

FORM Annotation Codebook

Excursion Duration

The *Excursion Duration* track is used to mark the beginning and end of a gesture excursion, which is defined as all gesturing occurring between two rest positions.

A rest position is a position requiring minimal effort to hold the arms stationary.

Examples of rest positions would be:

folding of hands;



arms crossed;



hands on hips;



or arms directly at the side.



It is important to note that a gesture excursion may contain multiple, individual gestures.

Hand Position (FORM 2)

The hand position track is used to record the position of the hand in a three-dimensional box surrounding the speaker. The position is based on a 5X5X5 coordinate system; the center is the speaker's solar-plexus. The values in the x dimension are:

Far Right



Right



Front



Left



Far Left



The values in the y dimension are:

Waist and Below



Lower Chest



Upper Chest



Head Region



Above Head



The Values in the z dimension are:

Far Front



Medium Front



Close



Medium Back



Far Back



For example:



The right hand is positioned at:

Far Right
Above The Head
Close
Right
Lower Chest
Far Front

The left hand is positioned at:

Upper Arm

The upper arm location and movement tracks are used to record gesture information pertaining to the part of the arm between the elbow and the shoulder {indicate by pointing}.

These tracks are identical for the Right and Left arms.

The *Upper Arm.Location* track contains the following attributes:

The “relative elbow position” describes the elbow’s position in relation to the body. The possible values are:

extremely inward;



inward;



front;



front-outward;



outward (in frontal plane);



behind;



and far behind;

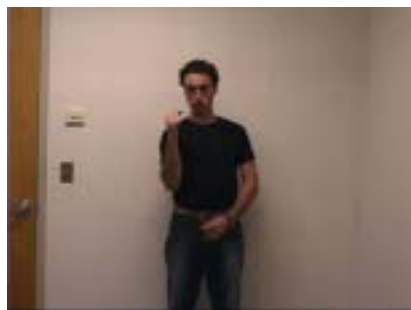


The “upper arm lift” is the measure of the angle created by the upper arm and the body. It is measured in increments of 45 degrees. For example:

outward – 90 degrees;



front – 45 degrees;



behind – 0-45 degrees.



When the arm is directly at the side it is annotated as:

outward – no lift.



The direction of the bicep is annotated by describing its orientation in three dimensions.
They are:



upward/downward;



forward/backward;



and inward/outward.

In many instances two or even three of these attributes may be used simultaneously, such as:



outward – forward;



or inward – upward – forward.

Within the upper arm location there is also an “obscured” attribute. This is used when the exact position of the arm cannot be seen, but can be inferred based on other information. For example, the following location would be annotated as:



no lift–outward –bicep forward.

Although the upper arm cannot be seen, it is still possible to infer this position. The annotation should be as above with the “obscured” attribute box checked as well. This “obscured” attribute is used similarly in all location and movement tracks.

The “Upper Arm Movement” track contains the following attributes. There are three planes of movement used to describe linear movement. They are:



inward/outward (in the x plane);



up/down (in the y plane);



and towards/away (in the z plane).

These can be used in conjunction with one another as well. For example:



outward – up;



inward – down;



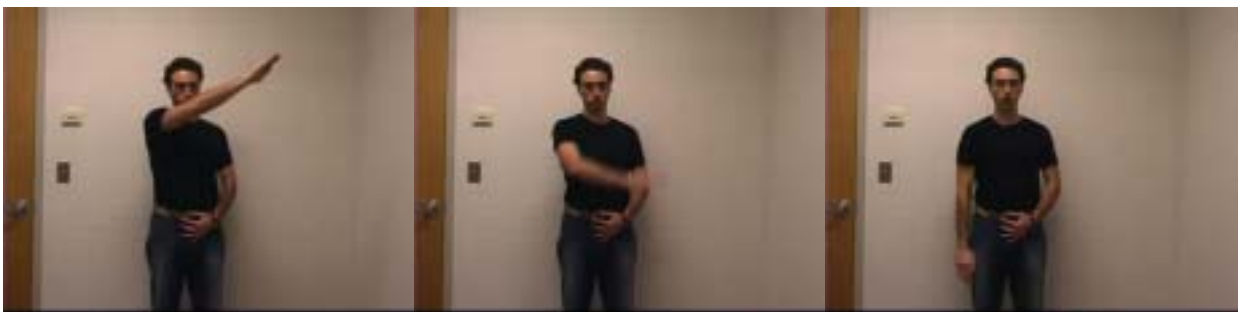
away – up;



towards – down;



up – inward – away;



and down – outward – toward.

The “upper arm rotation” is measured in 45-degree increments, and the rotation direction is either:



inward;



or outward.

For example, the following is a 90-degree inward rotation.



These two rotation attributes can be used in conjunction with the 3 linear movement attributes to describe more complex gestures such as the following:



up – outward – 180-degree-rotation outward;

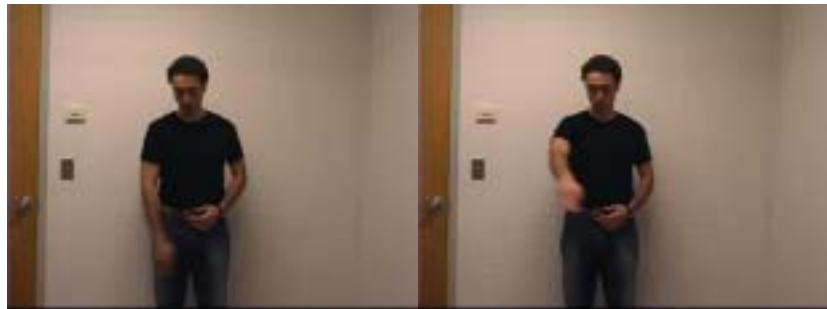


or down – inward – 90-degree-rotation inward.

The values for the circular movement attribute are: parallel to the horizontal plane—the plane that divides the body into top and bottom halves—both



clockwise and



and counter clock-wise;

parallel to the median plane—the plane that divides the body into left and right halves—both





clockwise and



counter-clockwise;

and parallel to the frontal plane—the plane that divides the body into front and back halves—
both



clockwise and



counter-clockwise.

The “effort” attribute is intended to capture the relative amount of effort, on a scale of one to five, exerted during a movement. This attribute requires some level of subjective judgment. A value of 3 should be used to represent an “average” amount of effort.

The “strokes” attribute is used to capture repetitious movement. For example, the following seven stills demonstrate a movement which would be labeled as up-down, outward-inward, 2 strokes.



The “effort” and “strokes” attributes are similar for all movement tracks. Again note the ability to mark the track “obscured”.

Forearm

The forearm, like the upper arm, has a location track and a movement track. These are used to record gesture information pertaining to the part of the arm between the elbow and the wrist.

The “Forearm Location” track contains attributes for “elbow flexion and “forearm orientation.”

Elbow flexion refers to the angle formed by the forearm and upper arm. It is measured in 45-degree increments. For example, the following would be



90-degree elbow flexion,



while a straight arm would be 180.

The values for the “forearm orientation” attribute are:



neutral (the palm faces inward);



prone (the palm is oriented away from the bicep);



supine (where the palm is oriented towards the bicep);



and, inverse (the palm faces outward);

Neutral/Prone, Neutral/Supine, and Prone/Inverse are used when the palm does not face fully in one direction. Again, note the ability to mark this location obscured.

Changes in elbow flexion and forearm orientation are annotated using the “Forearm Movement” track. Elbow flexion changes are recorded in 45-degree increments. For example, changing from 90 degrees to 180 degrees would be a 90-degree change in elbow flexion.



A change from 180 degrees to less than 45 degrees would be a change of “135 to 180.”



A “change in forearm orientation” from neutral to prone would be annotated as inward forearm rotation.



Likewise, a change from neutral to supine is outward rotation.



There are also values for inward-outward and outward-inward which are used to annotate a reversal of direction without a pause such as the following:



inward-outward;



or outward-inward.

Effort, strokes, and obscured are annotated as before.

Hand and Wrist

Instead of location and movement tracks, as the upper arm and forearm, the hand and wrist is divided into a shape track and a movement track.

The “shape track” is used to describe the shape of the hand as well as the position and orientation of the wrist.

The handshapes can be found in the catalogue below (* Add hand shape catalogue *). Each handshape is broken into two parts, the handshape group and the handshape letter.

Each group is determined by the number of extended fingers with a closed fist being 0, and ranging f from 1 to 5 fingers extended. Six refers to miscellaneous shapes.

Often, the exact handshape may not be found in the catalogue. In these cases, the closest matching handshape should be chosen.

After choosing the handshape, the tension the hand must be annotated. The possible values from:



relaxed, for example a limp wrist;



to *very tense*, e.g., for a tightly clenched fist, with



slightly tense used to describe an average amount of exertion to hold the hand shape;

The “Hand and Wrist Shape” track is also used to annotate the orientation of the wrist. There are two attributes to describe the bend of the wrist. The first is “up and down”. This describes the amount of bend toward the upper or under side of the forearm. The values are:

up;



up/neutral;



neutral;



down/neutral;



down;



The second attribute of wrist bend is “side to side”. This describes whether the wrist is:

towards the thumb;



neutral;



towards the little finger;



and extremely towards the little finger.



If during a gesture the hand touches another part of the speaker's own body, it can be annotated using the "part of body touched" attribute. The values for this attribute are a list of body parts. Examples include:

cheek on the same;



opposite side;



chin;



and chest.



If no part of the body is being touched, then this value is left as “none.” As in previous tracks, it is possible to mark the location obscured.

The “Hand and Wrist Movement” track is used to annotate movement of the hand and fingers and changes in orientation of the wrist.

The values of the “hand movement” attribute include three values for finger joint movement. A-joint movement is movement of the joint that joins the finger to the hand. B-joint movement is movement of the middle joint of the finger. A-and-B-joint movement describes simultaneous movement of both joints. These three values are described with greater detail in the “finger coordination” attribute. The values for this attribute describe the finger’s movement in relation to each other. The values are:



parallel digit movement without thumb



(or one finger);



random movement without thumb;



parallel digit movement with thumb



(or just thumb);

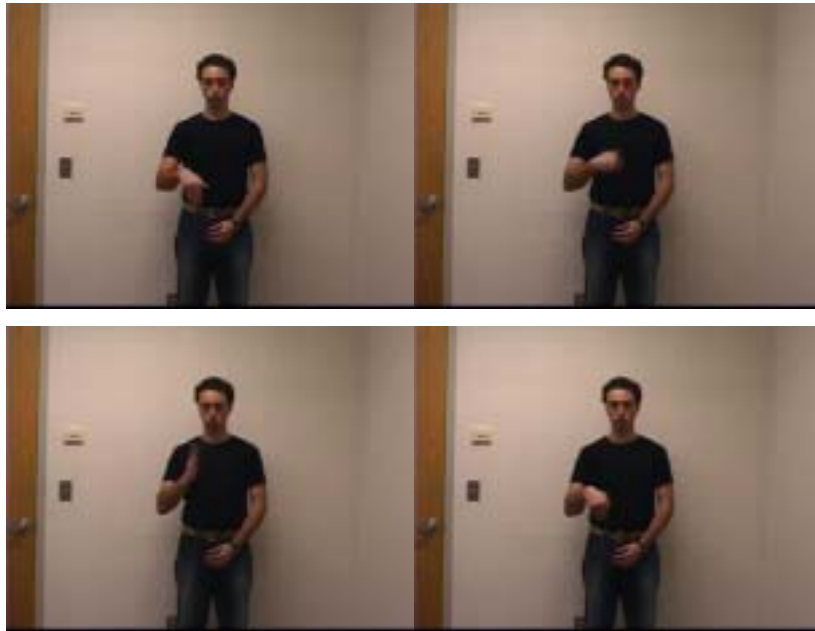


random digit movement with thumb;



and moving in sequence.

Returning to the “hand movement” attribute, the remaining values are:



wrist circular;



thumb rubbing index finger;



thumb rubbing multiple fingers;



and direct movement between two shapes, e.g., a movement from *OB* to *5A*.

Changes in wrist orientation are annotated using



the wrist up-down-movement and



the wrist side-to-side-movement attributes.

These attributes can be used in coordination with others concerning the wrist, for example,



down and towards thumb



or up and towards little finger.

Similar to before, effort, strokes and obscured are also annotated.

Two-Handed Gestures

The “Two Handed Gesture” track is used to annotate gestures in which both hands are moving in concert. If the hands are touching, the point of contact for each hand is noted.



Above, the right hand point of contact is the index finger, and the left hand point of contact is the palm.



Here, the right and left hand points of contact are both multiple fingers.

Additionally, there is a list of values that further describes the hands’ relationship to each other.

These values are:



interlaced;



moving in parallel;



moving apart;



moving towards;



moving around one another;



moving in alternation;



and hands crossed.

Again, there is the ability to mark the track obscured.

Torso

To annotate the torso and head, there are orientation and movement tracks for each.

In the orientation track of the torso there are attributes for “vertical axis orientation”, “front-back orientation”, and “side-to-side orientation.”

For vertical axis, values range from



left



to center



to right.

Front-back values are:



center;



forward;



and backward.

Side-to-side values are:



center;



left;



and right;

The “Torso Movement” track has attributes for “vertical axis rotation” in 45 degree increments. For example:



90-degree rotation left;



or 180-degree rotation right.

The values for “front-back movement” are:



forward;



and backward;

The values for “side-to-side movement” are



left;



and right.

These values can also be used in conjunction with one another. For example:



forward and to the right;



and backward and to the left.

Head movement is done analogously to torso movement.