TRANSFORMING GESTURE TO SIGN IN THE THEATRE

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Abstract: This paper explores the transition from speech-gesture to theatrical gesture. Gestures, according to David McNeill and Susan Goldin-Meadow, are an integral part of speech, performing a crucial function in the organization of thought into language. In acting gesture is defined as a sign that communicates a character‟s action, state of mind and relationship with other characters to an audience. Portraying Granpa Joad, in a production of *The Grapes of Wrath*, I performed a spontaneous gesture in rehearsal that, fulfilling the needs of a theatrical gesture, was transformed into a sign through the repetition of rehearsal. Dynamic Systems Theory is used to understand the transformative process of making a spontaneous gesture into a complex, intentional, and communicative act.

Key Words: Dynamic Systems Theory, Gesture, Language, Signs, Acting, Theatre

The Joad family, in John Steinbeck‟s *The Grapes of Wrath*, plan to abandon their farm during the Oklahoma dust storms of the 1930s and head to California in search of a better life. Granpa Joad, a "hell raiser", is enthusiastic about going while the decision is being made, but balks when it comes to leaving the land he has tilled throughout his life. He tells his family to go on without him: he belongs on the farm. They carry him to the truck; and it is the last time he is seen alive – at least in the play. Frank Galotti and the Steppenwolf Theatre Company adapted the novel for the stage in 1988. I had the opportunity to play Granpa Joad in a Stony Brook University production by the Department of Theatre Arts in the Spring of 2008.

Granpa Joad enters from the barn where he has spent the night deciding that he is not going to California. As staged, he enters slowly, sits on a rock and, when the moment comes for him to tell his children that they should go on without him, he gestures for them to leave. During one rehearsal – on the line "You go right along."[1] instead of a single movement of dismissal I made two quick jerks of the hand, palm down, fingers curled. It was immediately clear that this movement gave significant insight into the character‟s weakened physical state and foreshadowed his death. This variation of the gesture was kept as part of the character‟s score (a sequence of movements, words and gestures memorized by the performer so the performance can be repeated more or less precisely night after night). The physical mechanics of the spontaneous gesture were committed to memory and timed to happen at a specific moment in the particular line. In the narrative of the character‟s life it remained a movement of dismissal, but in the production it became a sign of Granpa Joad‟s failing physical and psychic health.

This essay uses Dynamic Systems Theory (DST) to explore the transformation of a spontaneous gesture to a theatrical sign intended to communicate information about the character and narrative of the play to an audience. A brief definition of a dynamic system is followed by a more extensive discussion of the relationship between gesture and language in everyday life. Gestures in a theatre rehearsal are differentiated from those of everyday experience through examining the relationship between actor and character in realist plays. DST returns as a model for understanding how an unanticipated movement is transformed into a consciously performed sign that is intentionally learned and then repeated in performance to evoke a particular response in the spectators.

[1] Galati, Frank. *John Steinbeck's* ***The Grapes of Wrath.*** New York: Dramatists Play Service, 1991: 27

Dynamic Systems Theory

Dynamic Systems Theory was first conceived as a set of mathematical formulae designed to explain *non-linear* phenomena that occur in the physical world, such as the patterns that form when some liquids are heated to the boiling point. It is also being used to describe the operations of other systems, such as neural networks. A *linear* system tends to be closed: a stimulus creates disequilibrium, triggering a sequence of events along a particular path that lead to the return of equilibrium (flipping a switch turns on a light). Rather than following a prescribed structure, a dynamic system is self-organizing, that is when perturbed by changes in the environment (the heating of water, for example) excitations give rise to patterns that restore it to a new state that is near equilibrium. Because open systems are continually in a reciprocal relationship with the environment (affected by and affecting it) the system is always in a state of disequilibrium. The influx of additional stimuli further destabilizes the system, which in human beings leads to responses expressed as behavior, thought and emotion relevant to a given situation. "Broadly defined, self-organization refers to the emergence of novel patterns or structures, the appearance of new levels of integration and organization in existing structures, and the spontaneous transition from states of lower order to states of higher order."[2] The realization that he is going to leave the farm upsets Granpa Joad. Emerging from this agitated state is the erroneous decision that he can survive without the family.

A dynamic system operates within certain parameters that are defined by internal organization and the relationship to the environment. Breathing requires the respiratory mechanisms and an atmosphere with sufficient amounts of oxygen. These limits are called boundary conditions, which constrain the range of possible emergent patterns. Attractor states, or conditions that encourage a particular response to circumstances, also decrease the time it takes for a system to respond to a disruption. Marathon runners learn that a particular rhythm of breathing provides the oxygen needed to sustain the amount of exertion and the correct frame of mind for enduring long distances. They do not begin running with that breathing pattern, but as the demand for oxygen increases, memories of the previous responses that were successful are activated and attract the system to that rhythm: "dynamic systems seek preferred behavioral modes as a function of the interactions of their internal components and their sensitivity to external conditions."[3] Not all attractor states are equally stable. The more

[2] Lewis, Marc D. "Bridging emotion theory and neurobiology through dynamic systems modeling." *Behavioral and Brain Sciences* (2005) 28, 173.
[3] Thelen, Esther and Linda B. Smith, *A Dynamic Systems Approach to the Development of Cognition and Action*. Cambridge, Massachusetts and London, England: The MIT Press, 1994: 60.

frequently a pattern is used, the more likely and quicker it will emerge as the dominant pattern. Techniques, for instance, are habitual patterns that recur with relative ease, while less stable attractors promote behaviors that respond to conditions experienced previously but not frequently.

The process of returning to a state of equilibrium can be simple or complex. Changing the rate of breathing may involve a single attractor while attuning to the correct state of mind involves more than one. Each attractor is associated with different patterns. For more than one attractor state to be simultaneously productive requires that the various rhythms elicit behavior that is not contradictory. The frame of mind of the runner cannot desire a slower pace if the breathing cadence necessary to sustain the effort is to be maintained. Similarly the change in the amount of oxygen brought into the body will alter the state of mind. They are interrelated in a reciprocal relationship of mutual support; and will continue to co-exist as long as the dynamics of the two aspects of the running are in harmony. The disruption of one – the runner feels she is falling too far behind, the muscles begin to tire – will throw the other out of sync requiring a readjustment that restores a state of near equilibrium to both. The same relationship exists between gesture and language.

Language

The fundamental tenet of a Neural Theory of Language is that abstract thought, long considered an autonomous function of the mind, is based on embodied experience. This claim is based on two supporting claims. The ability to understand language, both conceptually and grammatically, is possible because a) members of a culture have similar experiences, particularly as children, and b) they are taught to organize experiences according to frames that reflect cultural norms. Frames consist of attractors and boundary conditions that encourage the use of familiar patterns for communicating; and in language these form the basis of grammar. The use of these patterns is central to articulating thoughts in ways that are comprehensible in the culture. Common experiences and shared frames are the basis for understanding the structure and flexibility of language. Another foundational principle of this theory is the premise that the world does not consist of discrete objects. Instead the division of reality into things occurs because we organize it in a way that makes sense for us: "my categorization of trees is not at all like that of an arborist.[4]" Language, therefore, is based on a way of structuring the world that is formulated through experience and cultural frames; but it

[4] Feldman, Jerome A. *From Molecule to Metaphor: A Neural Theory of Language*. Cambridge, Massachusetts: The MIT Press, 2008: 96.

is circular in that the form and content of words and their ordering also determines how we construct our reality.

Experience, in its "raw" form, is not equivalent to meaningful language; rather the gestalt image derived from perceptual and proprioceptive information is used to generate more complex thoughts through metaphor. A further look at metaphor is needed to adequately understand the Neural Theory of Language. In this context, "*The essence of metaphor is understanding and experiencing one kind of thing in terms of another*.[5]" First steps in learning to gain control of the body and interaction with objects (such as liquid in cups) provide meaningful experiences forming schemas that can be used to communicate very different concepts. Schemas are constructs formed through active engagement in the world. Because of shared, if not identical histories, schemas can communicate to the community concepts not directly related to the experience. For instance, an infant wanting to get hold of an object, such as a favorite toy, is the kind of experience that gives rise to the source-path-goal schema; seeing water poured into a glass can form the foundation of the containment schema, and so forth. These forms are useful because they can be employed in a number of very different contexts, creating metaphors. Containment, for instance, can be used positively in reference to military strategy (to contain the enemy), medicine (to keep the disease from spreading), architecture (the articulation of space), and negatively, such as in astronomy (space is infinite, i.e., uncontained).

Returning to DST, ideas are perturbations that activate a number of attractors (possible meanings) and boundary conditions (including cultural frames) across several domains associated with speech and motor activity. The return to a near stable condition does not take place because of finding the correct answer but the "best fit": "People, including children, are always trying to find the best fit between what they observe and what they know.[6]" The temporal dimension of communication utilizes the instability of dynamic processes, "allowing" the consideration of a number of different patterns that may contribute to understanding (or the lack thereof). The meanings that emerge will be sensible provided they utilize cultural frames with sufficient precision to allow for a "best fit." As long as the structure of the sentence follows the rules of grammar more or less precisely, and the listener has the appropriate experiential schemas, meaning will be communicated that approximates the complexity of the intended idea.

[5] Lakoff, George and Mark Johnson. *Metaphors We Live By*. Chicago and London: The University of Chicago Press, 1980: 5.
[6] Feldman, 323

The ideas underlying linguistic expression are not predetermined but take form as they are spoken. Thought changes when the words that would be most appropriate to communicate an idea fail to materialize or an alternative way of saying the same thing presents itself. Speech stops as the speaker re-evaluates the dynamic between the intent and the words, and as other patterns of words appear. At its most successful it can lead to eloquent speech; when less successful, it can result in stuttering, mixed metaphors, and unfinished phrases as the speaker strives to find a more precise way of communicating the ideas. In this sense, language is a top down process that proceeds from idea to individual words and phrases.

Gesture

Gesture refers "to hand movements that are directly tied to speech. They can beat the tempo of speech, point out referents of speech, or exploit imagery to elaborate the contents of speech…[they] are in the service of communication and, in this sense are deliberate. [7]" Gestures emanate as part of a process parallel to and intimately entwined with the articulation of thought in words. Habits (running your hand through your hair) and emblems (thumbs up) are not considered gestures, because the former is not directly linked to speech and the latter takes the place of speech. David MacNeill and Susan Goldin-Meadow identify four types of hand movements that fit the definition of gesture: iconic, metaphoric, deictic and beat. They are most interested in the first three. Iconic gestures are those where there is a direct correlation between the hand movement and "the semantic content of speech."[8] Metaphoric gestures present abstract ideas, while deictic indicate a person or object referenced in speech.[9]

Gestures used in everyday conversation do not express complete meanings, but are an integral part of communicating, and are intimately connected to language: "gesture is not input to speech, nor is speech input to gesture; they occur together."[10] Gestures do not serve language; they are part of the generation of meaning arising from the process of transforming thought into words. "To make a gesture, then, is to iconically materialize a meaning in actional and spatial form."[11] Instead of taking the form of words, they are moving images (iconic) that relate to and communicate the thought being formed in space and over time.

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[7] Goldin-Meadow, Susan. *Hearing Gesture: How Our Hands Help Us Think*. Cambridge, Massachusetts, and London, England: The Belknap Press of Harvard University Press, 2003: 4.
[8] Goldin-Meadow, 6.
[9] Goldin-Meadow: 7
[10] McNeill, David. *Gesture and Thought*. Chicago and London: University of Chicago Press, 2005: 93.
[11] McNeill, David: 56.

Gestures appear to arise spontaneously and, indeed, they are frequently not conscious acts. They are, however, part of the cognitive processes of language production and, in fact, have their origins in the same part of the brain. The Broca"s area, located in the inferior frontal gyrus, part of the left frontal lobe, is generally associated with speech. More recent imaging technologies confirm that it is also used to generate physical actions, including gesture.

Broca"s area is more than a „speech center". It is *the area of the brain orchestrating actions under some significance* – that is, it is the area of the brain that assembles sequences of movements and/or complexes of moving parts into performance packages unified by goals, meanings, and adaptability.[12]

Evoking gestures to express a thought occurs simultaneously with the search for the appropriate words. An idea perturbs the speech centers, activating attractors and boundary conditions in the search for linguistic patterns that provide the best fit for the thought, putting action centers into disequilibrium, producing gestures that assist the speaker and enhance the communication. Gestures therefore are not arbitrary but are material carriers of meaning, "not a representation but an updating [of] the speaker"s momentary state of mind."[13] I gesture because it helps me to formulate the phrases that will communicate the idea to my listener(s).

To put it another way, the relationship between gesture and speech is dialectical, an interaction between different types of thought in the movement toward a synthesis of image and language.

This imagery language dialectic (materialized in gesture and speech) is an interaction between unlike modes of thinking. The disparity of these modes is the „fuel" that propels thought and language; the dialectic is the point at which the two dimensions intersect.[14]

The sequence is further complicated because the dialectic takes place within the crucible of boundary conditions reflecting subjective intents and pressures exerted by the environment. "The field of oppositions indexes and is constrained by external conditions, both social and material, but an essential fact is that it is also *a mental construction, part of the speaker's effort to construct a meaning.*"[15] The intent to speak provides an impetus to the speech centers and the area associated with movement sequences, creating a three-step process consisting of a growth point, unpacking and stop order.

The key to the dialectic is that the two modes are simultaneously active in the mental experience of the speaker. Simultaneously representing the same idea unit in opposite modes

[12] MacNeill: 212.

[13] MacNeill: 19.
[14] MacNeill: 4.
[15] MacNeill: 107.

creates instability, a „benevolent instability" that is resolved by accessing forms on the state dimension – constructions and lexical choice, states of repose par excellence.[16]

Intent leads to instability that resolves itself in repose. Unlike the dynamic system itself, which only obtains relative stability, the language gesture dialectic comes to an end when the thought is complete. This concept has important ramifications when it comes to a discussion of structuring a performance, but now the three parts of the dialectical process need to be defined.

The Growth Point (GP) or psychological predicate[17] arises from the speaker's intent. It is the perturbation that destabilizes the system, setting in motion the process of transforming thought into language and gesture. The uncertain origins of a Growth Point make it impossible to identify a beginning. Suffice it to say that it arises from subjective desires and environmental influences. As the name suggests, it is a seed from which a larger process grows. The thought contained by the GP initiates the dialectic between language and gesture. "All of this is meant to be a dynamic, continuously updated process in which new fields of oppositions are formed and new GPs or psychological predicates are differentiated in ongoing cycles of thinking or speaking."[18] As noted in earlier discussions of dynamic systems the process of perturbation continues as new perceptions and proprioceptions are introduced, evoking new patterns of behavior; so it is with speech/gesture.

The metaphor "unpacking" is somewhat misleading, because when emptying a suitcase, say, the objects are already present. The dialectic between gesture and language is considerably more complex.

The implication of the unpacking effect is that, before a GP is unpacked, thinking is not complete. It is not that one thinks first, then finds the language to express the thought…rather, thinking, as the source of meaning, emerges throughout the process of utterance formation.[19]

The act of unpacking is the formulation of thought in material forms. As I write, the thoughts to be communicated start and stop, wrong words are identified, some replaced, additional phrases added or deleted, and slowly the ideas gain clarity. The knowledge of what is to be said only comes with the saying. "Unpacking fleshes out the material carrier of the speaker's meaning in its particular context of speaking, with added meanings generated to

[16] MacNeill, 18.

[17] MacNeill, 107.

[18] MacNeill, 107.

[19] MacNeill, 125.

achieve a well-formed pattern."[20] A pattern that consists of both words and gesture is formed that communicates the ideas as they pertain to the specific environment.

The third and final element of the dialectic is the "stop order" that occurs when the thought is complete. Words and gestures also cease. The process has no defined limit.

This process continues until, eventually, a „stop-order" occurs (it stops only temporarily: a new cycle begins immediately or might overlap the earlier one). A stop order is an intuitively complete (or complete enough) static structure (intuitions of well-formedness being how one experiences the static dimension).[21]

At other times the dialectic does not come to a happy conclusion and the speaker is stymied, unable to complete the thought. Cycles may begin again or the person speaking may become a listener in a dialogic process as her interlocutor begins the transformation of thought into word and gesture.

Gesture to Theatrical Sign

An actor in a realist drama embodies a character by developing an understanding about his or her behavior as written by the playwright. Embodiment, in this instance, refers to the development of a body image – "a system of perceptions, attitudes and beliefs pertaining to one's own body"[22] – or in this case the body of the role being portrayed – including movement, gesture and speech. It is a labor intensive and complex process that uses analysis and rehearsal to discover motivations for the character's behavior. This process of physicalization and vocalization is based on relationships with other characters, the trajectory of the narrative and the given circumstances of the play. Given circumstances include physical characteristics (age, physical limitations), psychology, moral and ethical values, race, sexuality, culture, political outlook, economic and social class. The performer also uses the movement patterns or blocking devised by the director, and the work of other actors in the play. A significant part of creating the physical performance is coming to an understanding of the (imagined) cognitive processes that lead a character to express herself using the words written by the author.

This exploration inverts the everyday process of putting thoughts into words. The speeches are given, but the thoughts that justify them are implied rather than clearly stated. Characters seldom engage in general conversation but speak to greater purpose (they are

[20] MacNeill, 124.
[21] MacNeill, 18.
[22] Gallagher, Shaun. *How the Body Shapes the Mind*. Oxford: Clarendon Press, 2005: 24.

avoiding, concealing or trying to discover something) and with words that are designed to be evocative. While analysis and reflection are useful tools, the understanding of the character is ultimately derived from an active engagement in communicating with the other actors/characters during rehearsal. This dynamic interaction allows the actor to test different ways of achieving the character"s objectives and compelling the other actor to respond in ways that are appropriate to the play. Developing reciprocity (a sense of give and take) between characters is accomplished cooperatively between the performers and is crucial for understanding the motivation for saying a line, justifying the words in the order in which they were written, and delivering them with the proper rhythm and intensity. The desired end is to convince an audience that the lines being spoken are happening *as if* it was taking place in everyday life.

Gestures, in this instance, do not arise from trying to find the right words to express the thought, but in finding the idea that is the best fit for the character"s speeches. The gestures are no less spontaneous than in everyday life, because if an actor consciously plans how to use her hands, they lose their life-like quality. Public speakers who have been told how to gesture for greatest effect frequently look unnatural because the timing of the movements is premeditated. Focusing on the delivery of the lines and the reasons for saying them in rehearsal frees the actor from worrying about what her hands are doing and allows gestures to appear organically as part of the language-thought dialectic. It is not a straightforward process, however. Every gesture will not fit the circumstances when they first happen in rehearsal, rather they may appear to be awkward, forced or not appropriate for the character. The experience of the movement being not quite right may indicate a disjunction between the intent and the words, although there are other possible reasons. One alternative is that the gesture may not fit the body image the actor is developing; that is, this person in these circumstances would not behave in this way. When the gesture works, the performer may experience an "Aha!" moment that simultaneously validates the understanding of the character"s intentions and provides new forms of expressing the character and the action.

When a best fit occurs – whether an epiphany or not – the actor remembers it (keeping it active until it can be consolidated in long term memory) and incorporates it into the performance score. In future rehearsals the gesture will be repeated and linked to the specific words (growth point), and rhythms and inflections (unpacking) of the speech, changing from an improvisational discovery to an intentional act that communicates information about the connection between the character"s motives and the words, and her relationship to the circumstances in which it takes place. It gains a significance that it did not have as a

spontaneous gesture because it becomes integrated in the overall structure of the character – providing information about who this person is and what her actions mean. It becomes a sign that resonates with referents beyond the initial relationship of word to thought.

Granpa Joad"s last scene before he dies in *The Grapes of Wrath* is one of resistance. Acknowledging his love of the earth that he tilled throughout his adult life, he is determined to stay on the land that is his home. The family refuses to let him stay; and when last seen he is being put into the truck that will take them to California. He does not go willingly, and in an act that showed weakness more than defiance, tells his son to go on without him. With my arm directed at my boy, palm down and fingers curled in, I made two quick flicks. It was not a conscious choice but a movement that arose out of the connection between the words and the intention that also communicated the character"s fragile state and impending death. The flicks were iconic, meaningful, not only of the relationship between word and thought, but the character"s relationship to the world of the play. Making the gesture gave meaning to the action outside of the manifest content of the words. Without the context, the gesture would have lost its complexity. Words and gestures work together to communicate meaning; when linked to the context defined by the given circumstances they become signs.

Dynamic Systems, Gestures and Signs

Non-linear systems are subject to perturbations from the external and internal environment, including memories that may be evoked unconsciously. These disruptions activate attractors and boundary conditions that serve to resolve the disruption by invoking rhythms and patterns that in the theatre lead (ideally) to novel solutions that restore a state of near equilibrium. Happy accidents that give insight into character and action during the rehearsal process occur because the actor is focused on performing specific actions and changing relationships with the other characters/actors. What is absent from this construct is the search for a solution. Seeking *an* answer changes the dynamics by imposing boundary conditions, limiting the emergence of patterns and associations that have the potential for providing unexpected insights into how the character behaves, thinks and feels. Once the discovery has been made the gesture can be integrated into the score as a unit of action, serving as an attractor linked to lines, movement patterns, vocal and physical intensities. That is, it ceases to be a gesture (in the strict sense of the word) and becomes a sign that cues the continued unfolding of the performance. It keeps the performer focused on the score and provides information to the audience who "read" its significance and fold it into their intellectual and emotional understanding of the play. They realize that Granpa Joad is a broken

man and, perhaps, connect that to the larger issues of the play – the destructive force of unfeeling institutions that foreclose on a mortgage, forcing a family from their land.

The transformation of gesture to sign can be seen as the reduction of a complex process (the dynamic interaction of thought-word-gesture) into a codified communication. This is a misapprehension about the function of a sign in the theatre, and perhaps in everyday life. The theatrical sign is also a perturbation that disrupts the equilibrium of the system, bringing into play the spectator"s perceptions, proprioceptions and memories that allow for the emergence of new patterns of meaning. These associations resonate beyond Saussure"s and Pierce"s rather static definitions of the sign, and approach Deleuze and Guattari"s image of spiraling significations, the proliferation of meaning. The theatre depends on the tension between a multiplicity of interpretations and the desire of the system to return to a state of near equilibrium. The well-crafted play strives to bring about a resolution to this tension; the great play does more than this because it communicates meanings that resist compression into a single idea. Just as the right gesture solidifies an understanding of the character at the same time that it opens new possibilities for expressing it, so the theatre, at its best, uses signs to encourage and resist understanding by opening the possibility of new insights into the human condition.

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