Pedro Atã and Joao Queiroz*

Multilevel poetry translation as a problem-solving task

Abstract: Poems are treated by translators as hierarchical multilevel systems. Here we propose the notion of "multilevel poetry translation" to characterize such cases of poetry translation in terms of selection and rebuilding of a multilevel system of constraints across languages. Different levels of a poem correspond to different sets of components that asymmetrically constrain each other (e. g., grammar, lexicon, syntactic construction, prosody, rhythm, typography, etc.). This perspective allows a poem to be approached as a thinking-tool: an "experimental lab" which submits language to unusual conditions and provides a scenario to observe the emergence of new patterns of semiotic behaviour as a result. We describe this operation as a problem-solving task, and exemplify with Augusto de Campos' Portuguese translation of John Donne's poem "The Expiration."

Keywords: poetry translation, multilevel systems, problem solving, hierarchy theory

1 Introduction: The poem as a laboratory

Many authors have defined a poem as a multilevel system of correlations among syntactic, prosodic, rhythmic, and grammatical structures, as well as phonetic, graphic, and visual entities (Jakobson and Pomorska 1988; Campos 1986; Eco 2002a; Greene 2012). It is well known that, according to Jakobson's thesis, "verbal equations" constitute a primary organizing principle in poetry: the constituents (syntactic and morphological categories, the roots, the phonemes, and distinctive marks) are confronted and juxtaposed, placed in "contiguity relationships" according to the "similarity and contrast principle" (Jakobson 1980: 84; see also Jakobson 1959/2000). In this paper, we characterize a poem as a hierarchical multilevel system of constraints (see Figure 1). When dealing with multilevel systems, the focus is on the levels of observation (or organization) of the systems and how they

*Corresponding author: Joao Queiroz, Institute of Arts and Design, Federal University of Juiz de Fora, Juiz de Fora, Brazil, E-mail: queirozj@gmail.com
Pedro Atã, Linnaeus University Centre for Intermedial and Multimodal Studies, Växjö, Sweden, E-mail: ata.pedro.1@gmail.com
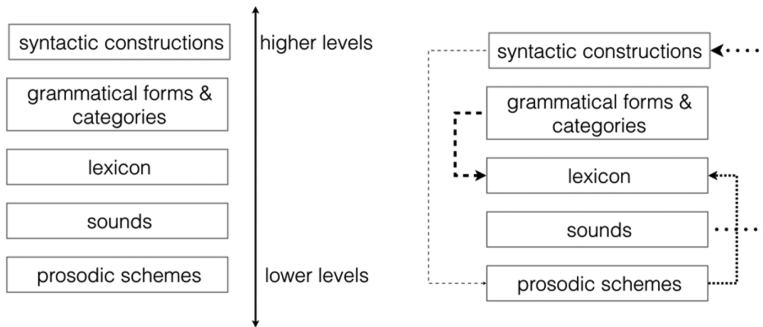
Figure 1: A poem as a multilevel system of constraints.
The first frame shows hierarchical levels of description of a poem, as listed by Jakobson and Pomorska (1988: 103–104). The levels listed are not meant to be exhaustive, and can vary depending on the poem observed (a visual poem, for example, should include a level for visual disposition of graphic elements, another for typography, and so on). The second frame shows a structure of constraints between levels. Each arrow represents a multilevel constraint. Different sizes and types of lines and arrows were used to indicate different kinds and strengths of more or less salient constraints. Any given representation of the multilevel constraints of a poem is not exhaustive: many other different potential constraints can exist. Part of the task of inter- preting, as well as translating, a poem includes choosing some more or less salient constraints as relevant.

constrain (restrain, select, or determine) the behaviour or activity of other levels (Salthe 2009). The notion of hierarchy is closely related to levels of organization (Salthe 2012; Poli 2007). Central to hierarchy theory is the attempt to provide an analytical framework for considering relationships among levels and their arrange- ment in multilevel complex systems (Queiroz and El-Hani 2006). Different levels correspond to different sets of components and processes of a poem which asym- metrically constrain each other: grammar constrains the way the words are syntac- tically arranged, but not the typographic fonts they are written in, for example. Multilevel constraints may vary considerably across different poems.

Multilevel constraints in a poem are often unusual in relation to most common, routine uses of language. According to the multilevel approach we suggest here, a poem is a "laboratory" for performing semiotic experiments that can change the informational character of a language. Poems support and scaffold manipulation of multilevel constraints during their creation as well as their interpretation. A notable example of a tool in the "laboratory" of a poem is the verse, which allows the manipulation of and supersizes the experience of recursive temporal behaviour through patterns of iterative structures (syntactic, grammatical, phonetic, rhythmic) (Jakobson and Pomorska 1988: 74–75; see Eagle 1981).

Our research question is: how to translate this "experimental laboratory?" According to our approach, a translator of a poem performs a problem-solving task in attempt to rebuild a structure of multilevel constrainings.

2 Translation and problem-solving

The cognitive process of translation can be generally described as a problem solving activity (Wilss 1996, 1998; Wotjak 1997; Levý 2000: 149). A problem-solving task possesses a formal structure of problem states organized in a problem space according to rules. Problem solving (Newell and Simon 1972) consists in going from an initial state of a problem to an end state of a problem, according to allowable moves determined by rules. It is not necessary that these rules are explicitly declared: they may also be a consequence of the physical properties of the materials that constitute or that are used in the problem solving task (see Zhang and Norman 1994 for examples of materially-dependent rules in versions of the Tower of Hanoi puzzle). A well-known distinction in problem solving theory is between well- and ill-defined problems. Well-defined problems (such as classical puzzles) possess easily identifiable rules and states, but, more importantly, an unambiguous solution set. On the other hand, an ill-defined problem may have: a varied gradient of adequate solutions, no solution known in advance (and, in this case, part of the task of the solver is to develop what counts as a better answer), and no fixed set of rules (and thus no fixed set of choices, consequences to choices, nor evaluation of choices) (Kirsh 2009: 268).

Poetry translation is an example of an ill-defined problem-solving task highly dependent on the materiality of the artefacts used (the poem). As the Brazilian poet and translator Haroldo de Campos emphasized, the translation of poetry is not centred on the reconstitution of the referential message, but on the "transcreation" (Campos 2007: 315) of several levels of semiotic processes. In a creative translation of poetry, according to Campos, basing himself on Jakobson's notion of poetic function of language and in opposition to the idea of translation as mere "message transmission," we translate the sign itself, its own materiality:

> Of course in a translation of this type not only the signified but also the sign itself is translated, that is, the sign tangible self, it's very materiality (sonorous properties, graphical visual properties all of that which forms, for Charles Morris, the iconicity of the aesthetic sign, when an iconic sign is understood as that which is 'in some degree similar to its denotation'.) The signified, the semantic parameter, becomes just a kind of boundary marker for the "re-creative" enterprise. (Campos 2007: 315)

What does it mean to translate the materiality of a poem? Following the characterization of the poem as a multilevel system of constraints that functions as an "experimental lab" for language experiments, we suggest that to translate the materiality of a poem is to perform a "multilevel translation:" to select a set of multilevel constraints from a poem in a source language and rebuild analogous multilevel constraints in a target language. Put in another words, to translate the materiality of a poem is to replicate, in a target language, a similar scenario used to perform semiotic experiments in the source language.

In the next section we give a more detailed description of the necessary logical steps involved in performing a multilevel translation, exemplifying it with Augusto de Campos' Portuguese translation of John Donne's "The Expiration."

3 Multilevel poetry translation

Multilevel poetry translation is a problem-solving task in which the initial state is the source poem and the end state is a target poem which rebuilds in a target language some chosen multilevel constraints of the source poem. This task involves two logically subsequent phases (which don't need to follow a strict chronological order): (i) selecting for translation the best possible set of multilevel constraints from the source poem and (ii) selecting the best possible way of reconstructing this set of multilevel constraints in the target language. The result of phase (i) has the capacity to significantly alter the problem space of phase (ii). The optimal goal of the translation is the replication, in the target language, of the semiotic experiments performed in the source language by the source poem. This goal provides criteria for the selections performed. In phase (i), *the best possible set of multilevel constraints to be translated* corresponds to the set of multilevel constraints of the source poem which most decisively scaffolds/ embeds the semiotic experiments in the source language. In phase (ii), *the best possible way to reconstruct the previously selected set of constraints* corresponds to an analogous scaffolding/embedding of semiotic experiments in the target language. In order to perform the task phase (i), the translator must manipulate the multilevel constraints of the source poem, performing semiotic experiments in the source language, observing its results, and analysing which constraints of the poem support these results. In order to perform the task phase (ii), the translator must construct rival hypothetical versions of the source poem in the target language and manipulate their multilevel constraints, observing their results and comparing them to the results obtained by the source poem experiment. The structure of the two phases is shown in Tables 1 and 2, below:

Table 1: Phase 1 of the translation problem-solving task.

Multilevel translation problem-solving task – phase 1	
Initial state	The source poem: a "lab" for the performance of semiotic experiments in the source language.
End state	A selected set of multilevel constraints that most decisively scaffolds/embeds semiotic experiments in the source poem.
Intermediate states	Consideration of rival sets of multilevel constraints for translation.
Rules for moving between states	Manipulation of the source poem: performance of semiotic experiments, observation of the results, and analysis of which constraints of the poem support the results.

Table 2: Phase 2 of the translation problem-solving task.

Multilevel translation problem-solving task – phase 2	
Initial state	a selected set of multilevel constraints that most decisively scaffolds/embeds semiotic experiments in the source poem (end state of phase 1)
End state	the target poem: a "lab" that can replicate in the target language semiotic experiments which can be performed in the source language by the source poem
Intermediate states	consideration of rival hypothetical ways of reconstructing the selected set of multilevel constraints from the source poem in the target language
Rules for moving between states	manipulation of rival versions of the target poem: performance of semiotic experiments in each version, observation of the results and comparison of the results with the results of the semiotic experiments in the source language

To exemplify this problem-solving task, we will consider an excerpt of a translation of the poem "The Expiration" by John Donne, realised by the Brazilian poet Augusto de Campos (1986: 75). The source and target poems are shown in Table 3.

Source and target poems correspond respectively to the initial state of phase 1 and the end state of phase 2 of the multilevel translation task. The main multilevel constraints of the source poem selected for translation by Campos go from the semantic level to the phonetic and graphic level, and concern what the author terms a "conceptual equation" (Campos 1986: 75) of "reduplication." On the semantic level, this reduplication refers to lover and beloved mutually echoing themselves in a double death and breath (the expiration). As explained by Campos, this "conceptual equation" (Campos 1986) is "echoed" in the

Table 3: Source and target poems of Augusto de Campos' (1986: 78–79) translation of "The Expiration" by John Donne.

The Expiration (excerpt) – John Donne	A Expiração (excerpt) – Augusto de Campos
So, so, leave off this last lamenting kiss,	Susta ao beijo final a fome de beijar
which sucks two souls, and vapours both away,	que as duas almas suga e a ambas evapora,
turn thou ghost that way, and let me turn this,	e, fantasmas do amor, fantasiados de ar,
and let ourselves benight our happy day;	façamos nós a noite em nosso dia agora;
we ask'd none leave to love; nor will we owe	amar não custou nada, nada vai custar
any, so cheap a death, as saying, Go;	a morte que eu te dou, dizendo: – Vai embora!
go; and if that word have not quite killed thee,	– Vai! Se este som mortal não te matar por fim,
ease me with death, by bidding me go too.	dá-me tal morte então, mandando-me partir.
Oh, if it has, let my word work on me,	Ai! Se matar, que som igual ressoe em mim
and a just office on a murderer do.	E ao matador que eu fui também o mate assim,
Except it be too late, to kill me so,	Se não matar demais, por me fazer sentir
being double dead, going, and bidding, go	dobrada a morte e dor, indo e mandando ir.

phonetic and graphic levels of the poem through several reduplications: of morphemes (so, go/go; go), of close phonemes in alliterative pairs (last lamenting/sucks two souls/turn thou, turn this/leave to love/word work), of repeated graphemes (we owe) and of several graphemes and phonemes involving b/d/g. In the last line ("being double dead, going, and bidding to go"), the double death is spelled out in bb, dd, and gg. Others constraints, such as the structure of rhymes and stanzas, have been applied in the translation activity, obvious from the resulting translation, although they are not referred to by the author in this excerpt.

Campos' selected set of multilevel constraints limits the space of possibilities of the translation tasks, but also suggests new levels that can participate in the multilevel constraining, such as the typographic level: "in my transcreation, I start with a lower-case letter and use fonts in which b and d are mirror-forms to obtain the maximum iconic rendition" (Campos 1986, see Figure 2). The whole

bein**g d**ou**b**le **d**ea**d**, **g**oin**g** an**d b**id**d**in**g**, **g**o

Figure 2: An example of typographic font in which b and d are mirror-forms, the same principle used by Campos in his translation. For Campos, the last line of the poem spells out the reduplication of "breath" and "death" of loved and beloved in bb, dd, and gg. Image adapted from Campos (1986).

Table 4: Phase 1 of the "multilevel translation game" as performed by Augusto de Campos.

The "multilevel translation game" – phase 1	
Initial state	Source poem (whole).
End state	Selection of a structure of constraints between levels of description as relevant for translation, including the "conceptual equation of reduplication" as a constraint from the semantic level to the graphical and phonetic levels.
Intermediate states	Performance of semiotic experiments and identification of relevant multilevel constraints.

Table 5: Phase 2 of the "multilevel translation game" as performed by Augusto de Campos.

The "multilevel translation game" – phase 2	
Initial state	The selected set of multilevel constraints (End state of phase 1).
End state	Target poem (whole), in which the conceptual equation of reduplication constrains the choice of alliterative pairs and morphemes as well as a lower-case typographic font in which b and d are mirror-forms.
Intermediate states	Consideration of rival – but not chosen – solutions for such relation

operation performed by Campos as described above can be modelled as the "multilevel translation game" as shown in Tables 4 and 5.

4 Conclusion

The definition of poetry as an experimental lab designed to investigate unexpected patterns of natural language behaviour has several predecessors (see Jakobson and Pomorska 1988; Eco 2002a, 2002b; Shklovsky 1917/1965: 12), based on the notion of language being a cognitive technology (Clark 2001) and a cognitive artefact (Clark 1998). The metaphor of a "laboratory" stresses that manipulating the multilevel constraints of a poem is a form of "thinking with things." Poets, translators of poetry, and active readers think with verses, rhymes, metrical units, graphic disposition of words, or even the white space of a sheet of paper in the same way that, for Peirce (W 6: 69–70), chemists think with their alembics and cucurbits (Kirsh 2009: 297). The same metaphor also suggests that this thinking with things takes the form of experiments. The idea that agents dealing with poetry perform semiotic experiments and assess their results need to be further explored, and suggests an epistemic function for poetry (and perhaps

for literature and arts in general; see Noë 2015; Bundgaard and Stjernfelt 2015). In our example, Campos' insight that the duplication of morphemes, graphemes, and phonemes observed in the poem is an "echo" of the semantic idea of "double death" in interpreted as the discovery of a multilevel constraint. Strategies for reading the poem (whether silently or aloud), comparing verses, hypothesizing constraints between different levels of the poem, all count as semiotic experiments, in which the agent (experimenter) is employing thinking tools in more or less precise and calculated ways to extract conclusions regarding the informational character of that poem.

Here we have modelled poetry translation as the rebuilding of a multilevel system of constraints. Translation of a poem replicates the ability to perform analogous semiotic experiments in another language. We have identified constraints between levels of descriptions of a poem as the decisive feature that is communicated from source poem to target poem.

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Bionotes

Pedro Atã

Pedro Atã is a Ph.D. candidate at Linnaeus University Centre for Intermedial and Multimodal Studies in Växjö, Sweden. His main research interests include intermediality and multimodality in cognition, and Niche Construction Theory applied to cultural evolution.

Joao Queiroz

Joao Queiroz is a professor at the Institute of Arts and Design, Federal University of Juiz de Fora, Brazil. He is a director member of the Iconicity Research Group (UFJF), member of the Linnaeus University Centre for Intermedial and Multimodal Studies, Vaxjo (Sweden), and associate researcher of the Linguistics and Language Practice Department, University of the Free State (South Africa). His main interests include Cognitive Semiotics, Peirce's philosophy, and Intermedial studies.