Gesturing, as Substratum and Support:
a Case of Continuity

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Abstract

Gesturing can be understood through the substratum which simultaneously produces and reveals it. Up until now, most research has been motivated by the case where the body reveals gesturing. A study of the means of producing gestures makes it possible to identify the formal criteria that distinguish types of gestures. Our choice is made on the basis of articular description, where the relationship between differing degrees of liberty is described. There exist dynamic relationships that trace a topological geometry.

A morphogenetic description centred on form follows them in their movements. The interest of this physiological approach also resides in the contours traced by each gesture. Articular constraints create structural and dynamic links between given degrees of freedom. Gestural schemas are freed and at times develop their continuity over several segments by positing a relation that assumes the same value as the original form.

An inventory of these variations shows how the upper member functions both as a substratum that structures gestural forms and as an anamorphotical support for the morphological variations of each gesture. We will show how segmental organising centres structure and project gestural units. We will present specific gestures which are distinguished solely by the flux in their propagation of movement.

Key-words: *Gesture, Articular description, Proprioception.*

1. Introduction

The means of producing gestures seem to have been overlooked in the analysis of phenomena involved in symbolic gesturing. It seems that the body has been considered as a place where things happen, and where gestures appear without any physical means of support. In its place, there seems to be just a kind of support without any real substance. The body is akin to a disjointed puppet, whose real substratum is situated on the cognitive level, and which projects on vision, in fact, its own specular image.

The upper members constitutes the subject of this article. The description of articulations, as well as of their geometrical relationships and phenomena of coalescence give a bit of substance to the body and to the production of gestures. The transfers of intra- or inter-segmental movement and the schemas that issue from them are structured into a number of emergent units. Each gestural unit presents multiple formal envelopes, either discontinuous or scattered for a given visual mode. On the other hand, the gestural unit presents a single formal envelope, continuous for the proprioceptive mode. This is evidence that the body can structure gestural units.

2. The Necessity for a reference system

In gesturing, the necessity for a frame of reference implies the obligation to have a reference system. This system consists of a reference point having least one point of view (Tversky et al., 1997) and one or several indices capable of describing, at each moment, both the positions and movements of all body segments (fingers, hand, forearm, arm and shoulder). Since antiquity, (Cicero; Quintilian; Vitruvius; Darwin, 1889) and up until recently (Merleau-Ponty, 1945; MacNeill, 1992; Martin-Dupont, 1995; Calbris, 2003) it has been commonly accepted to adopt an egocentric, tridimensional reference point, whether axial or polar.

3. Articulatory systems of reference

We shall focus our study on an allocentred reference point: the physiological notation of articulatory movements. This notation takes as its basic unit the degree of freedom (e.g. flexion/extension of the hand). All degrees of freedom define a direction of movement according to two opposed senses (i.e. flexion and extension); they are all characterised by an axis of rotation located at the level of a joint (articulation) (e.g. the axis crossing the width of the wrist), and at times at the level of two articulations. A segment turns and is systematically defined by an amplitude (for manual flexion/extension, a total amplitude of 170°, or 85° for flexion and 85° for extension) around each of these axes (Kapandji, 1980).

3.1. The degrees of liberty

From the fingers to the shoulder (with the exception of the shoulder itself), there are 28 degrees of freedom. This means that we have a system and a space composed of 28 dimensions, thus forming a complex that develops its combinations in a range covering the three spatial dimensions plus a fourth: time or R4. This range is analogous to a motion picture screen, neither more or less1.

3.1.1. The fingers

Each finger comprises 4 degrees of freedom (1 movement of flexion/extension per digit, or 3 degrees, plus 1 movement of abduction/adduction allowing the lateral movement of each finger). The thumb has 5 degrees of freedom, which renders its mobility yet more complex.

3.1.2. The hand

The hand moves along 3 axes of rotation which define 3 degrees of freedom. A rotational axis that runs across the width of the wrist defines a movement of flexion (bringing the palm of the hand towards the internal surface of the forearm, 85°), on the one hand, and extension on the other (in the opposite direction, 85°).

Another rotational axis bisects the preceding one perpendicularly by crossing the wrist at the base of the hand in a front-to-back direction2 (the flat of the palm versus the back of the hand). It introduces a degree of freedom called abduction/adduction. The amplitude of this

[1] If the gestures take place in the range indicated, their forms are, *a priori*, capable of occupying a 28-dimensional space. Only pointing escapes this structuring. Its indexical function points in the distance and abstracts the member from its own form.

[2] The degrees of freedom of the hand are all defined according to its position of reference. The arm and the forearm, as its prolongation, remain at the side of the body; the palm of the hand is turned towards the front, the fingers orientated downwards. The degrees of freedom of the hand and their rotational axes are thus defined relative to this position, with the exception of pronation-supination (see *infra*).

degree of freedom is 45° for adduction (movement on the side of the little finger) and 15° for abduction (movement on the side of the index finger), for a total amplitude of 60°.

Finally, the last degree of freedom concerns what is commonly called the rotation of the hand. The rotational axis of this movement runs along the forearm and brings two articulatory centres into play (wrist and elbow). The movement being easily seen in the hand, it is generally attributed to it alone. Starting from a position of reference – fingers pointing forward, the thumb turned upwards – the hand turns relative to two poles called pronation (the palm turned downwards in the aforementioned position of reference up to 85°) and supination (the rotation of the hand is effected in the opposite sense, with the palm turned upwards relative to the initial position, up to a maximal amplitude of 85°).

3.1.3. The forearm

The forearm has two degrees of freedom: flexion/extension and interior/exterior rotation. The first dimension is measured against a position de reference in which the forearm is in line with the arm at the side of the body, the palm open and facing front. For this position the extension is equal to 0 and the forearm can be folded back on the arm by a flexional movement up to 145°. It can be seen that movements of extension are always measured relative to a previous position of flexion.

Interior/exterior rotation is effected relative to an axis which follows the humerus, the articulatory point being situated on the shoulder. However, its effect actually concerns the forearm; and so it is borne by this segment. In order to render this movement both visible and distinct from the relative rotation of pronation-supination, the forearm must be flexed at 90°, the arm lying alongside of the body. The intermediate position (neither interior nor exterior) places the hand on a sagittal plane, i.e., the fingers pointing forward. Thus located, the internal surface of the forearm is brought up to the abdomen for an interior rotation of about 80° in amplitude and this segment moves to the exterior so as to turn its internal surface to the front in a nearly frontal plane, for an amplitude of about 90°.

3.1.4. The arm

The last segment is the arm, which has 3 degrees of freedom. The range of flexion/extension is made possible by an axis of rotation that passes through the shoulder frontally (in a sense, from one shoulder to the other). During flexion, it carries the arm forward, then upward (180° range) up to a vertical position opposite the reference position (arms dangling). In extension, it leads the arm backward to a maximum amplitude of 60°.

In abduction/adduction the axis of rotation is conveyed by the articulation of the shoulder in a sagittal plane, from front to back. The abduction of the arm is effectuated in a frontal plane in a movement passing by the exterior, leading the arm to the vertical position for a maximum range of 180°, hands in the air, similar to the maximum flexion seen above. The opposite pole, of adduction, has the arm pass in front of the chest in a movement whose maximum range is 60°. The mobility of the last degree of freedom of the arm, called horizontal flexion/extension is carried out on a horizontal plane. It would seem that this degree of freedom is entirely contained in the composition of movements of the first two brachial dimensions described above. It then becomes an artefact, which is perfectly replaceable by brachial flexion/extension and abduction/adduction in combined movements. This brings the number of dimensions to 28 for the upper member in its entirety.

3.2. Gestures: some physiological constraints

3.2.1. The necessity for an inventory of geometrical relationships

This presentation of the degrees of freedom and of the movements that they allow gives little idea of co-articulation phenomena, for which two or three dimensions or even two segments form an anastomosis3. It does not give any idea of the dynamic joining up of spaces. In fact, the movements are determined by the articulatory physiology, and their directions are determined by the limits permitted by the articulations. In this way, involuntary transfers of movement obey rules derived from the often-changing geometrical relationships that are held between differing degrees of freedom. We must therefore take an inventory of these.

Certain degrees of freedom are reduced in amplitude. The pronation that develops normally to 85° covers no more than 45° in a position of maximal flexion in the forearm, i.e. when the hand is level with the neck. Similarly, the flexion/extension of the hand is reduced in a position of strong manual abduction/adduction. The inverse situation is true. The adduction does not exceed 30° in a position of pronation, whereas it develops up to 45° in the other positions.

3.2.2. The coincidence of rotational axes

Added to these reductions of amplitude in a range of movement, certain rotational axes can at times coincide. When the forearm is in total extension, the rotational axis appertaining to the interior/exterior rotation of the forearm (along the arm) coincides with that of the pronation-supination (along the forearm), a movement affected to the hand.

We may remark that the rotational axes exhibit a variable geometry. Thus, for manual abduction/adduction, the rotational axis crosses the wrist from one end to the other following the interior/exterior axis of the wrist. This is effectuated in a place so close to the hand that a position of total flexion or of total extension re-orientates this rotational axis in a plane which is nearly coincidental to the axis of pronation-supination (along the forearm). Therefore, for these positions of total flexion/extension, the distinction between abduction/adduction and pronation-supination becomes unclear. There is no longer any independence in degrees of freedom. Moreover the bonding between abduction/adduction and pronation-supination increases to the extent that one approaches a maximal position of flexion or of extension. Thus, for a position of great flexion, a voluntary movement of supination never fails to cause a movement induced by abduction. With a movement of pronation, the hand orientates itself towards an adduction. Generally speaking, the bonding between the poles is reversed (see figure 2 below).

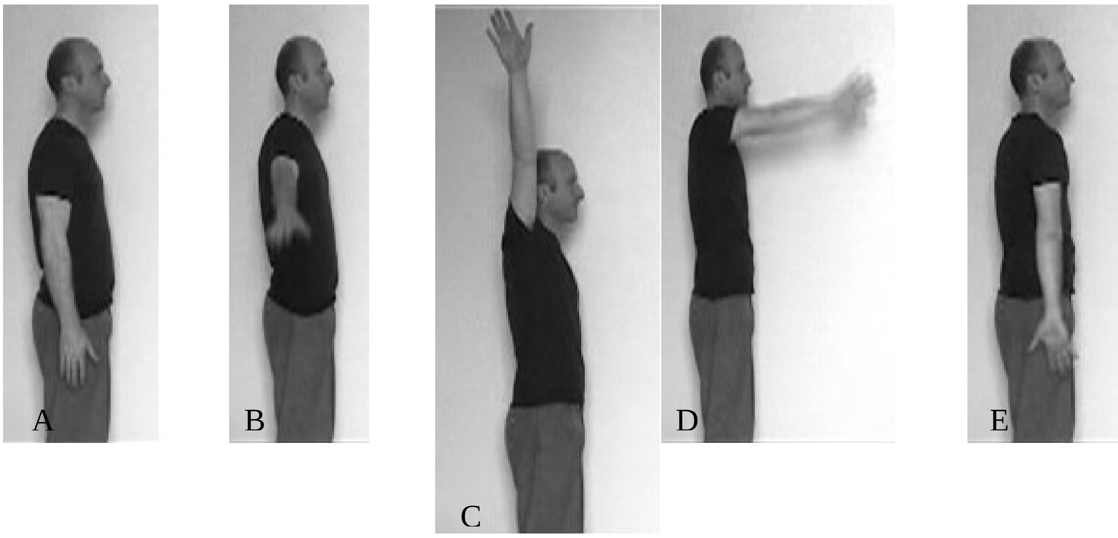
3.2.3. The dynamic joining up of spaces

If we retrace the segments one after another, the arm reveals a paradox which bears the name of its discoverer: the Codman paradox. From an initial position in which the forearm and arm are aligned along the side of the body and in which the fingers are pointing downwards, the thumb pointing slightly forward (A, below), a movement of abduction of the arm to 180° (movement in a frontal plane on the side) brings all these segments to the vertical and above the shoulder (B and C). Through a movement of extension of the arm by 180°, bringing it in

[3] By analogy with its acceptation in anatomy, anastomosis here signals the joining up of two conduits having the same nature, segments or degree of freedom.

this way into the initial position, the whole group of segments passes in front, describing an arc in the sagittal plane (D): this time, the thumb is turned backward, while the palm is oriented toward the exterior (E).

The two degrees of freedom are located in the domain of the shoulder. This has induced a double movement which appears on the hand: there has been a total interior rotation of 90° and a total pronation of 85°; the whole group of segments has imposed an involuntary rotation of 175° on the hand. On the one hand, the abduction/adduction provokes an induced movement of interior rotation and of pronation, in the case of a voluntary movement of abduction, and on the other hand, it provokes exterior rotation and supination in the case of an adduction. This involuntary action on two segments - the forearm and the arm - is cumulative: it first affects the dimension of the forearm, and then exerts its influence on the hand, simultaneously with the slowing of rotational movement in the forearm.



As each segment is dependent upon another, we can qualify this as a dynamic joining up of spaces. On the one hand, each degree of freedom determines a space and on the other, this transitory fusion takes place during a movement.

Such a joining up of degrees of freedom also appears in the forearm. When it moves simultaneously in the field of its two dimensions, rotation interior/exterior and flexion/extension, this affects the pronation-supination through an involuntary movement. For an initial position in which the forearm is flexed at 90° and in which the fingers are pointing forward, the palm turned toward the interior and the thumb oriented upwards, the forearm shifts following an interior rotation bringing it into contact with the abdomen; then, in a combined movement of flexion and of exterior rotation, the hand is brought in front of the shoulder. Finally, the hand is brought back to its initial position through the extension of the forearm, which reveals the induced movement. We can then notice that the palm is turned upwards and the thumb is turned outwards: an induced movement of supination has affected the hand during the combined movement of flexion and of exterior rotation. This dynamic joining up of spaces, which leads to a paradox like Codman's paradox, is orientated according to the amplitude of rotational movement and of the flexion/extension (as can be seen in the list of consequences below). It is the amplitude incurred that gives the order of priority between the degrees of freedom; the pole of induced movement, whether it be pronation or supination, depends on this ordering.

3.2.4. Schematisation of joining sequences

The closer we come to the maximal amplitude of one of these dimensions of the forearm, the greater the involuntary movement in the hand will be.

Flex. + Rot. Int. > Pro.	Rot. Int + Flex > Supi.
Exten + Rot. Int > Supi.	Rot. Int + Exten. > Pro.
Flex + Rot. Ext. > Supi.	Rot. Ext. + Flex > Pro.
Exten. + Rot.Ext. > Pro.	Rot. Ext. + Exten > Supi.

Figure Example 1: *List of joining sequences from the forearm on the hand*

Here again, an initial position in maximal pronation-supination can block the complete playing out of the double voluntary movement that induces this pronation or this supination. This blockage increases to the extent that one approaches the maximal amplitude of one of the dimensions identified for the forearm.

The hand, affected by the joining between three degrees of freedom, corresponds exactly to the same conditions of movement (the necessity of a dynamic principle) of polar inversion for the consequences induced, and of the reduction in amplitude for extreme initial positions (flexion/extension reduced in strong abduction/adduction and vice versa). In this sense, one could qualify this bonding as a dynamic joining up of spaces. The list of involuntary consequences for the movement of the two other degrees of freedom for the hand can be schematised in the form of a star (to be read according to the order of the list).

ABD + PRO > EXTEN	ADD + PRO > FLEX	PRO + EXTEN > ADD
PRO + FLEX > ABD	FLEX + PRO > ADD	EXTEN + PRO > ABD
FLEX + ADD > PRO	EXTEN + ABD > PRO	ADD + EXTEN > PRO
ABD + FLEX > PRO	PRO + ADD > EXTEN	PRO + ABD > FLEX
ABD + SUPI > FLEX	ADD + SUPI > EXTEN	SUPI + FLEX > ADD
SUPI + EXTEN > ABD	EXTEN + SUPI > ADD	FLEX + SUPI > ABD
EXTEN + ADD > SUPI	FLEX + ABD > SUPI	ADD + FLEX > SUPI
ABD + EXTEN > SUPI	SUPI + ADD > FLEX	SUPI + ABD > EXTEN

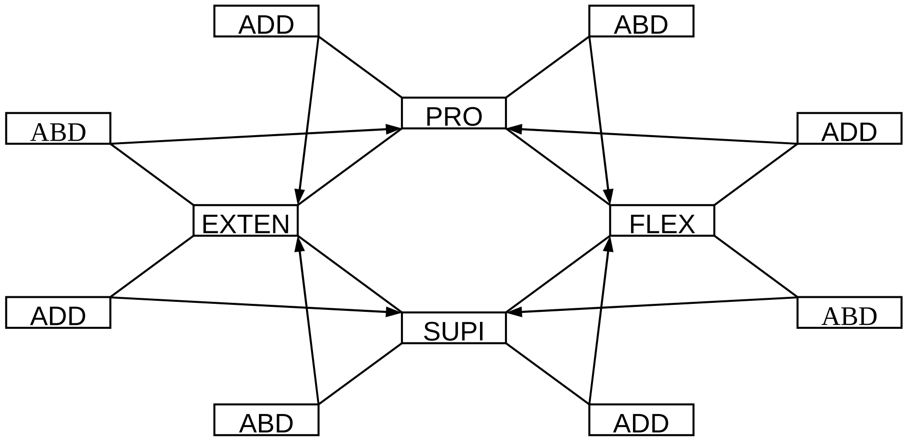


Figure Example 2: Figure of joining sequences between degrees of freedom for the hand.

4. Schematisation of gestures

We have determined a schema for the dynamic joining up of spaces by segments. This gives a measure of interdependence which is held between the degrees of freedom. Thus, the number of involuntary movements allows us to predict the consequence for other gestural segments that are initially effectuated on a given segment.

A gesture that begins at the arm will have involuntary and inertial consequences on the forearm and/or the hand; these secondary movements can themselves provoke an intra- or inter-segmental transfer of movement. The circulation of voluntary or involuntary transfers exerts a lasting influence on this complex system of 28 degrees of freedom and the joining sequences that we have seen reduce the number of dimensions which are effectively at work in the unfolding of a gesture.

4.1. For a proximal-distal flux

For a gesture which begins in the arm, its unfolding is schematically presented as follows: the movement begins in the arm (see the lowest line, Fig. 3) then it is transferred to the forearm (middle line) and travels up through to the hand (top line). This shows the alternating of inertial and dynamic transfers.

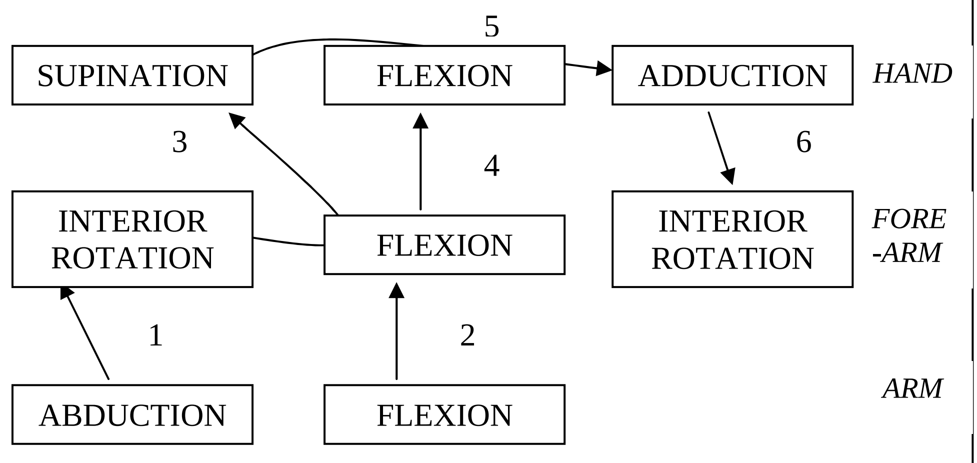


Fig. 3: The proximal-distal flux of a gesture

The gesture begins with a double voluntary movement of abduction and of flexion of the arm. In (1) abduction is induced by dynamic joining, an interior, involuntary rotation of the forearm; followed, in (2), by a flexion of the arm transferred to the forearm. The consequence of this double joining on the forearm (interior rotation and flexion) leads to a new dynamic joining which becomes an involuntary supination in the hand, in (3). Almost simultaneously (4), the flexion of the forearm moves up to the hand by a transfer that is losing its strength. This explains the order supination + flexion, in (5), which involuntarily passes on a manual adduction, again by joining. The last movement of this gesture: given the position of the hand at the moment when adduction appears, a weak transfer to the forearm by an interior rotation, concludes the sequence of movements. This trans-segmental schema distributes the mobility of the arm over six degrees of freedom, or dimensions, starting with a voluntary and controlled movement of only two dimensions.

4.2. For a distal-proximal flux

If the propagation of movement be effectuated following a flux moving from a proximal segment toward distal segments, the opposite can happen: the mobility of a gesture can spread in a distal-proximal flux. Thus, the movement starting from the hand spreads to the forearm.

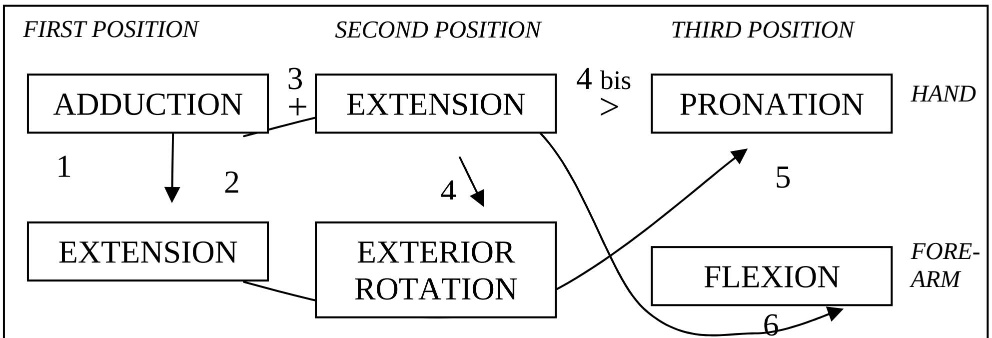


Figure Example 4*:* The distal-proximal flux of a gesture

The top line represents the schema for the hand, and the bottom line the consequences on the forearm. Without giving the detail of the order for movement transfers, the two voluntary movements are represented here by adduction and extension concerning the hand. All else results form the dynamic joining and geometrical orientations of the axes.

5. Articulatory schemas for 32 gestures

All of the schemas for the hand, the forearm and the arm are shown below in the form of Gestural Units (henceforth GU) which group together movements over several segments determined by physical and physiological transfers, all beginning with a double voluntary movement of two degrees of freedom for a segment (underlined in each GU). The left side of the table concerns those UG with pronation, and the right side concerns those effectuated with supination; in the top part of the table, the gestures of the hand are composed with adductions whereas the lower part brings together GU where the movements of abduction are present in the schema of the hand.

In this table of 32 GU, the rotation of the forearm is abbreviated by the denomination of its two poles (EXTerior and INTerior). The other abbreviations use the first letters of each pole (PRO for pronation, FLEX for flexion). Each GU is numbered. In the text across from this numbering, the 1st line represents the hand, and the 2nd, the forearm; any exceptions are noted in parentheses. Each section groups together all those poles for the degrees of freedom of the hand which are identical; only the quantity of movement or the order varies.

For the totality of the matrix, the voluntary part of the gesture only acts on two dimensions, whether the fingers, hands, forearms or arms are concerned. The other components of each GU derive from the transfer of the quantity of movement according to the determinations seen above. Nothing else governs the unfolding of these gestures. We might say that these are simple GUs. They spread their projections to several segments according to an envelope, rather than in a single form

(1)	pro+ADD>exten EXTEN EXT FLEX	supi+ADD>flex EXTEN INT FLEX	(2)
(3)	PRO+add>EXTEN EXTEN EXT FLEX	SUPI+add>FLEX EXTEN INT FLEX	(4)
(5)	PRO+EXTEN>ADD EXT FLEX EXT ADD FLEX (arm)	SUPI+FLEX>ADD INT FLEX INT ABD FLEX(arm)	(6)
(7)	ADD+EXTEN>PRO EXTEN EXT FLEX	ADD+FLEX>SUPI EXTEN INT FLEX	(8)
(9)	flex+ADD>pro INT EXTEN EXT	exten+ADD>supi EXT EXTEN INT	(10)
(11)	FLEX+add>PRO INT EXTEN EXT	EXTEN+add>SUPI EXT EXTEN INT	(12)
(13)	ADD+PRO>FLEX EXTEN EXT EXTEN	ADD+SUPI>EXTEN EXTEN INT EXTEN	(14)
(15)	FLEX+PRO>ADD INT EXTEN EXT	EXTEN+SUPI>ADD EXT EXTEN INT	(16)
(17)	pro+ABD>flex FLEX INT EXTEN	supi+ABD>exten FLEX EXT EXTEN	(18)
(19)	PRO+abd>FLEX FLEX INT EXTEN	SUPI+abd>EXTEN FLEX EXT EXTEN	(20)
(21)	PRO+FLEX>ABD INT EXTEN INT ABD EXTEN (arm)	SUPI+EXTEN>ABD EXT EXTEN EXT ADD EXTEN (arm)	(22)
(23)	(fingers) ABD FLEX ABD+FLEX>PRO FLEX INT EXTEN	ABD EXTEN (fingers) ABD+EXTEN>SUPI FLEX EXT EXTEN	(24)
(25)	(fingers)EXTEN ABD exten+ABD>pro EXT FLEX INT	FLEX ABD (fingers) flex+ABD>supi INT FLEX EXT	(26)
(27)	EXTEN+abd>PRO EXT FLEX INT	FLEX+abd>SUPI INT FLEX EXT	(28)
(29)	ABD+PRO>EXTEN FLEX INT FLEX	ABD+SUPI>FLEX FLEX EXT FLEX	(30)
(31)	EXTEN+PRO>ABD EXT FLEX INT	FLEX+SUPI>ABD INT FLEX EXT	(32)

Fig. 5: Schematisation for 32 GU

Each form unfolds according to a determined order of sequencing. This kind of morphological programme harnesses the substratum, in this case the upper member, and all or part of its zone of influence according to its manifestation. Within this zone, the form is manifested according to different amplitudes. Moreover, each manifestation of this gestural form can be sketched, using a single characteristic. The gestural unit remains the same.

5.1. Segmental centres of organisation

The nature of these dimensions contributes to the determination, whether it be that of the flux in the propagation of movements, that of the number of degrees of freedom under influence (and therefore of the number of segments in the zone of influence), or that of the segment where gestural units occur. Finally, the position of degrees of freedom in the schemas of each GU can give an idea of the quantity of movement which characterises each one of the poles at play. The more a pole nears the first place, the greater the quantity of movement in its own matrix of amplitude becomes. In the table below, the abbreviations in capital letters show the sizeable quantities of movement in relation to their position in the schema.

Gestures 1) and 3), like gestures 2) and 4) (and also 17 and 19; 18 and 20) are noteworthy only for the quantity of movement either in the hand or in the forearm. In this formal proximity between gestures their place of organisation can be discerned: for these cases, when the movement of adduction or of abduction, in second position is greater, the organising centre of the gesture is the hand, whereas when the quantity of movements is smaller, it is the forearm. In other words, gestures 3, 4, 19 and 20 are organised in the forearm; this segment structures the projected form on the upper member. Which rules can explain how the forearm is able to structure the GUs?

Generally speaking, the forearm organises the GU whenever the degree of freedom in the 1st position of the schema of the forearm as a flexion or an extension, and when the abduction or the adduction of the schema of the hand is in 2nd position due to a small quantity of movement (3, 4 19 and 20). I have thus determined the rules for the appearance of a centre of organisation in the forearm, as well as those for the arm, the hand and the fingers (see Boutet, 2001). While the forearm structures the GUs, manifestations concerned only with the hand conserve identity. The degrees of freedom of the hand in movement thus constitute nothing more than an anamorphosis that conserves gestural identity intact, even if they are the only segments to move. We observe here a veritable formal harnessing that creates a morphological relation which is at times foreign to a visual modality, as we shall see shortly. The segment that moves then behaves like a simple support.

5.2. Proprioceptive identities

In this view, GU 22 is organised at the level of the arm segment with the strongest inertia, like the GUs that display abduction/adduction for the arm at the beginning of the schema (5, 6 and 21). It propagates its influence up to the hand through a proximal-distal flux and even moves up through a distal-proximal flux starting with the hand: it reverses the last degree of freedom in the schema of the hand (ABD) through its opposite pole (ADD). In GU 22, abduction is transformed into adduction to result in GU 14. As this last pole has the amplitude necessary to move, it is in the first position of the new schema of the hand (GU 14 henceforth) while the poles of the two other dimensions of the hand remain unchanged. Naturally, another form appears on the forearm.

This GU 22, which spreads its influence to another gestural unit (14), can be translated by "impotence". In both cases we can follow the movement of the arm and the hand, which evoke gestures typical of the expression of "impotence".

In the same way, a shrugging gesture will be interpreted as the expression of an impossibility to act. If these three gestures (22, 14 and shrugging) are visually quite different, they are morphologically linked by physiological constraints. These gestural manifestations correspond in fact to a single GU.

The double morphological relation, considered on the one hand as form and on the other as semantic, and consequently as a morpheme, appears for the gesture as "impotence" and does not depend on a visual model. The directions of the manifestations and the affected segments are so different that they offer proprioception as their only structuring modality. If vision, in its role as a modality for apprehending gestural phenomena allows the receiver to gain access to forms, it does not allow him/her to gain access to anamorphoses, since it has no direct access to the planes of projection. Vision is in fact merely the reception of scattered traces. However, the general impression of these GUs lies in physiological phenomena which build up systems of reference in centres of segmental organisation, whose intersections of projected manifestations although entangled, still remain distinct.

5.3. The gestural as substratum and as support

Without going into detail on the labels of the 32 GU presented above, 28 stand out. They all display this dual morphological and semantic relation, and all are organised on segments. On the one hand, vision gives us access to traces in a sense diffracted to the far-flung corners in zones of determined variation (the manifestations of the same GU). On the other hand, the formal justification for gestures using an imagistic iconicity does not function here.

The respective referents of "impotence" (22 and 14), of "leave" (25) or of "refuse" (7), which do not correspond to objects, cannot be defined by quasi-biological anchoring (loss of energy for "impotence" contradicted by the shrugging of shoulders) or by characteristics vectorizing an egocentric space (the case of manifestations of the gesture "leave" nevertheless directed towards oneself). It seems to say the least that iconicity passes by the body, without the vision of the latter giving a direct access to signifying forms. Here, it is the body itself that generates a model of iconicity.

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