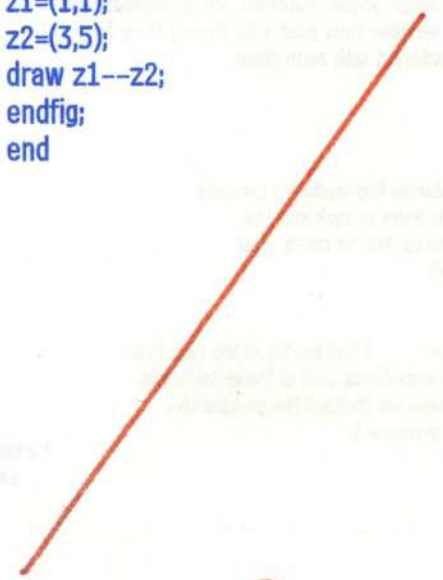Metapost is a drawing language based on Metafont, the language developed by Donald Knuth to design fonts. In Metapost the drawing is reduced from a collection of mathematical equations. It is not obligatory but often the drawing is split in two parts: in the first half the points of the drawing are defined. In the second part the connections between those lines are described, straight lines or curves and in which direction do they leave or enter the point.

<Let's consider the following mathematical problem: Given n points $z_1, z_2, ...$ z_n in the plane, what is the most pleasing closed curve that goes through them in the specified order. [...] To avoid degeneracies we may assume that n is at least 4. This problem is essentially like those dot-to-dot puzzles that we give to young children. Of course it is not a well-posed mathematical problem, since I didn't say what it means for a curve to be 'most pleasing'. Let's first postulate some axioms that the most pleasing curve should satisfy. [...] skipping ahead to principles 1 to 4. [...] Property 5 (smoothness): There are no sharp corners in the most pleasing curve, [...] in other words, there is a unique tangent at every point of the curve. Property : if z_1, z_2, z_3, z_4 are consecutive points of a circle, the most pleasing curve through them is that circle.>
Donald Knuth, "Mathematical typography", p. 355, in the Bulletin of the American Mathematical Society, Volume 1, Number 2, March 1979

Linguists say that the E, fifth letter of the latin alphabet, is derived from the Greek Epsilon E, represented in egyptian hieroglyph by the rotated Ϝ, and rotated again from the Phoenician 3 that is rooted in two cuneiform letters from the semitic script aged from more than three millenaries, the fifth letter hê≡ meaning the window and the eight letter heth meaning fence ⼝. In syriac and arabic, it gave a near rounded shape, and in hebrew the mix between the latinusque cornered letter and a rounded one, even more rounded in cursive ᴲ.

HPGL or Hewlett-Packard Graphics Language, is a drawing and programming language to command pen plotters. It developed into the industry standard and is still supported by contemporary devices. There are commands to send the pen to a coordinate, or position on the paper and commands to put the pen down on the paper Pen Down, or to lift it to put the pen Up. If the pen is down or on the paper, the machine draws. There are commands to modify the pen and commands to modify the machine, as in return to default settings, to change the size of the paper or to pick a new one.

```
HPGL
IN; SP1; PA1,1; PD3,5; PU;


LOGO
RT26.57;FD4.47;


Metapost
beginfig(1);
z1=(1,1);
z2=(3,5);
draw z1--z2;
endfig;
end
```

Up Pen Down

Logo a été écrit pour les enfants. Né en 1966, c'est une méthode pédagogique et un langage de programmation qui le met en pratique. Inspirée des recherches de Jean Piaget, Logo a été développé par Seymour Papert comme une initiation à la la programmation et aux logiques numériques. Il passe par le dessin pour expliquer les concept d'unité, d'échelle et de récursivité. Ce qui nous intéresse en particulier avec Logo c'est sa "Tortue"; sorte de robot traçant piloté par de simples commandes: Pen Up, Pen Down, Forward & Rotate. Avec cette spécificité que la tortue se déplace dans un environnement relatif.

Pierre   Maybe imagine a human having a perception of a vector for the first time: a pregnant woman walks on the flat surface of a beach, to the background of the sunset. She hunts birds with a bow and an arrow. As she bends the bow, she feels how its straight rope interacts with the sturdiness of the bones of her arm and how the curved wood of the bow is in sync with the fibers of her muscles. All those straight and curved lines, along with the soft arc of her thick belly, are also drawn by the sun as her shadow stretches on the sand. She launches the arrow. The arrow itself could be seen as a vector-wave-movement. She also feels how rays of sun project her transformed theshape of her shadow on the sand, following another straight line. She looks more closely at the border of the shadow, and sees the very moment where some grains of sand get lightened by the sun, like many corpuscules-pixels-bitmap, envisioning in simultaneously the two main components of digital images, and the two ways of describing tangible matter.

Gijs   Yes, in this case the movement is a rendering device.

Adva   Maybe both movement and vectors are potential, actualised through rendering processes, by the body, by the machine, by anything they activate?

Pierre   I find both dance and graphic design poetic practices, but sometimes I felt we killed their poetry by forcing them to interact with each other.

Ludi   We slowed the rendering process down so much in order to look into the process it facilitates. Maybe that's what killed the poetry?

Adva   I find poetry in the fact that we sometimes look at those technical processes through the perspective of movement.

Pierre   We can say that there are two matters within the digital, the molecular, which we recognise as bitmap and know very well, and the undulatory – the vectors. I want to not only utilise vectors, but also to go anthropological about them. From that perspective I can tackle what is important in the aesthetics vectors create, go beyond the way things look and into the way they operate and influence our own operations.

Ludi   I have the need to include the body in the investigation of digital typography, because through intimate relations with vectors, we can trace back histories of writing that depended on the body and its movement.

Ludi   The body has its own intelligence. When I put, for example, the tension of the curve into this awkward body, some aspects of the digital practice become apparent in a way that I can't put the finger on, but I feel that only the body can detect.

Gijs   If you think of programming from the perspective of movement, for exemple loops, the time it takes to execute the code, the electrons jumping, freezing, flowing, interacting through the processor – all become interesting in a different way.

Adva   I understood at a certain point that Up Pen Down is not a linear research, but rather an environment we created for ourselves where methods, actions and questions we come up with can interact with pieces of art, of knowledge, of completed or unfinished explorations of others within the field. Up Pen Down is for me more of a place to be, than a well studied research question.

Ludi   OSPies like dancing. But we do end up sitting on a chair when ever we deal with type design. Its maybe a fantasy to think that such different modes of being could come together in an interesting way, but here we are, using one practice to reflect on and activate the other.

Gijs   With Metapost, the human becomes the choreographer and the machine is the dancer, interpreting and improvising with the score.

Gijs   Actually, a vector is a meta picture. Only when rendered it becomes a shape.

Adva   So, could we say that vectors are like movements?

Adva   By allowing different body practices to infiltrate one another, contemporary dance went through various exciting waves of new discoveries about movement. At a certain point the body withdrew and the conceptualisation of movement entered the field. I ask myself if there is something new to find about movement through looking for it within digital processes and if yes, can it maybe generate a new way of thinking body and of making dance?

Adva   I read once a Kabalah text about the letter ה. Sometimes this letter is used to indicate the name of god. In that case, it should be written, but not pronounced. Its not because it represents god, but because they believe that the letter itself, when written, contains divine power that is lost in the transformation through the body from the written to the spoken. I like the idea of a letter carrying its own agency. This story is taken from a mystical culture, but also on the more up-pen-downish level, we create texts, choreographies and technologies that at a certain point become existing in themselves and start a relationship with us.

La Balsamine day 1, Adva: "We don't want the people to walk on the grid, do we?"
La Balsamine day 2, Pierre – "How about drawing a little corner?"
La Balsamine day 3, everybody – "Most urgent is to finish with the booklet, then we'll deal with the body"
La Balsamine day 4, Ludi – "Who is doing the turtle today?"
La Balsamine day 5, Sophie – "I can't wait to see the OSP bodies dance"