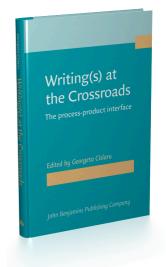# Some problems encountered in the description and analysis of the dynamics of writing

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Some problems encountered in the description and analysis of the dynamics of writing

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Research dealing with the dynamics of writing is carried out in different theoretical fields and consequently resorts to different research methodologies. The aim of this paper is to study which definitions of the act of writing underlie the research reports which all intend to describe its dynamics.

Two aspects of the dynamics of writing will be studied in order to see how they are organized into systems that configure the description of the act of writing in diverging ways: (i) temporality itself with an emphasis on the consequences of distortion or focus caused by the size of the time span or the granularity chosen; (ii) the notion of writing seen as a partly observable and partly unobservable activity that leads the researchers to reconstruct it in ways that differ with the indices they have selected.

Keywords: writing; temporality; act of writing; methodology

1. Consensus and divergences surrounding the idea of the dynamics of writing

Whereas the analysis of the comprehension of texts, their transmission, and their functioning has a venerable tradition of research that lasted throughout antiquity from Aristotle to Cassiodorus, was perpetuated by scholastic teaching, and was renewed by stylistics and different currents of contemporary linguistics, research on written production is relatively recent. It began because of ruptures that occurred in the 20th century: the rupture with philology under the influence of genetic criticism[1] that rejected any teleological vision of literary creation (Hay 1979), the rupture with subjective representations of the act of writing under the impulse of cognitive psychology and psycholinguistics whose theoretical and

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1. "Genetic criticism" is a critical method that originated in France ("*critique génétique*"), which focuses on the sources used in a work as well as the writer's manuscripts.

methodological demands were not in accordance with the impressionist conceptions that were predominant at the time.

According to Matsuhashi (1982), 1970 was the turning point when the focus shifted from product to production. Various 20th-century works contributed to initiating this transition. The modeling of text production carried out by Hayes & Flower in 1980, at a time when questions about the activity of producing a text were becoming more crystallized, is considered to constitute an important reference point. This was followed soon thereafter by adjustments that would complement it (Flower, Hayes, Carey, Schriver, and Stratman 1986) and by partial or global modelizations that resembled it.

This change of focus was facilitated by three factors: (i) the integration of some linguistic issues into more general questions in the area of cognitive psychology regarding creation and act, (ii) the focus of multiple currents of linguistic research on problems of a textual or discursive order (in particular Halliday & Hasan 1976 *passim*; Kintsch & van Dijk 1978) and the related development of pragmatic approaches that would fuel reflection about the handling of language data; (iii) the impulse from writing didactics that would define needs in terms of analytical tools, as Perl's requisite demonstrated in 1979. Indeed, to a significant extent, the first works regarding the procedural dimensions of writing were conducted from a didactic perspective, beginning with those of Murray (1972), Sommers (1980) or, if we go back further, those of Tressler (1912, cited by Roussey 1999) or even of Albalat in 1903. The concern of these authors was to respond to the needs that they noticed among their students. With Bereiter & Scardamalia (1987, *passim*) and in France with Charolles (1986) and Garcia-Debanc (1986), we move from a simple didactic perspective to a genuinely didactic treatment[2] of the production of writing.

While the act of writing is viewed as a focal point for linguists as well as psychologists and educators, the approaches employed to describe this object stem from research traditions that are quite distinct from each other. Thus, they differ in terms of the concepts that structure them and the methods that they use. Certainly they agree that it is best to view writing with respect to its dynamics, thus supposing that one is interested in the way in which the act of writing takes place in time. However, the analyses of the temporality of writing that they put forward may not be entirely superimposed. Indeed, the temporality of writing is subject to very different interpretations depending on the point of view assumed, the time span taken into consideration, granularity, and the type of indices selected. More

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2.   In France, "didactics" is a domain of research which deals with the theory of teaching and learning in relation to the content of the various academic disciplines.

precisely, one's conception of the act of writing is closely related to the way in which its temporality is examined. As a result, besides agreement on the fact that writing is a dynamic phenomenon, many differences remain among the conceptions of its temporality and necessarily among the points of reference that are chosen. We will examine these differences not in an effort to reduce them, but rather because it seems that the questions they raise make them epistemologically fruitful.

2. Observing the act of composition: From ideal temporality to reconstructed temporality

2.1 From the ideal image of writing toward the search for observable elements

The attention given to the temporal dimension of writing was first of all linked with a prescriptive goal: determining the order of operations that allowed the writer to attain the best written results. The scholarly tradition, inspired by classic rhetoric, thus codified a list of steps that the writers were supposed to follow to best complete the writing assignment given to them. This ideal order of steps proceeded from a rational analysis of the act of writing that was not based on empirical observations, but reconstituted *in abstracto* the writing process and identified all the moments where the writer must take a decision. This step-by-step conception of writing resulted not only in pedagogical prescriptions, but it was also subject to theorizations and formalizations. Among these we may cite the model elaborated by Rhoman and Weckle (1975), on which Sommers (1980) composed a virulent critique. We can additionally make reference to the model of Britton et al. (1975, 29) that proposed a schema containing three steps *conception/incubation/production*, which was inspired by Jakobson's communication schema (1960).

The inversion of the perspective began when tools became available to observe the actual activity of the writer or, more precisely, to identify the physical manifestations and the written marks that could be interpreted as the indices of this activity. The very first tools utilized in these types of investigations were born as a result of new and even innovative uses of tools that existed beforehand but that until then had served other objectives and in a different context. Thus, the technique of introspection that had been in common use for a long time in the paradigms of non-behavioral psychology was again made use of in certain research protocols; additionally, the procedures of manuscriptology, until that time used to establish the *lectio melior*, were again used to examine written productions. Following this, new needs became clear, and specific tools were created to supplement or complement those that were already available. These tools are not simple technical

additions: these are either purely conceptual tools – this is the case, for example, for the linguistic categorizations used in the analysis of written marks – or tools that combine a technical instrument and a system of interpretation (Alamargot et al. 2007; Leblay & Caporossi 2014). In any case, as with all technological progress, technical advances were always inseparable from conceptual developments. In contrast to common belief, this link between technology and conceptualization is reciprocal: the arrival of a new question leads to the need for material means to address it; but in return, the principle of affordance means that the provision of a new tool will suggest new uses and thus lead to the emergence of new ways of using them (Plane 2014). This is why tools, methodologies, and representations related to the act of writing evolved together. Therefore, two modes of investigation, one founded on empirical research and the other inclined toward formalization or the exploration of hypotheses, interacted with each other.

2.2   From the analysis of observable elements toward the reconstruction of cognitive activity

Regarding the methods used in the field of cognitive psychology, we may note along with Olive (2002, 2010) that the research has a relatively stable repertoire of investigative techniques that allow verbal production to be studied in real-time. These protocols define a specific task that the writer must accomplish under controlled conditions and which, depending on the needs of the study, may be perturbed or placed in competition with one or more other tasks. The temporal progression, the linguistic forms produced, and potentially movements as well are recorded and provide much data. These protocols have two characteristics in common:

– as for practicality, not only are the parameters that determine the execution of the task defined with precision, but also the nature of the linguistic product to be provided is even controlled in such a way that the observation may address an isolated and well-targeted element. The linguistic product may even be totally fixed in advance – it may be, for example, a task to copy words or part of a text – thus allowing the observation to focus on other components of the task.
– the target in the prescribed task is the use of a particular cognitive process or, most frequently, of a component of this process. The linguistic dimension of the product is only of interest to the extent that it provides information about the way in which this process is performed.

These experimental protocols are associated with online devices that can record very subtle signs, such as pauses or ocular movements, and thus provide the material for

a chronometric analysis. The collected information is considered as providing indices of the compositional act or, more precisely, indices of the way in which different operations are carried out, thus making it possible to analyze, for example, the way that written or morphographical tasks are performed in the production of writing.

As they pertain to epistemology, these works present a particularity that is not found in other domains where composition is studied: homogeneity of the theoretical frame on which this research is based. This homogeneity should not be interpreted as an effect of the communal cohesion of the researchers in this area. Indeed, this is not simply the result of sharing knowledge and methods via professional channels (i.e. journals, conferences, etc.), rather it is a real consensus about the research issues: following the publications of Kellogg (1996) and Hayes (1996), the nodal point of all of these works rest on the idea that we will only be able to understand (and, if possible, improve) the cognitive-linguistic functioning involved in the production of writing if we are able to account for the functioning of memory and its limits (Kellogg, Olive & Piolat 2007). As a result, experiments were conducted with the goal of testing modelizations of the mnesic system, particularly the modelization developed by Baddeley (1986), in order to refine them. This is done by shedding light on the competition between the procedures (Fayol & Pacton 2006) or by examining a particular dimension of the production of writing (for example, the visual-spatial dimension (Olive et al. 2010) or by examining the performance of a population that has certain particularities (Bourdin 1999; Richards, Berninger & Fayol 2012; McCutchen 2011).

2.3   From the identification of traces toward the articulation of new questions

In the field of linguistics, it is customary of epistemology to exploit confrontation and divergence to make conceptual progress rather than to seek consensus; this means that the theories used to analyze linguistic data will not ever be unequivocally unified. However, the methodologies for collecting corpora have been stabilized, and the list of the available descriptors has been well established.

In this context, the writing – and, more broadly speaking, all of the signs written during the creation of these writings – have been studied not because they allowed a reconstruction of a cognitive mechanism, but because they provide information about the functioning of language itself or about the use of language by a particular writer-subject.

This is why the same written sign can be the subject of different investigations by psychologists and by linguists. For the one group, it provides information about a process, which is to say about a temporal sequence of operations and the states achieved, whether or not the accomplishment of these operations

supposes an act of decision on the part of the writer (automatic processes/controlled processes, to take up the classic distinction made by Schneider & Shiffrin 1977); for the others, it is examined for the information that it provides about a linguistic operation or a linguistic mechanism. We may take the act of deletion as a concrete example that illustrates this difference in perspective. Indeed, deletions or stopping during production are interpreted in the same way by psychologists and linguists as signs indicating a difficulty experienced by the writer. However, for the psychologist, the examination of these phenomena, the conditions in which they are produced, and their frequency may serve, for example, to verify whether certain operations are performed sequentially or simultaneously. By contrast, for the linguist, each deletion must be examined within its textual and/or unique discursive context. Depending on the semantic or morphosyntactic properties of each crossed-out segment and its context, the linguist will see in the deletion the index of a change in point of view (Fenoglio 2012), the indication of an internal dialogism (Boré 2013), the signs of an intentionality that requires interpretation (Pétillon 2006), or more broadly the sign of the non-coincidence of the discourse with itself, to take up the formula provided by Authier-Revuz (1995, 235).

Certainly the divergences on the nature of the subject-writer that we are interested in – a cognitive subject whose language activity lends itself to quantification *vs.* a unique individual who manipulates a complex object with indefinite contours, i.e. language, in an idiosyncratic way – in no way prevents pluridisciplinary research, for example, as is shown by the works that address the management of orthography (Bourdin, Cogis & Foulin 2010) or coherence (Chuy & Rondelli 2010). However, they indicate that a parameter of the linguistic activity that the two approaches take into account, specifically the temporality of writing, may be viewed in radically different ways. Therefore, it is the very notion of the dynamics of writing that is brought into question.

3.   Toward a plural definition of the dynamics of writing

3.1   Atemporality/sequentiality/continuity

We suggested above that one of the traits characteristic of the dynamics of writing is that it takes place within time. However, Bronckart (1996, 112) demonstrates that linguistic activity can be described by removing its temporality. In fact, we may take account of a process, and thus of a dynamic, by examining it only from the perspective of the forces set in motion, the equilibriums and the disequilibriums that are established or removed. In this case, it is an approach that could

be qualified as vectorial by analogy with the works of physicists who examine phenomena by looking at opposing forces.

This atemporal approach to the compositional dynamics – which is not, by the way, the approach adopted by Bronckart – contradicts the approach used by cognitive psychologists who rely on the observation of the temporal progression of the production of writing to model the cognitive architecture, and it also contradicts the approach taken by linguistics who endeavor to reconstitute the genesis of a text. However, it has the merit of attracting attention to a neglected fact by means of the chronometric analyses of the verbal production, i.e. the cognitive processes at work in the production of writing and the linguistic operations do not have an identical relationship with time. The cognitive processes are considered to develop in a definite and measurable time span. We may define them and analyze the temporal waning of the written production (Chanquoy, Foulin, & Fayol 1990; Olive 2011). On the other hand, the linguistic mechanisms, such as mechanisms of anchoring or aspectualization (Adam 2011, 174) are continuous, and the moment that they are produced cannot be isolated. Certainly when examining the production of a child, we easily identify the moment where this mechanism breaks down when a dysfunction appears. This happens, for example, when a written account in the third person suddenly changes and becomes an account written in the first person, most frequently following the insertion of a dialogue that breaks with the linearity of the narrative. However, aside from these exceptional cases, the maintenance, or dissimulation, of an enunciative agency, whether homogenous or heterogeneous, is nevertheless a continuous phenomenon, even if the initial choice of this agency can be localized (Rabatel 2012).

In the examination of the temporality of writing, we must take into account not only the succession or the recursion of the phenomena, but also the fact that certain phenomena are continuous and others are discrete, to take up a distinction belonging to the mathematicians.

3.2   Time of the writer/time of the text

We are putting forward an additional factor to consider in the analysis of the dynamics of writing: the state of the text on which the writer is working (Plane, Alamargot & Lebrave 2010). The text that the writer composes is a an object in a state of change since it is in the process of being elaborated, and the instability of its state is thus a noteworthy element in the act of writing.

The act of producing a text requires the writer to adapt linguistic segments in such a way that their assembly creates "text". To satisfy this condition, this assembly must possess a certain number of properties. Some of these are extrinsic or transitional, that is to say they are more or less dependent on the context in which

the text is received. For example, this is the case for significance, which relies on the capacity of the reader to interpret the text and to construct a representation of its referential content. Others are intrinsic, and thus independent of the actualization that a virtual reader would carry out; these intrinsic properties should be the writer's primary concern (Lundquist 1999; Plane 2006). Among these properties, the most notable are cohesion, which means that the meaning is passed beyond the segments that carry it, and coherence, related to the fact that the text takes an object for itself to represent, and then constructs this representation. However, these properties are only observable in the completed text. While the writer is composing the text, the completed text is of course not yet available; the writer only has a vague, colorless image that will become more precise as the writer finds the words and expressions that complete the rough draft of the text which is still in a state of change. Over the course of writing, the author does not have the necessary means to judge the coherence of the entirety of the text that he or she is writing. This is because the text does not pre-exist its actualization, and this actualization only comes through the process of composition. Even worse, when the text is long, the writer does not work based on the text that is before his or her eyes, but based on the memory of what he or she has composed. This phenomenon explains the referential incoherencies in a certain number of well-written literary works. Thus, despite the great attention given by Flaubert to his text, the color of Madame Bovary's eyes changes over the course of the eponymous novel. In other words, to return to the definition given above, writing is not only adapting linguistic segments among themselves such that their assembly creates a text; rather it is adjusting linguistic segments among themselves and also doing so with a more or less accurate memory of what was already written and in anticipation of the elements that will materialize later (Plane, Rondelli & Vénérin 2014). Indeed, this device evolves during the compositional process since the text develops incrementally and undergoes variations, thus adding a factor that makes the dynamics of writing even more complex.

3.3   Observable time, inaccessible time

The majority of the works that address the dynamics of writing precisely define the time span that is of interest to them. In the works that seek chronometric information, the time span taken into consideration is either determined in advance by the experimental protocol (Leblay 2007; Leblay & Caporossi 2014, 13) or delimited by the recording device: we may consider that writing begins at the moment where the recording starts and that it finishes as soon as the recording stops. In this case, it is most frequently the writer that determines the temporal limits by starting up the computer that is equipped with a means of recording and then by terminating the work session (Leitjen, Van Waes, Schriver & Hayes 2014).

But the analyst may also be interested in a larger time span and include the various moments of preparation leading up to the actual composition process. In this case, the analyst will create a genetic file[3] that contains all of the documents showing that the author – in general, this is a writer – has begun his or her writing project (Grésillon 1994, 107). This file is therefore composed of material elements that allow the analyst to reconstruct the steps taken in a process that can be very long.

Nevertheless, in both cases, the online collection of data and the creation of a genetic file, an important part of the writing process, evades the analyst. The production of a text does not only take place when the author is writing, and not even when documents and notes are being collected to be used for a composition at a later time. It is also made up of the accumulation of discursive fragments, the acquisition of linguistic experience, the product of which crystallizes during composition. The texts that one has read, the speech that one has heard, as well as the discourses that one has produced are the material, even the rough drafts of future texts. Therefore, one part of the composition takes place before the act commonly referred to as composition. When examining the production of a writer, we may very often see how each book is a re-writing of an older book. The same is true for assignments done by pupils and students; each assignment is more or less a re-writing of another assignment. This shows a part of the writing process that takes place before the observable period of composition. Additionally, once the period is added to the final sentence, there is no guarantee that the act of writing will stop: the writer may continue to mentally work on the text that he or she has finished and put away. We could also say that the text continues to work on its author.

4.   Conclusion: Epistemological investigations to pursue

The question of the dynamics of writing is particularly complex because it involves concepts that are difficult to define: time, intention, writing. Here we will pass over the difficulties associated with defining writing since the volume to which this chapter belongs is fully dedicated to these problems. Intention, or rather intentionality, is a subject of debate as much for linguists, as shown by Pétillon (2006), as for philosophers because it brings into play a representation of the subject that is only of interest in certain research paradigms. Time is an immaterial and experiential phenomenon. It is intrinsically continuous and indivisible, but for convenience we cut it into small, measurable units. In other words, beyond the methodological and theoretical difficulties that were mentioned above, we are constrained to the

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3.   In French, such a file is referred to as a "*dossier génétique*". This file contains all of the documents relating to the research and preparation of a writing project (e.g. researched papers and documents, notes, drafts, etc.). The genetic file is part of genetic criticism (mentioned above).

use of imperfect artifacts just in order to consider the idea of the dynamics of writing. The desire to define the dynamics of writing is thus, in a sense, a vain attempt. However, it is also a fruitful means to study the act of writing.

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