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Movement as a semiotic resource

1 Introduction

In this paper I will try to show that movement has, in the course of the 20th century, developed into a new, multimodal means of expression, a new semiotic mode. This development began when early 20th century artists and designers started to create meaningful ways of making previously inert objects move. A Futurist manifesto (Boccioni 1970 [1912], 64), for instance, advocated the use of movement in sculpture:

> We cannot forget that the tick-tock and the moving hands of the clock, the in-and-out of a piston in a cylinder, the opening and closing of two cogwheels with the continual appearance and disappearance of their square cogs, the fury of the flywheel or the turbine or propellor, are all plastic and pictorial elements of which a Futurist work in sculpture should take account.

Somewhat later, sculptors did indeed begin to make moving sculptures. Jean Tinguely, for instance, gradually developed his own language of movement, beginning by hiding an electromotor behind what still looked like two-dimensional, abstract paintings, so that their geometrical forms, their lines and squares, could move. Later he built quirky machines that systematically explored a range of sources and forms of movement, until he was finally able to use movement in traditional artistic genres such as portraits and even altar pieces. In a self-portrait from 1988, for instance, he dressed a skeleton in his own clothes and had heavy chains, tied to a machine, randomly pull this skeleton hither and tither, as if to portray himself as being at the mercy of forces outside his control (Van Leeuwen 2016, 348–349).

The same kind of development happened in other spheres. In product design, previously inert items of furniture became mobile. Desk chairs acquired wheels, lamps could be raised or lowered, ceiling lights moved on rails, chairs and beds made to decline to different degrees, and so on. Much of this originated in the famous Bauhaus, for instance the moving wall lights designed by Marianne Brandt in 1927.

Animation, too, could make inert objects move, including writing, for instance in the kinetic typography of Norman McLaren. Beatrice Warde, a writer on typography, expressed her astonishment at seeing McLaren's Animated Electric Screen in Times Square, New York, in 1961 (Warde, quoted in Bellantoni/Woolman 1999, 9):

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> I saw two Egyptian A's walking off arm in arm with the unmistakable swagger of a music-hall comedy team. I saw base serifs pulled together as if by ballet shoes, so that the letters tripped off literally sur les pointes. I saw words change their mind about how they should look even more swiftly than a woman before her milliner's mirror. After forty centuries of the necessarily static alphabet, I saw what its members could do in the fourth dimension of time, 'flux', movement".

Today, all computer users can use movement as a semiotic resource. Word users can drag words or larger fragments of text across the page, and PowerPoint users can make words or larger stretches of text swirl around or split in half and then reassemble, or fly or float into or out of the screen. Even babies are already introduced to the importance of movement, and encouraged to swipe or kick crib toys and to sit in 'walkers' even before they begin to try to walk. According to Robin Barker, "overwhelming evidence relating to injuries strongly suggests the supply of walkers should be prohibited. They do not teach babies to walk and have no developmental advantages" (Barker 2019, 368). Yet toy manufacturers continue to offer them, in designs that draw on the iconology of cars, buses and trains, even aeroplanes, as in the case of the Baby Einstein 'Sky Explorers Walker' which promises that babies will "soar from room to room" as they sit in the 'pilot's chair' (Baby Einstein 2023). Other toys have wheels, too, for instance telephones and even books. Since it is not easy to read and at the same time push or pull a wheeled toy, mobility is here clearly symbolical, signifying that mobility is a key value in contemporary culture.

In this paper, I will ask whether the semiotic mode of movement can be said to have a grammar, along the lines of the grammars of non-linguistic semiotic modes which have, over the past 30 years, been developed by systemic-functional linguists. Kress and Van Leeuwen (1996 and later editions) and O'Toole (1994), for instance, have developed grammars of visuality, later elaborated by others (e.g. Painter/Martin/Unsworth 2013; Boeriis 2008). Van Leeuwen (1999) has developed a grammar of sound and music, later elaborated, for instance, by Ngo et al (2022) and others. Martinec (2000a; 2000b) has developed a grammar of bodily action, later taken up, for instance, by Hood (e.g. 2011) and Ngo et al. (2022). And Ravelli and McMurtrie (2016) have developed a grammar of the built environment so as to be able to 'read spatial discourse', to mention just some examples. The question I seek to ask here, therefore, is: Can such a grammar be postulated also in the case of movement?

2 Multimodal grammars

The systemic-functionally inspired grammars of semiotic modes other than language that have so far been developed have a number of crucial common characteristics:

(1) They specify the function and structure of units that can be said to be analogous to the clause, single 'propositions', for instance phrases in music, or visual structures portraying a specific action or event or attaching a specific symbolic meaning to a visually represented object.

Like clauses, such phrases combine distinct elements into a structured syntagm, for instance, in the case of images representing actions, an actor, a process (for instance dynamically represented by a gesture) and a goal (the element to whom or which the action is done). But while in language, actors and goals may be realized by nouns or nominal groups, and processes by verbs or verbal groups, in images actors and goals are realized by distinct 'volumes' and processes by 'vectors' (these terms are derived from the art theorist Arnheim 1982). In other words, the same meanings can often be expressed verbally and visually, but the ways in which they are realized will differ. However, it should also be noted that some things can only (or more easily) be expressed verbally, while other things can only (or more easily) be expressed visually (Kress 2012).

(2) They are represented by means of so-called 'system networks', with binary distinctions of increasing 'delicacy'. Thus, what Kress and van Leeuwen call 'analytic processes', i.e. visuals that show how a given object is made up of different parts (e.g. maps, but also fashion images that show the different parts that make up an 'outfit'), can be 'assembled' or 'disassembled' – in the latter case the parts (e.g. the parts of an item of furniture that must be assembled) are displayed separately, in disassembled state. Again, an 'assembled' analytical process can be 'exhaustive' (showing all the elements that make up a whole, e.g. all the provinces of a country) or 'inclusive', (e.g. showing only those that will lead to a particular destination instead of all the roads that exist in the mapped area), and so on, as shown in Fig. 1.

(3) They are metafunctional. Each unit simultaneously realizes the ideational metafunction, constructing a representation of some aspect of reality, the interpersonal metafunction, constituting an interaction, and the textual metafunction, making the ideational and interpersonal meanings fit for a particular textual (and contextual) structure. In the case of images, for instance, an image may represent a particular action or event, but it will also show this event from a particular point of view, thus relating the viewer to it in a particular way and from a particular position, and it will also be composed in

ways that relate it to its co-text and context in particular ways, for instance by making a particular element more salient than others in order to fit the image in a thematic structure.

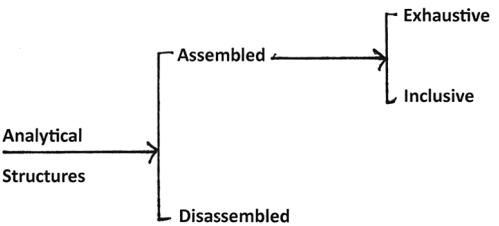

Fig. 1: System network of analytical visual processes (partial).

All of this can also apply to units larger than a single syntagm, i.e. at the level of discourse, and has been applied in this way, for instance in the case of music, where phrases can relate to each other in different ways, for instance dialogically (as 'call and response'), or in terms of 'variations' which partially repeat and partially vary a given phrase. But in systemic-functional linguistics this is not generally regarded as part of grammar, even though Halliday has said that "grammar engenders discourse, the patterned forms of wording that constitute meaningful semiotic contexts" (Halliday/Matthiessen 1999, 512). The level of the clause ('lexicogrammar') is kept distinct form the 'level above the clause' ('discourse').

Kress and I (2001, 4) use the term 'discourse' in a more Foucauldian sense, as 'socially constructed knowledge of some aspect of reality'. What we call 'design' then makes discourse communicable in ways that suit specific contexts, using semiotic resources from every level, the 'level of the clause' (or its equivalent in another mode) as well as the 'level above the clause' (or its equivalent in another mode, for instance the level of narrative structuring), and operating metafunctionally at each of these levels, and for all modes involved. In the case of narrative for instance, 'design' uses ideational plot-structuring resources of the kind first developed by Propp (1968), as well as interactional narrative structures of the kind first described by Labov/Waletzky (1967). What we call 'production' is then the material realization of these designs (although designs may of course use preliminary materializations such as sketches, scores, blueprints, scripts, etc.). 'Production', in our view, does not just realize meanings already 'fixed' at the level of design, it also adds meanings of its own. But it does so, not through organised systems of choices or generic schemas, but on the basis of cultural provenances and/or on the basis of the affordances of the materials used. To give an example, in theatre of film dialogue, foreign accents and dialects can be used

to evoke ideas and values 'standardly' associated, in the given context, with the countries or regions from which these accents or dialects come (Herman 1952). And the material qualities of speech can come to make meaning as 'experiential metaphors', on the basis of our experience of the contexts in which these qualities occur. We all know what happens when our voice tenses – it becomes higher, sharper and brighter. And we also know in what kind of circumstances our voice becomes tense – when we feel threatened, for example, or when we have to restrain strong emotions, whether anxiety or excitement, to mention just some of the possibilities. This range of experiences then creates a meaning potential. Vocal tension can come to mean anxiety, repression, fear, excitement, etc, and how that potential will be actualized and narrowed down depends on the context, the specific situational context as well as the broader cultural context, where it will of course mix with other aspects of voice quality that have their own meaning potentials.

In other words, Kress and I reinterpreted the stratification of language as staged communicative practice, with each stage selecting and transforming specific semiotic resources, and contributing in its own way to what is ultimately communicated. This idea was inspired by Goffman's 'production format" (1981, 144–145), where it is formulated in terms of roles rather than stages, with the 'principal' as the responsible person "whose position is established by the words that are spoken", the 'author' as the person "who has selected the sentiments that are being expressed and the words in which they are encoded" and the 'animator' as the "'sounding box", "a body engaged in acoustic action", always taking into account that these roles can either be played by a single person or lead to some kind of institutionalized division of labour. In a recent paper on the production of visuals for health promotion resources in the field of sexual and reproductive health (Van Leeuwen/Zonjic 2023), I have documented these stages and the specific semiotic resources used in each stage – the provision of medical information by 'principals', the rewrite in plain English and the formulation of a design brief by 'authors', and the production of brochures, videos and web pages by 'animators' (in this case graphic designers and videographers). But I also noted that the contribution of one designer changed the design brief in a way that was based on her Aboriginal beliefs, making her share the role of 'principal'.

In this chapter I will discuss two kinds of resources for making meaning with movement – the design resource of 'grammar', and the production resource constituted by the meaning potentials of the material qualities of movement. My research into this area has, so far, focused on animation, in collaboration with three of my PhD students of the past ten years, Da Costa Lima Carneiro Leão (2012), He (2022), and Han (2022), and is currently further developed in an ongoing project on the use of animation in science teaching, in collaboration with Uns-

worth (see e.g. Unsworth, 2020). In this chapter I will therefore focus on animation. But in a final section I will explore the possibility of extending what we found in the case of animation to movement in general.

3 A grammar of animation

A grammar of animation will recognize two kinds of components – the elements that are being animated ('participants', in systemic-functional terms), which can be words, numbers, pictures or abstract graphic elements, or parts of any of these, and dynamic 'processes', that is, movements and changes. The meaning potential of the grammar of animation therefore lies in what animation can make visual objects do, for instance, move around randomly, explode in a million pieces, change colour, etc.

To describe this meaning potential, Da Costa Lima Carneiro Leão has applied Halliday's theory of transitivity to animation, showing how animation, like language, can realize material and behavioural processes, i.e. things actors do, and how, like language, it can realize both transactional actions, actions which impact on another participant (a 'goal') and non-transactional actions, which do not. Here are two sentences from a section of a junior high school science textbook dealing with solids, liquids and gases, the first linguistically representing a transactional process, the second a non-transactional process:

You can easily compress a gas
Actor Process Goal
The gas expands
Actor Process

While in this example the participants, the actors and the goals, take the form of nouns or nominal groups, in animation they are visually represented elements, distinct 'volumes', in the case of this example representing particles. And while in language processes are realized by verbs or verbal groups, in animations they are realized by movements that make the elements change their position or move in place. Again, as in language, material animation processes can be either transactional, as in the first example below, or non-transactional, as in these 'transcriptions' of science animations:

Grey balls	move-randomly		
Actor	Process		
Some grey balls	collide-with	other grey balls	
Actor	Process	Goal	

Such 'transcriptions' do of course not exhaust what these animations show. Looking at the second section (the section on motion) of the actual example (https://www.youtube.com/watch?v=bwGim-eceS8&t=2s) reveals not only the exact colour of the 'balls' (i.e. the particles), but also the exact distance between them, and, in the case of solids, the speed of their movement in place, in the case of liquids and gases the speed, the expansiveness, the direction and the regularity or randomness of their movement. As Gunther Kress (2012, 16) has pointed out, different semiotic modes require different epistemological commitments. A verbal representation of a plant cell, for instance, requires naming the elements and positing a relation between them, e.g. a 'possessive' relation ("the cell has a nucleus"). A visual representation of a plant cell requires determining the exact shape, size and the placement of the nucleus.

Systemic-functional linguistics not only recognizes the material, behavioural and mental clauses that represent reality in terms of things that are going on, actions and events, but also relational, identifying and existential clauses that represent reality in terms of static relationships, attributing qualities to them, classifying them, and so on. Relational clauses describe people, places or things in terms of their attributes. They minimally contain the carrier of the attribute, the relational process (usually 'be' or 'have') and the attribute itself:

A gas	has	no definite shape
Carrier	Process	Attribute
The particles	are	close together
Carrier	Process	Attribute

Such clauses can represent attribution dynamically, through verbs like 'become', 'change', 'turn':

The solution	becomes	clear	after a matter of minutes
Carrier	Process	Attribute	

But in animation, attribution is always dynamic. Animations make elements change their attributes – their form, their size, their colour and their brightness.

Blue liquid	becomes	pink
Carrier	Process	Attribute

Again, this verbal 'transcription' does not show how gradually and how regularly the change of colour occurs. And it could also be noted here that animation software may not always be able to represent all these movement qualities. 'Explain Everything', for instance, is an electronic whiteboard frequently used by science teachers to allow students to represent scientific processes. But while it can allow students to change the colour of a represented object instantaneously, it cannot represent a gradual change of colour (He/Van Leeuwen 2020, 680–681).

As for identifying clauses, systemic-functional linguistics defines these as combining an identified, the participant whose identity is established, an identifying process (usually 'be') and an Identifier.

Boron	is	an element on the periodic table
Identified	Process	Identifier
This process	is called	condensation
Identified	Process	Identifier

Again, linguistic identifying clauses can be dynamic (using verbs like 'become', 'change into', etc instead of 'be'), but in animation, identity is always dynamic. Animation can change anything into anything else – words into images, images into words, for instance. It can also be noted that the same phenomenon can sometimes be represented as a change of attribute, sometimes as a change of identity. In one science animation, for instance, the change from liquid to gas was represented as a change of attributes (the same particles moved further apart), in another as a change of identity (a bowl of water morphed into a hovering white cloud).

Existential processes, finally, simply assert that something exists. In English, they usually have 'there' as a dummy subject, an existential process (usually 'be' or 'exist') and a single participant, the Existent.

There	is	a large amount of space between particles
	Process	Existent
There	are	several ways of identifying this
	Process	Existent

In animation existence is, again, always dynamic – elements 'appear' as if from nowhere, or disappear. To give an example, one science animation represented gas in the form of blue balls in a jar. The jar then entirely disappeared and made place for much larger blue balls which moved against a differently coloured background. It is this kind of process which dominates the animation options of PowerPoint – different ways of texts or parts of text appearing or disappearing in a myriad of ways.

To summarize, four types of animation process can be recognized:

- Movements, where elements change position or move in place.
- Changes of attribute, where elements change in shape, size, colour or brightness.
- Changes of identity, where elements change into entirely different elements.
- Changes of inclusion, where elements appear or disappear.

The diagram in Fig. 2 maps these types of process

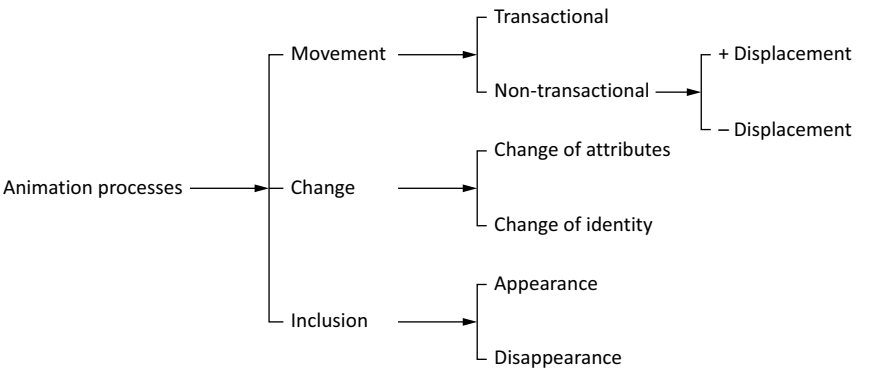

Fig. 2: Types of animation process.

For our project on the use of animation in science teaching it is important to be able to assess whether animations represent physical processes in scientifically adequate ways. This is not always the case, and an analysis along the lines proposed here can bring this out, as demonstrated by an analysis of a segment from an animation about tornadoes.

> We see a tree in a green field, with a blue sky behind it.
>
> VOICE OVER: While the amount of tornadoes . . .
>
> Then one branch of the tree breaks and moves up and down in place.
>
> VOICE OVER: throughout the world is quite high, very few do major damage.
>
> A tornado in the shape of a diaphanous cone enters from right, moving towards the left, while also turning around its own axis. At the same time, the branch that was moving in place breaks off and now dangles down while a bit of foliage floats towards the right of the screen.
>
> VOICE OVER: The weakest tornadoes can break . . .

Fig. 3: Still from 'Tornadoes'.

> The tornado now touches the tree, causing the top of the tree to break and fall down.
>
> VOICE OVER: . . . a tree and perhaps do light damage to homes while . . .
>
> The tornado keeps on rotating and moving to the left, carrying the tree top with it. The remainder of the tree then falls down by itself.
>
> VOICE OVER: the strongest can completely destroy entire buildings.

At the beginning of this segment a branch breaks off and a bit of foliage floats towards the right without any visible cause (non-transactional animation processes) – the tornado has, at this moment, not yet appeared. The tornado then appears (an existential animation process) and crashes into the tree, taking part of the tree with it as it moves on (a transactional animation process). Throughout, the tornado keeps moving horizontally, when in fact tornadoes culminate in a vertical upsurge, and the sky remains blue, while in fact tornadoes cause a swirl of water droplets, dust and debris. It can also be noted that there is little correspondence between the content of the voice over and what we see in the image.

Here is another example, the famous animated title sequence of Alfred Hitchcock's Psycho (1960) by Saul Bass. (see Fig. 4)

1 As we hear stabbing chords, a black line enters from right and rapidly crosses the screen. More black lines appear, parallel to each other, and one after the other, crossing the screen and eventually forming a grid. A title ('ALFRED HITCHCOCK'S') appears behind the middle lines, initially only partially visi-

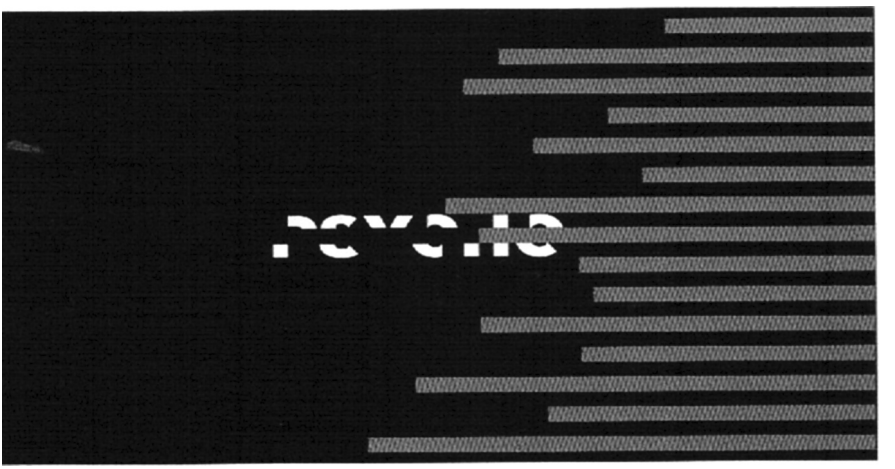

Fig. 4: Frame from the title sequence of Psycho (Alfred Hitchcock 1960).

ble, as it is cut into three lengthwise slices, with the middle slice hidden by one of the black lines.

The lines then rapidly exit to the left, leaving the title on the screen.

2 As strings are added to the musical theme, moving it to a higher pitch register, grey lines appear from the right and, in a similar way, divide a title ('PSYCHO') lengthwise into three slices with the middle slice hidden behind one of the lines. The lines then move to the left to reveal the title PSYCHO.

3 As the musical theme becomes more expansive and suspenseful, the title PSYCHO is cut into three slices which are then de-aligned, making it unreadable.

4 As the music becomes still more insistent still, some parts of the title move upwards, others downwards, pushed upwards by parallel lines that emanate from the middle of the screen, some moving upwards, some downwards, to form another grid.

In this example, movement is used symbolically to graphically represent key themes of the film. The lines incarcerate the titles behind a prison bar-like grid (a transactional animation process), and the dealignment of the parts of the film's title (a change of shape) becomes a metaphor for the schizophrenia of the film's main character, Norman Bates, played by Anthony Perkins. The pace and goal-directedness of the movement of the lines is relentless and fateful.

4 Movement qualities

The grammatical processes described in the previous section do not exhaust the meaning potential of animation. As already mentioned, the movement of gas particles, while non-transactional, can be fast or slow to different degrees, more or less regular or irregular, and so on. Such qualities cannot be captured in a 'grammatical' system of more or less binary distinctions. They are simultaneous qualities, and they are graded rather than binary. And, as discussed above, they make meaning through provenance and/or experiential metaphors. In this section I focus on the latter.

The key qualities of movement have been explored by Han (2022) in relation to music and dance, but as we will see, they can be applied to animation as well. I will first discuss them in general terms, and then illustrate them with an extended example.

Direction

Directionality involves the horizontal, left-right dimension as well as the vertical, up-down direction. Experience tells us that horizontal movements are goal-oriented movements that travel from a to b, while moving upwards involves effort and energy, while moving downwards involves a decrease in effort. And there are of course many directions that combine these two.

Clearly, goal-direction can become a source of metaphors, as we have seen in the case of Psycho, and, as Lakoff and Johnson (1980) have shown, the contrast between 'up' and 'down' is also a rich source of metaphoric meaning.

Directedness

Displacement necessarily occurs in specific directions, but not all displacements take the shortest route. Movements may turn and twist, zigzag, move stepwise, and more. Embodied experience can tell us what kind of things can cause indirection. We may zigzag to avoid obstacles, stagger aimlessly as a result of intoxication, and more. But indirection may also be deliberate and aesthetically pleasing. Like the trills, mordents and turns of baroque music, flourishes in dancing intersperse displacement with 'movements-in-place'. In the minuet as described by Sachs (1937, 407), dancers "moved with little dainty steps, approaching and retreating hand in hand, searching and evading now side by side, now facing now gliding past each other". The tornado in my earlier example moves in this way,

whirling towards its goal like a dancing dervish, rather than moving straight towards it, which perhaps gives it a menacing quality.

Expansion

The same kinds of action can extend over a larger or smaller amount of space. We can walk with large strides or measured steps, jump with energetic leaps or skip from one foot to the other, wave our arms around or restrain our gestures. To return to my earlier example, the movement of the particles in a solid has minimal expansion, it is a 'movement-in-place'. In the case of liquids there is greater expansion, and in the case of gases even greater expansion. In other cases, the meaning of expansion may be more symbolic. A comparison with music can again be made, as described by Cooke (1959, 109):

> Medieval and Renaissance music tends to move in stepwise progression at normal medium pitch, befitting man's humble subjection to the deity, but with the growth of human self-realization, music drama [. . .] began to introduce more and more liberty of pitch movement to express the rhetoric of human passion.

In this example, expansiveness characterizes the style of an era, but it can also characterize the movement style of an individual, social group or nation, and both expansiveness and constraint can have positive as well as negative overtones. Exuberance may be seen as domineering or as impressive, constraint as showing admirable moderation or as shy and timid.

Velocity

The meaning potential of velocity derives from our physical knowledge of what slows us down and what speeds us up – age or fatigue for instance, and also from our cultural knowledge of occasions which require slow movements, solemn processions, for instance, or funerals. Slowness can also be pleasurable and relaxing – leisurely strolling through a park, for instance, or taking time over a job that needs care and precision. Fast movement is needed when quick action has to be taken. It suggests energy and dynamism. Staying in control in situations where speed is necessary is exhilarating, though too much speed can overwhelm and confuse, making it impossible to keep up with things.

Force

Movements with the same direction, expansiveness and/or speed may have different degrees of force. Like loudness in sound, force can suggest vigour or power as well as anger. It can invoke the stamping rituals of military drills or forceful blows in a fight, but also a positive intensity of belief and commitment. Softness, too, can have positive or negative overtones – it can be weak and timorous or gentle and tender, for instance.

Angularity and fluidity

Like graphic shapes, movements can be angular or curved regardless of whether they are, for instance, movements of the whole of a body or parts of it. Our experience of our natural and cultural environment tells us that curved forms and curved movements dominate the natural world and rectilinear forms and movements the social world created by humans, and this, too, can be a rich source of metaphoric meaning.

Closely related is the issue of fluidity, the contrast between long, unbroken, smooth movements, and movements that consist of distinct short steps. Like staccato in music, a stepwise movement can be lively, energetic, and determined or disjoined and mechanical, with movement becoming a succession of still frames. And like legato in music, continuous, unbroken movements may be smooth and sensual but also imprecise, slurring things together – it all depends on the context.

Regularity

Movements can be regular or irregular, rhythmically organized and periodically patterned, or meandering, wavering, teetering, oscillating irregularly. The meaning potential of irregular movement stems from the same kinds of experience as the meaning potential of irregular shapes – physical conditions such as intoxication or infirmity, uncertainty and confusion, or a refusal of control and discipline. But irregularity may also celebrate human spontaneity and unpredictability, for instance in forms of dance and music that contrast the regularity of the mechanical with (or, today, the electronic) with a 'human touch'. In such cases, regular movements may be seen as repetitive and mechanical, but in other cases they may seem well-proportioned and elegant.

Below I transcribe an animated video produced by the Australian Government at the beginning of the corona virus crisis. Figure 5 shows a still from this video The video can be watched at https://www.youtube.com.watch?v=WvYU1Km6XTc.

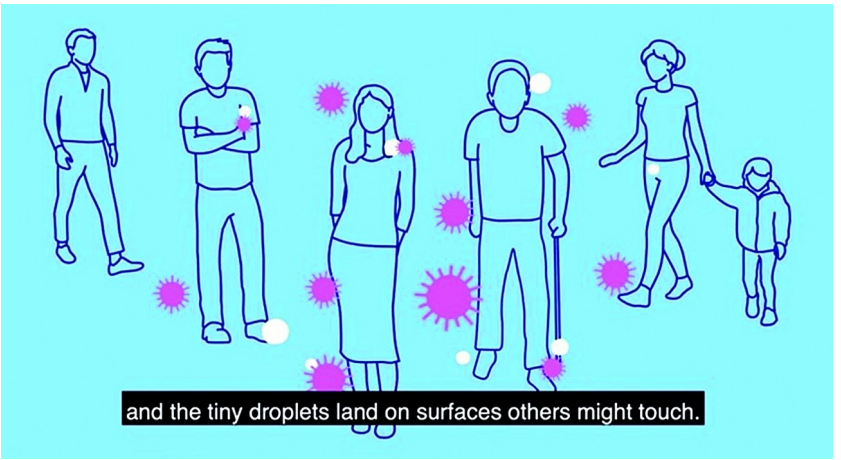

Fig. 5: Corona virus.

1. CLOSE SHOT of a boy coughing. Pink viruses escape from his mouth, growing and coalescing into a large cloud which eventually fills the whole screen.

   VOICE OVER: Viruses spread when you cough and sneeze.

   The cloud moves up, releasing small pink droplets which fall on a table. A hand moves into the shot and touches the table, which is now covered in pink dots.

   VOICE OVER: And the tiny droplets land on surfaces others may touch.

2. LONG SHOT. A drawing appears of a group of five people, one of them holding hands with a young child. Pink viruses fly in and hover around the people.

   VOICE OVER: You can help reduce . . .

   The viruses turn into white crystals as the drawing is erased.

3. MEDIUM CLOSE SHOT. The drawing of a boy appears. He coughs up purple viruses, this time in his arm.

   VOICE OVER: . . . the risk by coughing or sneezing in your arm . . .

   The drawing is erased.

4. MEDIUM CLOSE SHOT. The drawing of a girl appears. She coughs into a white tissue which then colours pink.

   VOICE OVER: . . . or a tissue.

   The drawing of the girl is erased.

5. FULL SHOT of the drawing of a bin, with a purple tissue falling in, dropped by an invisible hand.

   VOICE OVER: Bin the tissue.

   The drawing of the bin is erased.

6. FULL SHOT. The drawing of a tap appears. Camera tilts down with the water that comes out of the tap, to end up in a shot of hands washing with pink viruses disappearing as a result.

   VOICE OVER: Wash your hands with soap and water.

7. MEDIUM CLOSE SHOT. The drawing of a boy with a thermometer in his mouth appears.

   VOICE OVER: And if . . .

8. FULL SHOT THERMOMETER. Camera zooms in. A dialogue balloon appears at the end of the thermometer (“37.5+”).

   VOICE OVER: . . . you’re sick . . .

9. CLOSE SHOT. A hand holding a mobile phone moves up, then down again.

   VOICE OVER: . . . seek medical advice. Together . . .

10. LONG SHOT (AS SHOT 2) The drawing of a group of five people appears, viruses and white spots hovering around them.

    VOICE OVER: we can help stop the spread . . .

    The drawing is erased.

11. The drawing of six hands making a ‘thumbs up’ gesture appears. As the drawing appears, the viruses from the previous shot change into pink ‘plus’ signs, the dots into smaller, white ‘plus’ signs.

    VOICE OVER: . . . and stay healthy.

Several of the processes discussed in the previous section can be observed in this animation:

Change of size – pink viruses escaping from the mouth of a coughing boy grow into a large cloud which eventually fills the whole screen.
Change of colour – the white tissue the girl coughs into becomes pink.
Change of identity – at the end, pink, the colour of infection, changes into white, to suggest the eradication of the infection.
Disappearance – the table on which pink droplets have fallen disappears.
Appearance – a group of five people appears with viruses hovering around them.

But movement qualities also contribute significantly to the meanings conveyed by this video. In shot 1, the viruses move upwards, in a way that is directed, expansive, fast, forceful, fluid and regular. In other words, the viruses not only grow, they do so in a determined, forceful, unstoppable way. In shot 10, on the other hand, the viruses move in many directions, with much less expansive and energetic, much slower and much more irregular movements. Clearly this does not so much represent how corona viruses actually move. What matters here is to show that the measures proposed to 'stop the spread' (keeping distance, washing one's hands, etc) will literally and figuratively diminish the viruses and eventually make them harmless (white).

5 Coda – a grammar of movement

The ideas outlined in this chapter have developed in relation to specific text types and specific data sets – animated film titles (cf. Da Costa Lima Carneiro Leão 2012), dance and music (Han 2022), and, in a still ongoing project, animations made for the purpose of science teaching. But there are reasons to think that they could have wider application.

Han (2022) discusses the work of dancer and dance theorist Maxine Sheeth-Johnson, who has described meaning in dance as emerging from qualities also present in everyday movement and including tensional, linear, areal and projectional qualities. 'Areal quality', for instance, she describes as follows (Sheeth-Johnstone 2011, 45):

> Areal quality may be anywhere from constricted to expansive, its shape at the one extreme being predominantly small and inwardly oriented, and at the other extreme being predominantly large and outwardly oriented [. . .] When we are contrite for instance, we

> tend to shrink in size and stay put [. . .] when we run down the street with open arms to greet someone the areal design of our body is expansive and the areal pattern of our movement extensive.

Clearly, Sheeth-Johnstone also understands the meaning of movement on the basis of common bodily experiences, as I have done, for instance, in my work on voice quality (e.g. Van Leeuwen 2014).

While much gesture research tends to analyse gestures in functional terms, here too, movement qualities have been recognized. Kendon notes that qualities of movement have been described since the 18th century, e.g. by Austin (1753–1837) who had categories such as 'magnificence', 'boldness', 'variety', 'simplicity', 'grace', 'propriety' and 'precision'. In recent work, too, the metaphor potential of gestures has been noted, e.g. by Müller/Bressem/Ladewig (2013) who see gestural meaning as motivated and argue that gestures embody lexicalized metaphors, and by Ladewig/Bressem (2013) who recognize not only 'tension' but also 'additional features' of directedness such as 'spiral', 'zigzag', 's-line'.

Clearly, all this suggests the possibility of a more general, multidisciplinary theory of the semiotics of movement, which would have to take account both of the grammatical resources that underlie multimodal communication and of the meaning potentials that derive from the physical, experiential qualities of movement. It is not impossible that this could make the semiotics of movement a key resource for investigating a wide range of semiotic phenomena, as suggested by the title of Sheeth-Johnstone's book – "The Primacy of Movement".

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