, 16, 17, 18, 21]. In addition, they are designed to improvise under the constraints of directions from exogenous sources, such as people or other computer system components. We call this general paradigm "directed improvisation" [8, 10, 12].

Although various improvisational performance modes are possible, for present purposes we focus on a classical mode first practiced by the *Commedia dell'Arte* of Renaissance Italy and subsequently adapted by the Compass and Second City groups in Chicago [21]. Here, the actors are assigned standard roles in a familiar scenario, but improvise the details of their performance. Since the audience has enjoyed many previous performances of the same scenario, often by the same actors, it cannot be discovery of the plot that entertains them. Instead, it is the actors' skillful invention of new characters in familiar roles and the chance to see how these new characters cope with the inevitable twists and turns of the plot.

We wish to create synthetic actors who work together to improvise simple scenarios defined by three dramatic constructs: plot, role, and character. *Plot* is a temporally constrained sequence of actions involving a set of individuals. A plot and its constituent actions may be quite abstract. For example, one prototypical plot is: *a* meets *b*, *a* loves *b*, *a* loses *b*, *a* wins *b*. *Role* is a class of individuals, whose prototypical behaviors, relationships, and interactions are known to both actors and audience. For example, the plot outlined above ordinarily is instantiated with these roles: the boy in love and the girl he loves. However, it might be instantiated with alternative roles, for example: the female dog in love and the male dog she loves; the male skunk in love and the female cat he loves; or the lonely little girl and the stray dog she loves. *Character* is a personality defined as a coherent configuration of psychological traits. For example, any of the characters in the present scenario might be: shy and sensitive, gregarious and coarse, or silly and affectionate. However compelling the plot and roles of a performance may be, it is character that elicits our emotional response, that makes us love or hate the people in the story, that makes us care about what happens to them.

As illustrated in the examples above, plot, role, and character are substantially independent and may be directed separately. In fact, human actors may be directed on any subset of them and left free to improvise without constraint on the others. We aim to create the same capabilities in synthetic actors; however, the present paper focuses on the paradigm in which actors are directed with constraints on all three constructs. Thus, for a given performance, each actor is directed to play one of the roles specified in a designated plot and to display prescribed character traits. Working together, the actors improvise the story. Their improvisations are role-appropriate. They are punctuated and contextualized by the actors' enactment of required plot elements. They are colored and textured by the actors' realizations of the prescribed characterizations. Changing any of the directions for a new performance not only alters the affected actors' immediate behavior, but propagates throughout their improvisational interactions with the other actors to produce a joint performance that may be wholly new and different from its predecessors.

In this paper, we report an empirical study of the model outlined above in the context of a classic master-servant scenario. We have been strongly influenced in our choice and treatment of this material by the work of Keith Johnstone, especially his book, *Impro: Improvisation and the Theatre* [18]. As Johnstone observes:

One status relationship that gives immense pleasure to audiences is the master-servant scene. A dramatist who adapts a story for the stage will often add a

servant, especially if it's a comedy; Sophocles gave Silenus as a slave to the Cyclops, Moliere gave Don Juan a servant, and so on. The master-servant scene seems to be funny and entertaining in all cultures—even people who have never seen a manservant have no difficulty in appreciating the nuances. (pp. 62-63)

In addition, as we shall see, the master-servant scenario provides rich material with which to explore the independent direction of role, plot, and character.

The remainder of this paper examines our model and empirical study in more detail. In section 2 below, we review our concept of directed improvisation. In sections 3-5, we discuss how actors can be directed to improvise under separable constraints of plot, role, and character, respectively. In section 6, we briefly describe our implementation of improvisational actors and their capabilities for improvising variations on the master-servant scenario. In section 7, we return to the more general issues of creating personality and character in synthetic agents and actors.

Before proceeding, we make one general observation. Although all three dramatic constructs—plot, role, and character—are interesting and important, we give most of our attention to character-constrained improvisation. This is, in part, to address the main topic of the present collection, personality. More importantly, our emphasis reflects a belief that development and expression of character are the primary determinants of audience engagement and dramatic impact in narrative works. Following Horton [17] and others, we believe that:

... “it is the character’s personality that creates the action of the story” and not the other way around... (quote from novelist, Flannery O’Connor [19])

“Character is the vital material with which an author must work.” (quote from writing teacher, Lajos Egri [4])

2. Directed Improvisation

In directed improvisation, actors work together in real time to enact a joint course of behavior that follows directions, adapts to the dynamic situation, and otherwise may vary under the weak heuristic constraints of effective improvisation. Because we have discussed the general properties of directed improvisation elsewhere [8-10, 12-15], we only excerpt that material here.

As in all improvisation [1, 3, 9, 16, 17, 18, 21], directed improvisation requires the actors to work cooperatively, constantly adapting to one another's behavior, as well as to other features of the dynamic situation. The most fundamental rule of improvisation is that actors should *accept all offers*, and, conversely, *not block your partner*. That is, each actor must acknowledge and respond appropriately to any explicit assertion, question, or command produced by another actor. For example, if actor A says to actor b, “Why are you wearing that hat?” B must not block A by calling attention to the fact that her head is bare. She must accept B’s offer by affirming his premise and replying, for example, “It’s one of my favorites.” In addition, improvisational actors should *do the natural thing* and, conversely, should *not try to be clever*. This is one area in which synthetic agents may have an advantage over human actors who have a tendency to try too hard. For example, Johnstone recalls:

For some weeks I experimented with scenes in which two ‘strangers’ met and interacted, and I tried saying ‘No jokes’, and ‘Don’t try to be clever’, but the work remained unconvincing. They had no way to mark time and allow situations to develop, they were forever striving to latch on to ‘interesting’ ideas. (p. 33)

Finally, more advanced improvisers should *reincorporate previously generated elements*. That is, they must try to refer back to previously mentioned concepts, to reuse previously introduced objects, and to remind one another of previous actions. In so doing, they create a sense of narrative structure and resolution. Of course, artful reincorporation is a fundamental property of all good storytelling [17]. As Chekhov said: “If you say in the first chapter that there is a rifle hanging on a wall, in the second or third chapter it absolutely must go off. If it's not going to be fired, it shouldn't be hanging there” [2]. But conventional authors have the luxury of reflection and revision, while improvisers must live with their immediate performance history and reincorporate it on the fly.

In directed improvisation, actors must follow these basic rules of improvisation, while working within the additional constraints of their directions. In fact, directed improvisation occupies the vast middle ground between “pure” improvisation and traditional acting. Most pure improvisers seek at least a minimal constraint on their performances. For example, they might ask the audience to answer a question (what is a scary animal? your favorite color? the best holiday?) and commit to incorporate the answer into their performance. At the other extreme, even traditional acting involves at least a small degree of improvisation. Human beings cannot reproduce exact performances on different occasions even if they should wish to do so and each actor must respond appropriately to intended or unintended variations in their partners' performances. For example, in the original Broadway production of Tennessee Williams's *A Streetcar Named Desire*, Jessica Tandy appeared in a critically acclaimed performance as Blanche du Bois, while Marlon Brando made his stunning debut as Stanley Kowalski. The story goes that Brando's “method” acting electrified audiences and critics, but severely tested Tandy's ability and inclination to adapt her own more conventional acting style to the unpredictable new Stanley she met on the stage each night.

In directed improvisation, actors work within the constraints of directions that vary in the degree to which they restrict the actors' behavior. The directions may be abstract and leave the actor nearly complete freedom or very specific and prescribe the smallest details of behavior. They may constrain any aspect of behavior, including an actor's role, characterization, or actions. Directions may be delivered in advance in the form of a complete scenario, such as the master-servant scenarios discussed below. Alternatively, the directions may be delivered interactively during a performance, as in the improvisational puppets and avatars we have discussed elsewhere [13, 14, 15]. In hybrid modes, performance-time directions may constrain scenario-based improvisations. Directions may come from various sources, including people, other computer system components, or the actors themselves.

3. Directing Role-Constrained Improvisation

Improvisational actors may be directed to assume particular roles in a performance. For example, in the master-servant scenarios we have been studying, each of two actors can be directed to play master or servant. In most cases, actors are directed to play a constant role throughout a performance. However, they may be directed to change roles at some point in a performance, as illustrated in the Role-Reversal Scenario discussed below.

Direction to assume a particular role constrains an actor to improvise only role-appropriate or role-neutral behaviors. For example, actors in the master-servant scenarios know that the Master may do as he pleases in his domain and may command certain aspects of his servant's behavior as well. They know that the servant generally must stay in his waiting place unless called upon to do the master's bidding.

Different actors may have different models of role-appropriate behaviors. For example, all actors may know that a servant should open the door if the master moves to leave the room, adjust his chair if he prepares to sit, and hold his jacket as he dresses. However, individual actors may or may not think to light the master's cigar, bow when he enters or leaves the room, keep eyes downcast as he passes, produce a handkerchief if he sneezes, etc. Thus, familiar roles may take on new dimensions when performed by different actors. Conversely, an individual actor's effectiveness in a role rests upon the depth and breadth of his or her knowledge of role-appropriate behaviors.

In addition to prototypical behaviors associated with their roles, actors may perform subtler role-expressive behaviors. For master and servant roles, Johnstone suggests:

I teach that a master-servant scene is one in which both parties act as if all the space belonged to the master. (Johnstone's law!)

When the master is present, the servant must take care at all times not to dominate the space. ... Footmen can't lean against the wall, because it's the master's wall. Servants must make no unnecessary noise or movement, because it's the master's air they're intruding on.

The preferred position for a servant is usually at the edge of the master's 'parabola of space'. This is so that at any moment the master can confront him and dominate him. The exact distance the servant stands from the master depends on his duties, his position in the hierarchy, and the size of the room.

When the servant's duties take him into close proximity with the master he must show that he invades the master's space 'unwillingly'. If you have to confront the master in order to adjust his tie you stand back as far as possible, and you may incline your head. If you're helping with his trousers you probably do it from the side. Crossing in front of the master the servant may 'shrink' a little, and he'll try to keep a distance. Working behind the master, brushing his coat, he can be as close as he likes, and visibly higher, but he mustn't stay out of sight of the master unless his duties require it (or unless he is *very* low status). (pp. 63-64)

As a performance unfolds, the actors improvise together, spontaneously performing role-appropriate behaviors and always responding appropriately to one another's behaviors. For example, the master may choose to open a scenario by ordering his servant to fetch a book or by strolling over to the window and gazing out upon his domain. The servant must "accept the master's offer," dutifully fetching the book or standing in quiet readiness to serve. Since the actors respond to one another's behavior, each one's successive improvisational choices nudge the joint performance toward one of many possible paths. For example, a servant will light his master's cigar if and only if the master appears to take out a cigar. Similarly, the master will respond to the servant's cigar-lighting behavior only if it occurs. Thus, even in repeat performances by the same cast, small changes in early improvisational choices by individual actors may cascade into very divergent joint performances. With new assignments of actors to roles, the space of possible improvisations in each role grows and the range and number of unique joint performances grows combinatorially.

With closely-coupled roles, such as master and servant, a shared understanding of role-appropriate behaviors may emerge from the characters' improvised interactions. In a case of "art imitating life," we can hardly top the comic exaggerations of real-life master-servant relationships reported by Johnstone:

An extreme example would be the eighteenth-century scientist Henry Cavendish, who is reported to have fired any servant he caught sight of! (Imagine the hysterical situations: servants scuttling like rabbits, hiding in grandfather clocks and ticking, getting stuck in huge vases.) (p. 63)

Heinrich Harrer met a Tibetan whose servant stood holding a spittoon in case the master wanted to spit. Queen Victoria would take her position and sit, and there *had* to be a chair. George the Sixth used to wear electrically heated underclothes when deerstalking, which meant a gillie had to follow him around holding the battery. (p. 70)

Despite the constraints of role-appropriate behavior, actors retain considerable improvisational freedom. They can carry their role-appropriate improvisations into many different plots and characterizations. As Johnstone observes:

The relationship is not necessarily one in which the servant plays low and the master plays high. Literature is full of scenes in which the servant refuses to obey the master, or even beats him and chases him out of the house. ...the servant can throttle the master while remaining visibly the servant. This is very pleasing to the audience. (pp. 63-64)

4. Directing Plot-Structured Improvisation

Improvisational actors may be directed to follow particular plot outlines to structure their joint performances. For example, Johnstone notes that the Commedia dell'Arte blocked out each of their plots as a series of scenes, for example:

(1) nice master, nasty servant; (2) nasty master, nice servant; (3) both teams interrelate and quarrel; (4) team one prepares for duel; (5) team two prepares for duel; (6) the duel. (p. 65)

In our experiment, we use a similar technique to construct variations on a classic master-servant scenario, which we call "While the Master's Away ..." Figure 1 outlines five scenes for our Base Scenario and Role-Reversal Scenario.

Base Scenario	Role-Reversal Scenario
1. Master and Servant	1. Master and Servant
2. Servant at Play	2. Servant at Play
3. Caught in the Act	3. Caught in the Act
4. Servant Retreats	4. Turning the Tables
5. Business as Usual.	5. The New Regime

Figure 1. Two Variations on the Scenario
"While the Master's Away ..."

Both scenarios begin with the master and servant together, interacting in their usual manner. Then the master leaves the room and the servant decides to play at being the master. Although

this is a flagrant violation of Johnstone's law that *the master owns the space*, he views the violation itself as typical, role-determined servant behavior:

When the masters are not present, then the servants can take full possession of the space, sprawl on the furniture, drink the brandy, and so on ... [chauffeurs] can smoke, chat together and treat the cars as their 'own' ... (p. 63)

Of course, at the climax of our scenario, the master returns and catches the servant in the act. At this point, the two scenarios diverge. In the Base Scenario, a chastised servant retreats to his place at the wall and the denouement is business as usual. In the Role-Reversal scenario, confrontation by the master is only a prelude to the true climax. With the tension mounting, the servant stands his ground. Emboldened by the master's failure to assert his power, the servant ultimately usurps the master's role and relegates him to the role of servant. The denouement is a new regime.

Base Scenario and Role-Reversal Scenario
Scene 1. Master and Servant

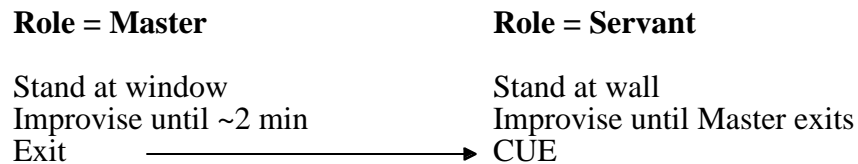


Figure 2. Directions for Scene 1 of "While the Master's Away ..."

To structure improvisation into plot, we give the actors a sequence of scenes that explicitly direct only plot-critical behaviors, entrances and exits, and synchronization cues. For example, Figure 2 shows Scene 1 directions for both scenarios. To set the scene, both actors are directed to begin in specific role-appropriate positions in the space. Then they are directed to improvise freely within the constraints of their roles for approximately 2 minutes, at the master's discretion. Then the master is directed to exit, which cues termination of the scene for both actors.

Base Scenario
Scene 4. Servant Retreats

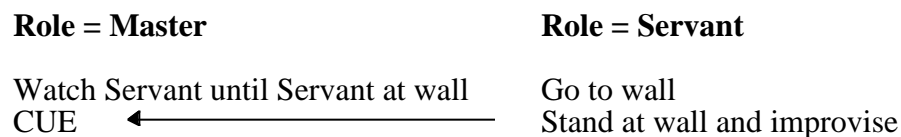


Figure 3. Directions for Scene 4 of the Base Scenario for "While the Master's Away ..."

Figures 3 and 4 show the slightly more specific directions we use to structure Scene 4 in each of the two scenarios. The master has just caught the servant playing master. In the Base Scenario,

the master is directed to watch the servant as he retreats to his place at the wall, thereby cueing termination of the scene for both actors. In the Role-Reversal Scenario, the master is directed to watch the servant as he first holds his ground for approximately 1 minute, at the servant's discretion, and then switches roles to become the master. On this cue, the original master is directed to switch roles to become the servant. Completion of the role-reversal cues termination of the scene for both actors.

Role-Reversal Scenario
Scene 4. Turning the Tables

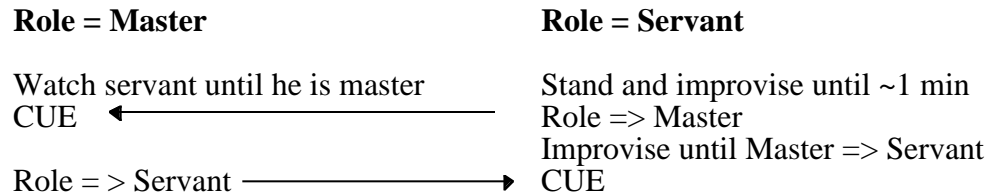


Figure 4. Directions for Scene 4 of the Role-Reversal Scenario for "While the Master's Away ..."

As these examples illustrate, more or less specific plot directions trade off an author's artistic control in shaping a narrative against the actors' improvisational freedom in creating their performances.

5. Directing Character-Constrained Improvisation

5.1 Status Variables for Dramatic Characterization

Improvisational actors may be directed to invest their characters with personality traits. Although there are many kinds of traits we might consider in theorizing about "real-life" personalities, in the context of improvisational acting, we specifically want traits that can be exploited for dramatic effect. Therefore, instead of the literature of the social sciences, we look for guidance to the literature of the theater.

In the present study, we examine three variables representing a character's *status* in *demeanor*, *relationship*, and *space*. For brevity, we refer to these as D, R, and S status. Johnstone defines these variables, as discussed below, and identifies them as especially powerful tools for characterization and drama:

... In my view, really accomplished actors, directors, and playwrights are people with an intuitive understanding of the status transactions that govern human relationships. (p. 72)

Status in demeanor refers to a character's intrinsic ways of behaving. Actors effect high D status through an erect posture, hands at rest, a quiet manner, and smooth movements. They effect low D status through a slouched posture, frequent touching of the face, a nervous manner, and jerky movements. Johnstone teaches that these and other details of behavior reflect a person's real-life D status and, therefore, can be used to assert an actor's in-character D status:

You can talk and waggle your head about if you play the gravedigger, but not if you play Hamlet. Officers are trained not to move the head while issuing commands. (p. 43)

One might try holding his toes pointing inward (low status), while one sits back and spreads himself (high status). (p.44)

... We have a 'fear-crouch' position in which the shoulders lift to protect the jugular and the body curls forward to protect the underbelly. ... The opposite ... is the 'cherub posture', which opens all the planes of the body: the head turns and tilts to offer the neck, the shoulders turn the other way to expose the chest, the spine arches slightly backwards and twists so that the pelvis is in opposition to the shoulders exposing the underbelly—and so on. ... High-status people often adopt versions of the cherub posture. If they feel under attack they'll abandon it and straighten, but they won't adopt the fear crouch. Challenge a low-status player and he'll show some tendency to slide into postures related to the fear crouch. (p. 59)

The high-status effect of slow motion means that TV heroes who have the power of superhuman speed are shown slowed down! Logic would suggest that you should speed the film up, but then they'd be jerking about like the Keystone Cops, or the bionic chicken. (p. 74)

The most powerful behavioral markers of D status may be indirect. A truly high-status person has no need to assert his position. Johnstone points out that the calmest and most relaxed person in a group is immediately perceived as being extremely high status:

... in the opening scenes of Kozintsev's film of *King Lear*. ... Lear enters as if he owns the place, warms his hands at the fire, and 'makes himself at home'. The effect is to enormously *elevate* Lear in status. Lears who strain to look powerful and threatening in this opening scene miss the point, which is that Lear is so confident, and trustful, that he willingly divides his kingdom and sets in motion his own destruction. (pp. 59-60)

D status is not to be confused with the "content" of behavior. To teach actors to preserve this distinction in their characterizations, Johnstone puts them through certain exercises:

I repeat all status exercises in gibberish, just to make it quite clear that the things *said* are not as important as the status *played*. If I ask two actors to meet, with one playing high, and one playing low, and to reverse the status while talking an imaginary language, the audience laugh amazingly. We don't know what's being said, and neither do the actors, but the status reversal is enough to enthrall us. (p. 49)

I get the actors to learn short fragments of text and play every possible status on them. For example, A is late and B has been waiting for him.

A: Hallo.

B: Hallo.

A: Been waiting long?

B: Ages.

The implication is that B lowers A, but any status can be played. (p. 49)

Status in relationship refers to a character's position relative to another. As Johnstone remarks:

...we are pecking-order animals and ... this affects the tiniest details of our behavior. (p. 74)

Actors effect high or low R status by making gestures of authority or subordination, especially implicit gestures involving eye contact, spatial proximity, or touching. Behavioral markers of high R status may be quite subtle and indirect. For example, Johnstone suggests:

A stare is often interpreted as an aggressive act ... If A wants to dominate B he stares at him appropriately; B can accept this with a submissive expression or by looking away, or can challenge and outstare.... breaking eye contact can be high status so long as you don't immediately glance back for a fraction of a second. If you ignore someone your status rises, if you feel impelled to look back then it falls. (pp. 41-42)

I might then begin to insert a tentative 'er' at the beginning of each of my sentences, and ask the group if they detect any change in me. They say that I look 'helpless' and 'weak' but they can't, interestingly enough, say what I'm doing that's different. ... If I make the 'er' longer, ... then they say I look more important, more confident. ... The shorter 'er' is an invitation for people to interrupt you; the long 'er' says 'Don't interrupt me, even though I haven't thought what to say yet.' (p. 42-43)

Imagine that two strangers are approaching each other along an empty street. ... the two people scan each other for signs of status, and then the lower one moves aside. ... If each person believes himself to be dominant ... they approach until they stop face to face, and do a sideways dance, while muttering confused apologies ... If a little old half-blind lady wanders into your path ... you move out of her way. It's only when you think the other person is challenging that the dance occurs ... (p. 61)

In life, R status often parallels social status. Typically, the teacher is higher status than the student; the parent is higher status than the child; the boss is higher status than the employee; and so forth. However, this parallelism is not absolute in life and certainly not in art. As Johnstone observes:

Status is a confusing term unless it's understood as something one *does*. You may be low in social status, but play high, and vice versa.

Tramp: 'Ere! Where are you going?

Duchess: I'm sorry, I didn't quite catch ...

Tramp: Are you deaf as well as blind?

Audiences enjoy a contrast between the status played and the social status. We always like it when a tramp is mistaken for the boss, or the boss for a tramp. Hence plays like *The Inspector General*. Chaplin liked to play the person at the bottom of the hierarchy and then lower everyone. (p. 36)

Status in the space refers to a character's relationship to the surrounding space and objects. Actors effect high or low S status by their willingness or reluctance to enter the space, to move about, and to use or even abuse the objects they find there. Johnstone observes:

... status is basically territorial. (p. 57)

High-status players ... will allow their space to flow *into* other people. Low-status players will avoid letting their space flow into other people. ... Imagine a man sitting neutrally and symmetrically on a bench. If he crosses his left leg over his right then you'll see his space flowing over to the right as if his leg was an aerofoil. If he rests his right arm along the back of the bench you'll see his space flowing out more strongly. If he turns his head to the right, practically all his space will be flowing in this same direction. Someone who is sitting neutrally in the 'beam' will seem lower-status. ... The difference seems so trivial, yet ... it's a quite strong effect. (p. 59)

Scrutinizing a larger group of people, we can see Johnstone's status "see-saw" principle ('I go up and you go down,' p. 37) propagate in all directions as individuals continually adjust their physical positions in response to the movements of their neighbors. Johnstone teaches his acting students to carry this natural equilibrium process into their work:

... space flowed around [them] like a fluid. ... When they *weren't* acting, the bodies of the actors continually readjusted. As one changed position so all the others altered their positions. Something seemed to flow between them. When they were 'acting' each actor would pretend to relate to the others, but his movements would stem from himself. They seemed 'encapsulated'. ... it's only when the actor's movements are related to the space he's in, and to the other actors, that the audience feel 'at one' with the play. The very best actors pump space out and suck it in ... (p. 57)

5.2 Directing Status Transactions

In life, we expect individuals in particular roles and relationships to have "appropriate" personalities, that is, to exhibit prototypical patterns of personality traits. For example, we expect a proper master to be high status on all three variables. He should be dignified. He should be dominant in the relationship with his servant. By definition, he owns the space. We expect a proper servant to be high status in demeanor, but low status in the relationship with his master and in the space. He should be dignified, but deferential. He should not intrude upon his master's space, except to serve him. Of course, human beings do not always conform to prototype and our expectations may be violated in amusing or disturbing ways.

In art, authors may deliberately stretch or violate the bounds of prototype for dramatic effect. One technique is to exaggerate prototypical personality traits. For example, a comic actor playing the servant in our scenario might drastically lower his status in the space and then amuse the audience with his desperate efforts to avoid entering the space: scrunching up his body to occupy the smallest possible area, edging around the perimeter of a room to perform his duties, etc. Another technique, exploited by comic authors from William Shakespeare to Charlie Chaplin, is to create an incongruous clash of personality traits against role. For example, in the P. G. Wodehouse stories, Bertie Wooster and Jeeves faithfully enact their roles of master and servant. Jeeves has an impeccable demeanor and is a faultless servant. However, Bertie displays an astonishing low status in both his demeanor and his relationship to Jeeves—he is hopelessly inept and would be quite lost without Jeeves to rescue him from the consequences of his own

pecadillos. The great joke of the stories is that, in a very real sense, the servant is nobler than the master. With additional characters, status transactions can become very complex indeed. Johnstone cites Beckett’s *tour de force* of status transactions, *Waiting for Godot*:

The ‘tramps’ play friendship status, but there’s a continual friction because Vladimir believes himself higher than Estragon, a thesis which Estragon will not accept. Pozzo and Lucky play maximum-gap master-servant scenes. ... [But] Pozzo is not really a very high-status master, since he fights for status all the time. He owns the land, but he doesn’t own the space. ... The ‘tramps’ play low status to Lucky, and Pozzo often plays low status to the tramps—which produces thrilling effects. (p. 72)

Figure 5 shows how we use the three status variables defined above to direct two distinct characterizations of the Servant in our Base Scenario: Dignified versus Undignified Servant.

Status	Undignified Servant	Dignified Servant
Relationship	Low	Low
Demeanor	Low	High
Space:		
Scene 1	Low	Low
Scene 2	Rises Slowly	Rises Quickly
Scene 3	High	High
Scene 4	Plummets	Falls Gracefully
Scene 5	Low	Low

Figure 5. Directing Two Characterizations of the Servant in the Base Scenario

Directions for R status and D status are straightforward. We direct both servants to exhibit low R status throughout the scenario. We direct the dignified servant to exhibit high D status and the undignified servant to exhibit low D status throughout the scenario. As discussed above, these directions do not compromise the servant's role or his commitment to perform role-appropriate behaviors. Regardless of status, the servant serves the master. However, with low D-status, the servant performs his functions in a manner that appears awkward, nervous, furtive, and restless. With high D-status, he performs the same functions in a manner that appears dignified, confident, matter-of-fact, and calm.

Directions for S status are more complex, layering the personality-specific nuances of characterization on a common plot-required progression of values, as explained below.

To support the plot, we direct the servant to manipulate his S status. During Scene 1, the servant must have low S status because, when the Master is present, he owns the space. When directed to improvise, the servant restricts his improvisations to avoid intruding upon the space. During Scenes 2-4, while the master is away, the servant must raise his S status to allow him to enter the space and play at being master. Now when directed to improvise, the servant might

stroll around the master's room, pause to gaze out the master's window, and eventually even sit in the master's chair. Finally, in Scene 5, when confronted by the master, the servant must lower his S status again to yield the master's space.

To reinforce characterization, we direct personality-specific nuances in this plot-required progression. We direct the undignified servant to raise his status in the space slowly during Scene 2 and to allow it to fall precipitously upon confrontation by the master in Scene 4. Thus, when his master leaves the room, a nervous and awkward servant moves tentatively into the master's space, deliberating long and hard before daring to sit in the master's chair. Visibly chagrined to be discovered there by his master, the undignified servant scurries back to his place. Conversely, we direct the dignified servant to raise his status quickly at the start of Scene 2 and to allow it to fall gracefully during Scene 4. Thus, when his master leaves the room, a calm and graceful servant moves confidently into the master's space and ensconces himself in the master's chair. Unruffled by his master's return, the dignified servant matter-of-factly returns to his place.

Role reversal is the most extreme outcome of Johnstone's see-saw principle: when status is played as a zero-sum game among characters, only one can be on top. Role reversal lies at the heart of a great variety of stories, for example: the adventure of trading places enjoyed by Twain's Prince and Pauper; the pathos of Burnet's Little Princess when her father's apparent death reduces her to a servant of her classmates; and the humiliation of an arrogant mistress when shipwreck gives her oppressed servant the upper hand, in Wertmuller's "Swept Away."

Figure 6 shows how we direct Scenes 4 and 5 of our Role-Reversal Scenario. The scenario begins the same way as our Base Scenario, with an undignified servant first serving his master and then playing at being the master until he is caught in the act in Scene 4. Now, however, instead of retreating, the servant rises up and defies the master. Both actors are directed to "Stand and Improve" until finally, in Scene 5, they are directed to exchange roles, with the servant ordering his former master to take the servant's place at the wall.

Johnstone teaches us that the dramatic impact of scenarios such as this one lies not in its outcome *per se*, but in the status transactions leading up to the outcome:

When actors are reversing status during a scene it's good to make them grade the transitions as smoothly as possible. I tell them that if I took a photograph every five seconds, I'd like to be able to arrange the prints in order just by the status shown. It's easy to reverse status in one jump. Learning to grade it delicately from moment to moment increases the control of the actor. The audience will always be held when a status is being modified. (p. 44)

Thus, to build tension between master and servant during Scene 4, we direct the actors to display their individual transformations in a paced progression of complementary status transitions. We direct the servant, who already has abnormally high S status, to increase his D status to high, and then to increase his R status to high. As we observe the servant stand his ground, straighten his posture, calm his movements, and hold his master's gaze, we believe him elevated into a powerful individual. Meanwhile, we direct the master to reduce his D status to low, then to reduce his R status to low, and finally to reduce his S status to low. As we observe the master deflate his posture, fidget, avoid his servant's gaze, and shrink within the space, we believe him diminished into a weak individual.

Johnstone also teaches us that actors perform most convincingly when they play not to the audience, but to one another:

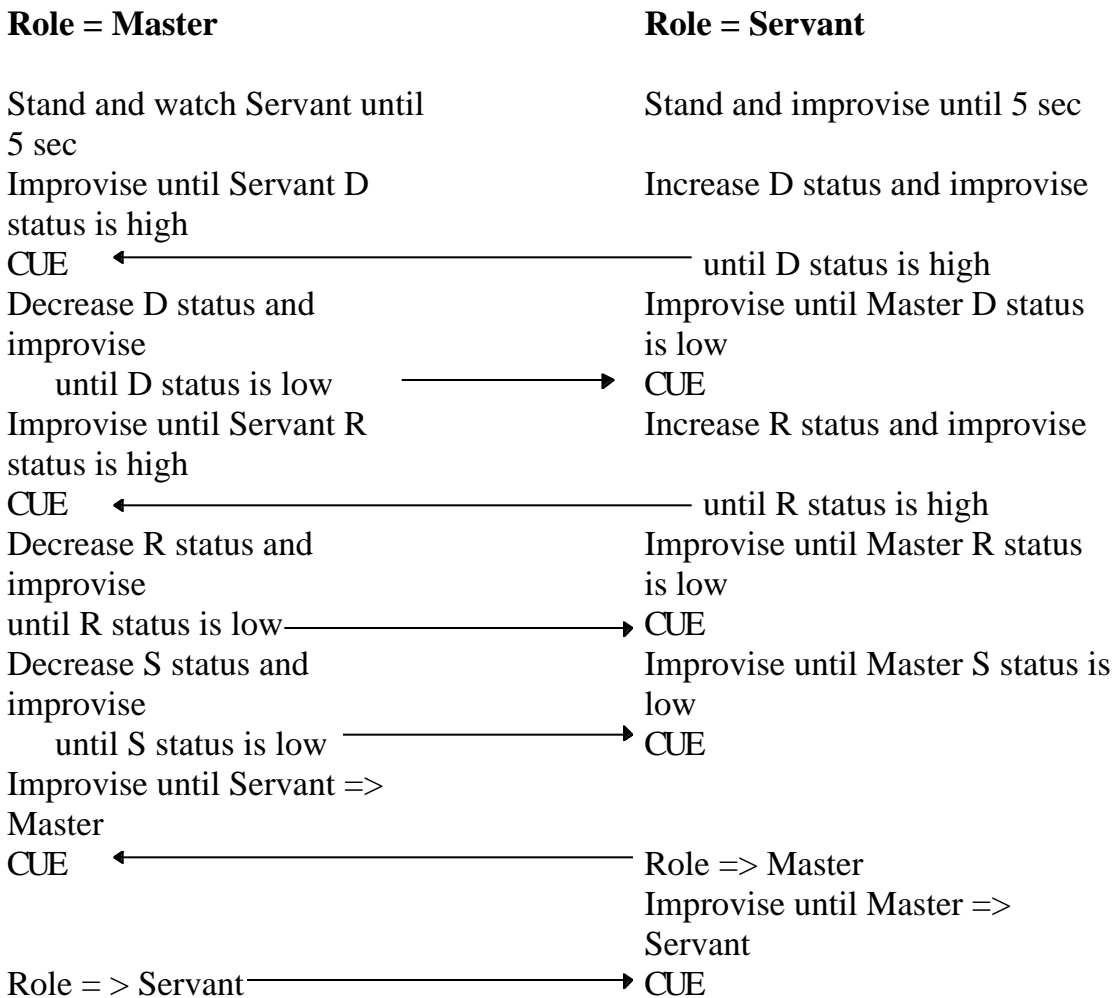
[The actors must] really 'see' their partner, as they have exactly to relate their behavior to his. The automatic status skills then 'lock on to' the other actor, and

the students are transformed into observant, and apparently very experienced improvisers. ... These status exercises reproduce on the stage exactly the effects of real life, in which moment by moment each person adjusts his status up or down a fraction. (p. 46)

Thus, to display the contest of wills between master and servant, we direct the two actors to conditionalize their status transitions on each other's behavior. We direct the master to cue his incremental status reductions on perception of the servant's incremental status improvements and vice versa. Viewing the result, we believe that the servant comes to dominate the master through force of will. We find it only fitting that this gradual usurping of power should culminate in an explicit reversal of roles.

Figure 7 shows a sequence of screens shots illustrating the paced and coordinated status transactions our actors improvise in response to these directions for Scenes 4 and 5.

Role-Reversal Scenario
Scene 4. Turning the Tables



Scene 5. The New Regime

Role = Master

Improvise
until Master bows

CUE

Bow

Role = Servant

Order Servant to the wall
Improvise until ~1 min

Bow

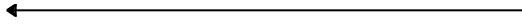
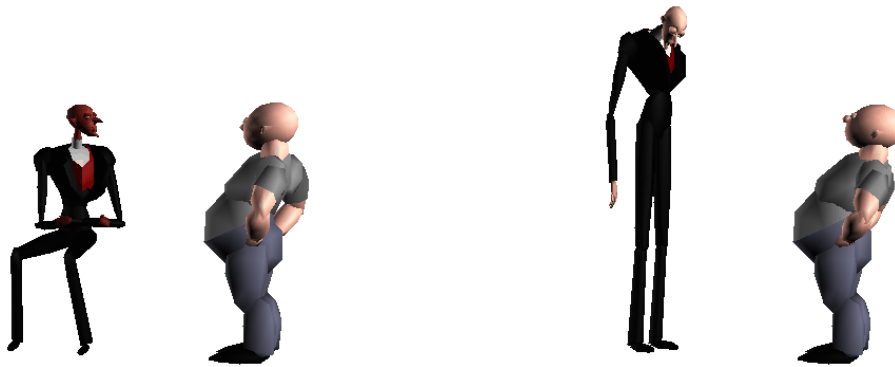
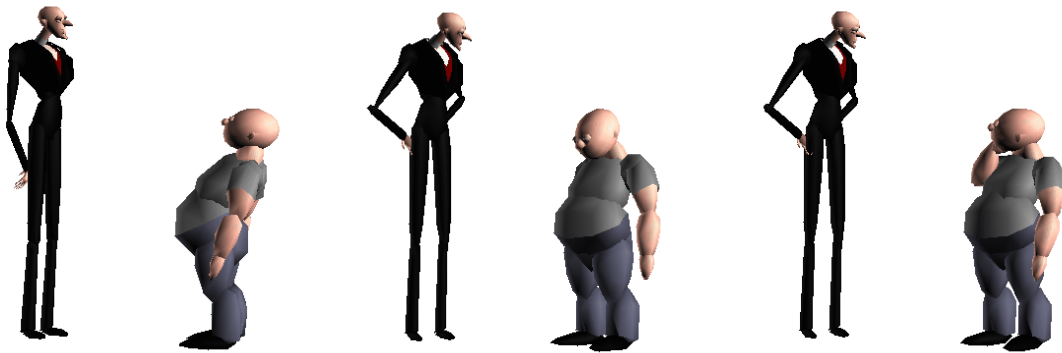


Figure 6. Directions to Master and Servant: Status Transactions Culminating in Role-Reversal



The master catches his servant sitting in his chair.

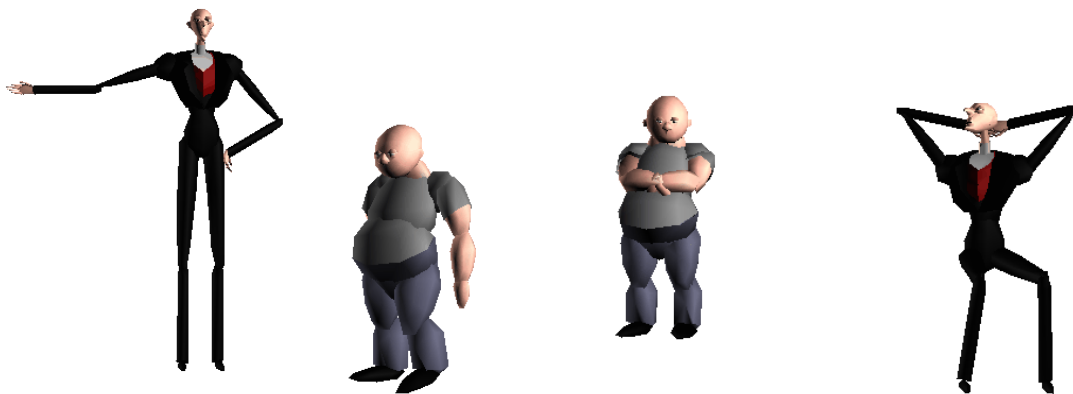
Embarrassed, the servant cowers before his master.



But then, perceiving his physical advantage, the servant stands up to his master.

Pressing his advantage, the servant looks down upon a diminished master.

Intimidated, the master fails to assert his authority.



Usurping the master's authority, the servant orders his former master to take the servant's position.

The new master and his new servant begin the new regime.

Figure 7. Screen Shots of Master and Servant Status Transactions Culminating in Role Reversal (Animation by Ken Perlin, NYU)

Our actors currently follow explicit directions to modify specified status variables, contingent upon perception of specified cues. However, we plan to automate more of the art of status transactions. In particular, actors will apply the three performance principles illustrated above: (1) *Graded Transitions*. Actors will grade status transitions to occur as smoothly as possible. For example, given directions to Reverse status with a partner, an actor will stage reversals on each of the three dimensions: demeanor, relationship, and space. Within each dimension, the actor will substitute high-status behaviors for low-status behaviors (or vice versa) one at a time, pausing to let each one have its impact. (2) *Engagement*. Actors will act in response to perception of one another's behavior. For example, an actor will perceive and recognize the status changes implicit in many different behaviors performed by a partner. (3) *See-Saw Transactions*. Actors will mirror each others' status transitions with complementary transitions. For example, if one actor's behavior signals an increase in demeanor status, the other will lower his or her own demeanor status. Thus, the actors will follow abstract directions, such as "Raise status" or "Reverse status with partner," by intentionally pacing and coordinating the specified status transactions in the context of various role-appropriate and plot-appropriate improvisations.

6. Implementation

We implemented two actors that can improvise master-servant scenarios under directions constraining role, plot, and character, as discussed above. We have described our underlying agent architecture in detail in previous publications [6, 7, 11, 14] and do not repeat that material here. For present purposes, we note that the architecture clearly delineates each actor's "mind" and "body," which operate and interact as summarized below.

For the master-servant scenarios, each agent's mind iterates the following steps: (a) incorporate perceptual information from the body into the current situation model; (b) identify role-appropriate behaviors that are relevant to current directions in the current scene, given the current situation; (c) identify the subset of those behaviors that match current status directions; (d) choose one of the matching behaviors probabilistically; and (e) perform the chosen behavior by sending appropriate commands to the body.

Each actor has a repertoire of behaviors, including behaviors appropriate for the master role and behaviors appropriate for the servant role. Thus, each one can play either role. The actors know when individual behaviors are relevant to particular directions, scenes, and situations. They know how behaviors relate to different values of the three status variables. Each behavior comprises a parameterized script that an actor can instantiate and perform as any of several alternative sequences of specific physical actions.

For the actors' bodies, we used two animated human figures that were developed by Ken Perlin of New York University [20]. Both figures can perform physical actions, such as: Walk to (X,Y), Beckon, Sit down, Nod, Duck head, Raise shoulders. These are the physical actions with which each actor can instantiate its behavior scripts. The animation system's original user interface (menus for users to command the figures' actions interactively) was replaced by a mind-body interface that allows our actors' minds to command their own actions and to perceive one another's actions.

During a performance, the actors operate autonomously from a user-provided scenario, without run-time intervention. They mime their interactions in a blank virtual world. However, a musical accompaniment created by Todd Feldman, a member of our research group, provides

distinctive “voices” for the master and servant roles. The music also reinforces the plot and the emotional tenor of the actors’ performances.

7. Personality versus Character

At a very general level, we find much in common between the “personalities” of real human beings and the “characters” created by authors and actors. Indeed, many successful novelists and playwrights have been praised for their psychological acuity in creating fictional characters. For example, it has been said that Henry James, the great American novelist, rivaled his brother William James, the great American psychologist, for his insight into human nature. Similarly, Shakespeare is universally recognized as both a literary genius and a master of character. Taking a more extreme position, Johnstone insists on the primacy of character, particularly as revealed in status variables, and the comparative insignificance of literary qualities in determining dramatic impact:

... a good play is one which ingeniously displays and reverses the status between the characters. Many writers of great talent have failed to write successful plays (Blake, Keats, Tennyson, among others) because of a failure to understand that drama is not primarily a literary art. Shakespeare is a great writer even in translation; a great production is great even if you don’t speak the language. ... A great play is a virtuoso display of status transactions. (p. 72)

Despite the psychological fidelity we recognize in the best artistic models of character, however, there are substantive differences in the goals of psychology versus drama and, therefore, differences in the “models” produced by psychologists and dramatists.

The goal of psychology is to explain human behavior. Therefore, psychological models of personality must satisfy objective requirements for generality, completeness, and explanatory power. A credible model must account for the personalities of a large, normally distributed population of ordinary individuals. It must cover all important personality traits. It must explain how and why those traits are configured as they are within individuals and throughout the population and how personality impacts other aspects of behavior.

By contrast, the goal of drama is to produce a compelling experience for the audience. Therefore, artistic models of character must meet more subjective requirements for specificity, focus, and dramatic power. An effective model should enable us to create a few extremely interesting characters. It should prescribe just those traits that communicate the essence of a character as economically and persuasively as possible. Above all, it should produce characters with the desired dramatic impact. As Horton [17] reminds us:

Disney managed to make each of the dwarfs in *Snow White* (1937)—Doc, Happy, Sleepy, Sneezy, Grumpy, Bashful, and most especially Dopey—stand out in our memories because of a few sharply etched character strokes. (p. 12)

Because our goal is to build synthetic actors, not synthetic individuals, we focus on artistic models of character, rather than psychological models of personality. This focus allows us to limit severely the set of traits we model and to finesse entirely the deeper psychological questions of how complex configurations of personality traits work together to determine behavior. Thus, we do not try to simulate personality, but only to create the illusion of character. As Sir Laurence Olivier is reputed to have advised “method” actor Dustin Hoffman, who tortured himself for days to achieve the ravaged condition of his character in *Marathon Man*, “Why not just try acting?”

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