

# Music and poetry in the absence of speech: Tomas Tranströmer's *great enigma and a language, but no words* after the stroke

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This article is an extended version of two earlier works. The first, 'Afasia y poesía en Tomas Tranströmer: lenguaje pero no palabras', was presented orally at the 64th Annual Meeting of the SEN, Barcelona 2012; The second, 'A stroke of genius: language but no words. Tomas Tranströmer (Nobel Prize in Literature 2011): In memoriam', appeared in poster format at the World Congress of Neurology held in Santiago de Chile between October and November 2015. Both publications honour the recently deceased Swedish poet who continued writing poetry and playing the piano despite the stroke that let him unable to speak.

## ABSTRACT

**Introduction.** Tomas Tranströmer (Stockholm, 1931-2015) is one of the most widely read poets in the world. Following a stroke in November 1990 he lost his ability to speak and the use of his right hand, but continued writing poems and playing the piano with his left hand.

**Development.** A comparison of Tranströmer's poetry from before and after his stroke reveals a radical reduction in fluency with a loss of what Russian linguist Jakobson calls the syntagmatic axis or 'contiguity'; these features are often altered in Broca's aphasia. We witness a dissolution (a Jacksonian antonym for evolution) into more primitive fundamental stages of language. Articles, prepositions, and narrative disappeared from his discourse, but he preserved other functions related to creating images and finding similarities: Jakobson's 'metaphoric axis', which is typically altered in fluent or Wernicke's aphasia. His already distilled language underwent further reductions post-stroke as he turned to an agrammatical, telegraphic form of poetry, the haiku. Following the stroke, he was able to communicate with the help of his wife Monica and his piano.

**Conclusions.** In 2011, Tranströmer was awarded the Nobel Prize in literature "because, through his translucent, condensed images, he gives us fresh access to reality". He created some of these images thanks to the stroke itself, despite displaying severe aphasia and agraphia. This article is dedicated to the memory of the Scandinavian poet for having contributed to medical humanities and neurology by opening new avenues of communication for the aphasic patient through music and poetry.

## KEYWORDS

Aphasia, Broca, contiguity, agraphia, language, metaphor, neurology, literature, poetry, Tomas Tranströmer

## Introduction

In autumn of 1990, Tomas Tranströmer (Stockholm, 1931-2015) suffered a stroke that resulted in sudden loss of speech accompanied by right hemiparesis. The author had anticipated his own fate in the poem 'Baltics' (*Östersjör*, 1974) with these words:

Then, cerebral hemorrhage: paralysis on the right side  
with aphasia, can grasp only short phrases, says the wrong words

Beyond the reach of eulogy or execration.

But the music's left, he keeps composing in his own style,

for the rest of his days he becomes a medical sensation.<sup>1</sup>

The Swedish Academy awarded Tranströmer the 2011 Nobel Prize for Literature "because, through his condensed, translucent images, he gives us fresh access to reality".<sup>2</sup> These images appear in his earliest verses, from 1954 – "awakening is a parachute jump from the dream"<sup>-1</sup> and remain to the very end: "birds in human shape. The apple trees in blossom. The great enigma".<sup>1</sup> More examples are found in his epic poem *Baltics*, in which he compares shapeless jellyfish out of water to truths taken out of context:

... they drift like flowers after a sea burial, if you take them out of the water their entire form vanishes, as when an indescribable truth is lifted out of silence and formulated into an inert mass, but they are untranslatable, they must stay in their own element.<sup>1</sup>

The previous year's Nobel Prize laureate in literature, Mario Vargas Llosa, gave a lecture in which he stated that "a novel...can change the course of history".<sup>3</sup> In contrast, Tranströmer could hardly utter a word during his own presentation. As with the musician in his poem, a stroke had robbed him of the power of speech forever. Instead, Tranströmer's wife (his voice to the outside world) read an essay in which the poet praised the colossal efforts involved in interpreting and orienting texts in other languages,<sup>4</sup> just as he had once expressed fervent thanks to one of his Spanish-language translators.<sup>5</sup> In a similar vein to Vargas Llosa, and aware of the enormity of his undertaking, Tranströmer expressed a desire to change the course of history with his writings. When he died in the spring of 2015, admirers and friends alike, gripped by a 'Don Quixote syndrome',<sup>6</sup> stated that his works possessed an uncommon and perhaps unintended potential for making readers into better people.<sup>7</sup>

Despite his stroke, Tomas Tranströmer continued playing left-handed piano compositions (Figure 1) and writing poetry. He created language in the absence of speech. Or, to quote one of his earlier poems, he created language but no words. This article is dedicated to the memory of the great Swedish poet, in recognition of his contributions to the humanities in medicine and neurology.

### Development

#### Poetry prior to the stroke

Neatly dividing Tranströmer's poetry into pre-stroke and post-stroke periods is no easy task, even for the author himself. His tendency to retrace his creative steps, revise his work, and rewrite his poems before handing them over to the editor makes this undertaking even more complex. For example, the autobiography of his childhood and adolescence, *Memories look at me*

(*Minnena ser mig*, 1993), ends just when he embarked on his lifelong career as a poet. Tranströmer published the book three years after his stroke, even though he had completed it before 1990.

Tranströmer's last collection to be published prior to his stroke was *For the living and the dead* (*För levande och döda*, 1989); this was also his first anthology to have been translated into Spanish.<sup>8</sup> Since publishing his *17 Poems* (*17 Dikter*) in 1954, he had been presenting new collections about every four years.

In the 25 years of his career post-stroke, he published only two new poetry books, and several of his poems had in fact been written before the stroke. For example, the author had already recited 'April and Silence' when it appeared in 1996 in *The sorrow gondola* (*Sorgegondolen*)<sup>9</sup>:

I am carried in my shadow  
like a violin  
in its black case.<sup>1</sup>

*The great enigma* (*Den stora gåtan*, 2004) was his last poetry collection to be published. This collection consists mainly of haikus, brief poems whose three lines contain five, seven, and then five syllables separated by line breaks; their content is closely related to nature. Tranströmer had in fact already explored this Japanese poetry form in his youth. Although his first haikus appeared in different published works between 2001 and 2008, they were actually written at the beginning of his literary career; he had presented them as New Year's gifts to the director of Hällby Youth Prison, where he worked



Figure 1. The poet playing piano with his left hand

\* Don Quixote syndrome consists of the neuropsychological transformations induced by reading books.

as a psychologist.<sup>10,11</sup> Thanks to Tranströmer's previous experience with haikus, he was able to adapt them to suit his disability, revelling in their agrammatical and telegraphic style and incorporating images springing from the very essence of language.

He had trained as a psychologist, and the neurological references in his body of work include a poem titled 'The house of headache': "There is an ache inside that Gordian knot, the brain, which wants to do so much in so many directions".<sup>1</sup> 'After an attack' is suggestive of a postictal state:

The sick boy.  
 Locked in a vision  
 with his tongue stiff as a horn.  
 ...  
 His glasses are thick like a diver's. And everything  
 is unanswered  
 and vehement like the telephone ringing in the  
 dark.<sup>1</sup>

His output prior to the stroke amounts to 13 books published between 1954 and 1989. These poems are dominated by highly distilled language, masterful use of metaphors, and the portrayal of images related to nature, landscapes, and music. His poetry taps directly into the senses, bringing together the sensations and perceptions that precede language. In the nineteenth century, John Hughlings Jackson (1835-1911), the father of the English school of neurology and one of the leading communicators about our specialty, defined perception as "the termination of a stage beginning by the unconscious or subconscious revival of images".<sup>12</sup>

### The stroke

Tranströmer's stroke occurred in November 1990, nearly two decades after he had written verses inspired by Soviet musician Vissarion Yakovlevich Shebalin (1902-1963); as it happened, his stroke would resemble the cerebrovascular accident suffered by Shebalin in 1959:

Something wants to be said but the words don't  
 agree.  
 Something which can't be said,  
 aphasia,  
 there are no words but perhaps a style  
 ....  
 Then, cerebral hemorrhage: paralysis on the right  
 side  
 with aphasia, can grasp only short phrases, says the  
 wrong words.  
 Beyond the reach of eulogy or execration.

But the music's left, he keeps composing in his own  
 style,  
 for the rest of his days he becomes a medical sensa-  
 tion.<sup>1</sup>

A short time before that, he had completed a series of recordings in which he recited 'April and Silence', which was published in *The Sorrow Gondola*. In this collection, published six years after his stroke (although parts were written before that event), Tranströmer evokes the visit to Venice by Franz Lizst (composer of *La lugubre gondola*) in the company of his son-in-law Richard Wagner. In the spring of 1990, Tranströmer spent a few days with his wife in Venice, where Wagner died and was honoured with a funeral procession beginning by gondola on the Grand Canal. 'The sad gondola' is a poem evoking Tranströmer's own melancholy memories of the stroke and inspired in part by Wagner's tragic end:

1990 again.  
 ...  
 Dreamt that I drew piano keys  
 on the kitchen table. I played on them, silently.  
 The neighbours came in to listen.  
 ...  
 The gondola is heavily laden with life,  
 it is simple and black.<sup>1</sup>

In his letters to the American poet Robert Bly, Tranströmer mentions having had high blood pressure during this time.<sup>10</sup> Their correspondence was interrupted by the stroke. The testimony of a close friend and fellow poet, James Wine, with whom Tranströmer stayed in touch in the last forty years of his life, paints a particularly clear picture of his sequelae (and intact abilities) following the stroke:

Owing surely to skilled care from Monica, a former nurse, Tomas remains quite well. While of course older and more easily tired, he still plays piano almost every day, reads the papers and looks through some favorite books, mostly on music! Amazing how he can sight read a score and play at once. When pushed very hard he will form the word he wants you to get, but mostly he has a small group of phrases that he uses to interject when he needs to be heard! Once years ago he was trying to say something to a group of us, all Swedes but me. Oh was he frustrated. Finally he picked up the pen and wrote 'autumn' in English but what he was voicing was the sound of the word in Swedish: 'höst'. Always wondered at that...

But asking questions that require a yes or no, his pointing out texts or jotting down a word or date, he still communicates. And whether it is on radio or TV, he grasps at once the content, which is easily discernible with jokes or serious news. He reacts at

once. It was incredibly moving to watch the new film<sup>1</sup> with him. He was instantly aware of all the changes from the first version! So, yes, he still communicates, though he does get worn out when we don't quite follow. Monica is incredible at following him and even my wife can often glean the topic. Most of all he still has his great sense of humor and genuine affection for others. A wonderful human being and friend. Tomas and Monica certainly enjoyed your articles! Fresh and insightful. As TT said, "mycket bra!"<sup>2</sup>

### Nonfluent aphasia

Aphasia refers to language loss or alteration caused by brain damage, usually resulting from stroke.<sup>13</sup> Aphasia may affect symbolic aspects of language, such as the use of words and/or phrases as a result of a failure of intrinsic information processing.<sup>14</sup> Aphasia may arise in up to 40% of all stroke cases. It is typically accompanied by some degree of agraphia<sup>15</sup> beyond that caused by loss of hand function (Figure 2). John Hughlings Jackson grouped aphasia cases in two categories: fluent and non-fluent.<sup>12</sup> Nonfluent or Broca's aphasia is characterised by brief sentences and abnormal prosody. Phonological changes and semantic errors are relatively frequent. Syntax is also altered, with patients using more content words than function words and showing difficulty retrieving verbs with a significant semantic load.<sup>16</sup>

The lesions causing aphasias of this type are located anterior to the Rolandic fissure and adjacent to the perisylvian area. The anatomical correlates for severe non-fluent aphasia are the Broca area (Brodmann areas 44 and 45) plus the lower precentral gyrus and subcortical white matter in the rostral subcallosal fasciculus deep to the Broca area or the periventricular white matter adjacent to the left lateral ventricle.<sup>17</sup> Patients with non-fluent aphasia exhibit more difficulty with function words than with content words (nouns). Discourse is moderately preserved; the general idea will be transmitted,<sup>18</sup> as was true in Tranströmer's case. Based on the above, Tranströmer probably exhibited an extensive ventral lesion in the territory of the left middle cerebral artery.

<sup>1</sup> Baltics in Swedish.

<sup>2</sup> "Very good!" in Swedish. The quote has been excerpted directly from my correspondence with James Wine, who requested and read an earlier article before sharing it with Tranströmer himself: "Tomas Tranströmer's stroke of genius: language but no words" (Prog Brain Res. 2013;206:157-67).

### 'Dissolution' of language

Modern neurology would never have developed without the clinico-anatomical method that spread from France throughout Europe during the nineteenth century. The first link established between language and neurology, which also laid the earliest groundwork for neurology as a specialty, was the structural localisation of articulate language on the foot of the left third frontal gyrus. This localisation was discovered in a patient who had experienced severe, sudden-onset non-fluent aphasia and whose autopsy was performed 20 years later by Pierre Paul Broca (1824-1880). Hughlings Jackson's ideas on evolution constitute another fundamental contribution to the concept of neurology as a medical specialty. In the context of evolutionary paradigms ushered in by Karl Gegenbaur (1826-1903) and Charles Darwin (1809-1882), and following the principles of evolutionary philosopher Herbert Spencer (1820-1903), Hughlings Jackson proposed the term 'dissolution' as an antonym of 'evolution', to describe the outcome for a brain that has suffered a lesion. Working like an epileptologist with an interest in neurology, Hughlings Jackson elaborated his neurological theories by observing the clinical progression of certain epileptic seizures (referring here to "experiments made by disease"). He described a type of seizure whose characteristic sequence has been known ever since Jean Martin Charcot (1825-1893) coined the term 'Jacksonian march'<sup>20</sup> from the latter's influential book *A study of convulsions*.<sup>21</sup>

En varm hälsning  
till  
Jim Potts  
från  
Tomas Tranströmer

**Figure 2.** Tranströmer's dedication to the former director of the British Council in Stockholm

Contrasting with or perhaps complementing the localisationist approaches used by Broca and Wernicke, Hughlings Jackson's studies promoted both a functional and a structural view of neurology in which the brain is a complex system that acts as a whole to produce an articulate response to a lesion. With Spencer, Hughlings Jackson proposed a model of the nervous system with three levels of complexity<sup>22</sup>; it was a precursor to the three-part cerebral model with its archicortical brainstem, paleocortical limbic system and basal ganglia, and the more complex, less organised neocortex. Elaborating on Spencer's model, Jacksonian neurology, based on epilepsy, proposed a palate of symptoms each arising from a particular associated structure. The brainstem and spinal cord belonged to the lowest evolutionary level and the intermediate level contained the basal ganglia and the motor region in the precentral gyrus. The most complex, evolutionarily advanced level was the mass situated in the prefrontal neocortical region, or 'organ of the mind'. In the process of dissolution, the more complex and evolved functions, also considered to be the most disorganised, would regress toward more primitive, less evolved, and simpler stages of the nervous system, possessing a higher degree of organisation.<sup>23</sup>

Other clinical observations, also based on the evolutionary paradigm described above, were applied to language disorders. In line with Hughlings Jackson's schema for evolutionist neurology, aphasia would amount to the loss of a function composed by two elements: one positive and the other, negative. The positive element would be the result of disinhibition in structures phylogenetically predating the higher centres of the brain. In the case of aphasia, this would manifest as stereotyped repetition of phrases and/or words with more or less semantic content. Tomas Tranströmer expresses this idea of regression to primitive or essential stages of language using haikus and short poems, such as 'Like being a child'.<sup>1</sup> The difficulty of writing and speaking in a grammatically correct and formal way, and the use of gestures or other more primitive, less complex forms of expression, constitutes the negative element. Writing from this evolutionary perspective, Carlo Alberto Tassinari demonstrated the transient decomposition or 'dissolution' of language, followed by its progressive recovery, in epileptic seizures arising in the dominant hemisphere (once again, Hughlings Jackson's "experiments made by

disease"). In other words, there is a progressive (evolutive) ictal stage with a regressive (dissolutive) postictal stage, and these represent prehistoric milestones in the development of language.<sup>24</sup>

Spanish poet José Hierro (1922-2002) in his 'Prelude' from *Cuaderno de Nueva York (New York Notebook)* also described the first steps in the slow process by which human beings developed articulate language.

After thousands, millions of years  
long after  
the dinosaurs had become extinct,  
he arrived in this place.  
Others like him accompanied him,  
upright like him,  
(like him, probably somewhat stooped).

Beginning with onomatopoeias,  
with monosyllables, grunts,  
he developed a system of sonorous sequences.  
He could thus remember events from the past,  
foretell the future,  
for the present—he was sure— doesn't begin or end  
in itself; rather, it is a point of intersection  
between what has happened and what is about to  
happen,  
a flame between wood and ashes.

The sounds, once familiar, meant  
much more than they had meant  
(they started concentric circles  
—like a stone thrown into the water—  
that multiplied, expanded,  
grew weak until returning to smoothness and sere-  
nity):  
and everyone sensed their mysterious essence  
that they couldn't decipher.<sup>25</sup>

The 'syntagmatic axis' and loss of 'contiguity'

Russian linguist Roman Jakobson (1896-1982) proposed two parallel processes in Broca and Wernicke aphasia on observing that patients affected by predominantly motor aphasia (Broca aphasia) "lose the ability to propositionize.... words endowed with purely grammatical functions, like conjunctions, prepositions, pronouns, and articles, disappear, giving rise to the so-called telegraphic style".<sup>26</sup> In contrast with what occurs in predominantly sensory aphasia (receptive or Wernicke aphasia), the patient loses syntactic structures (Jakobson's 'syntagmatic axis') and 'contiguity' while preserving a thesaurus-like ability to find synonyms and similarities (Jakobson's 'metaphoric axis'). A regression towards childlike stages of language occurs; like Luria,<sup>26</sup> Jakobson also employs the Jacksonian term 'dissolution'.<sup>27</sup>

The grammatical loss caused by non-fluent or Broca aphasia has been examined using the Helm Elicited Language Program for Syntax Stimulation. This instrument proposes constructing sentences of increasing syntactic complexity; to this end, a therapist uses a standard series of drawings representing common activities and providing a verbal description that ends with a question containing a target phrase. As the patient's ability to respond using keywords or target phrases increases, he or she will be asked to complete the story without having heard the target phrase. Some patients with nonfluent aphasia are still able to assimilate a small repertoire of signs, such as those used in American Sign Language. The end goal is to improve the aphasic patient's ability to communicate; on occasions, this may involve use of electronic devices that include an auditory feedback system informing the user of errors after each phoneme.<sup>28</sup>

Some speech therapists treat aphasia by making effective use of such stimulation-facilitation techniques as pointing or gesturing, and matching each word to a drawing. Other objectives are to increase reliability and consistency for yes/no answers by emphasising motor and oral imitation of phonemes, followed by words. Verbal perception for completing words and sentences, contextual perception, and priming to obtain responses also constitute strategies intended to recover phonemes and semantic words. Additional strategies include auditory processing, calculations of pragmatic linguistic and nonlinguistic conversations, psychosocial support, melodic intonation therapy, and other drawing-related techniques including tracing, copying, and completing words.<sup>29</sup> All these strategies are aimed at recovering lost language by building new pathways with which patients will create neural connections using the faculties that remain intact or else relatively well-preserved. Music and drawing, both of which are closely related to poetry, may aid in a patient's recovery.

Tranströmer's verses after his stroke lack syntax and are no longer bound by rules of grammar. Nevertheless, despite the disruption of the 'syntagmatic axis' and the loss of 'contiguity' in language, Tranströmer continued to write exquisite poetry.

#### Music and poetry

Tranströmer's poetry shows the influence of the rhythms of classical music and includes abundant references to

such composers as Haydn, Schubert, Balakirev, Grieg, Wagner, and Liszt, not to mention Shebalin. Music, for Tranströmer, became an essential way of life and a compensatory means of expression; in a way, it also provided a therapeutic means of balancing out the disability caused by his stroke.

Famous composers including Ravel, Richard Strauss, and Prokofiev wrote piano music for the left hand only. In 1928, Maurice Ravel (1875-1937) wrote his *Piano Concerto for the Left Hand in D major* for Paul Wittgenstein (1887-1961), the Austrian pianist who had lost his arm in the First World War, so that he could continue to give concerts. In a twist of fate, the French composer ended his career in music in 1933 at the age of 58, when he developed a neurological disorder characterised by language loss (chronic rather than acute).<sup>30</sup> He may have been affected by a variant of frontotemporal dementia currently known as primary progressive aphasia. Tranströmer was able to utter only a few words, but he could express himself through music and play left-hand pieces composed by Fibich and Mompou. He used these pieces as a form of language, with his piano providing the means of communication.

The brain's relationship with music has been thoroughly studied.<sup>31-33</sup> Beyond any rhyme scheme, the essential ingredients for poetry are musicality, tempo, and rhythm, together with direct communication of emotions by invoking images. In *Schubertiana*, the poet writes:

The endless expanses of the human brain are crumpled  
to the size of a fist...  
And then the wonderful centipedes of his manuscript  
were set in motion.<sup>1</sup>

Multiple studies have reported on the beneficial effects of music on the brain regardless of whether or not a disease is present. Musical training in general, and learning the piano in particular, can change brain structure and function to improve language skills, which provides a useful approach in stroke rehabilitation.<sup>31</sup> Melodic intonation therapy (MIT) is a type of music therapy in which the patient and the therapist sing multisyllabic words and short common phrases according to a melodic line. The therapist pats the patient's left hand to mark each syllable. The therapist's singing or humming is gradually phased out as he or she taps the rhythm. This is an especially useful method for motor aphasia cases

with nonsensical stereotyped language in which comprehension is relatively well-preserved. The Voluntary Control of Involuntary Utterances treatment approach may help patients control speech perseverations and constant intrusions.<sup>35-37</sup>

Melodic intonation therapy requires active participation by the right hemisphere for language production. Visual action therapy is based on body language, whereas functional communication therapy employs extra-linguistic methods of communication using a computer program initially developed for studying and facilitating communication with primate species.<sup>38,39</sup>

The English physicist and musician David Edward Hughes (1831-1900) invented the first printing telegraph system, and he patented it in 1855. Hughes was investigating a mechanism able to transcribe musical notes as a piece was being played, and this gave him the idea of a printing telegraph with a keyboard resembling a piano's. The Hughes telegraph keyboard was the precursor to typewriter and computer keyboards. The first ones in Spain were purchased in 1875 for the railway; shortly after that, Hughes was awarded the Order of Charles III.<sup>40</sup> Each key that was pressed transmitted a signal equivalent to a letter on the printing unit receiving the message. The system was clearly better than using Morse code because it could transmit nearly three times as many words per minute and printed normal alphanumeric characters on a strip of paper attached to the telegraph. As such, it could be delivered directly to its addressee without any need for a telegraph operator to write out the text by hand. The Hughes telegraph, based on piano keys, could potentially be recovered and updated as an instrument for rehabilitating aphasic patients (Figure 3).

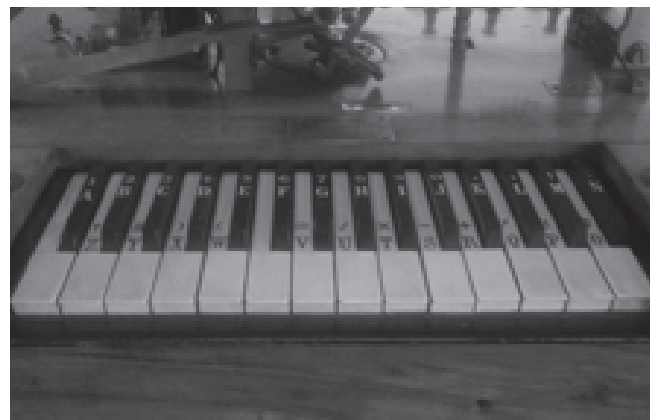
#### Poetry after the stroke: *The great enigma*

Recent functional MRI studies suggest that the areas involved in articulate language differ from those involved in rhyming. In the latter case, the parts of the brain that are activated, such as the dorsolateral prefrontal cortex and the anterior cingulate gyrus, are only indirectly involved in speech.<sup>42</sup> This process, in conjunction with probable compensation provided by a mirror neuron system and cortical reorganisation by means of a series of tasks undertaken by the non-dominant hemisphere, will permit written or non-verbal forms of communication.<sup>43</sup>

When the affected region is Broca's area, much less recovery occurs although patients have been known to improve with the aid of a holistic approach including facilitation, stimulation, or neo-association techniques, among other methods based on relearning or compensation by the non-dominant hemisphere.<sup>43</sup>

After having published his debut poetry book, *17 poems*, Tranströmer would publish additional collections about every four years until his stroke in 1990. He only prepared two books for publication after that, and a large part of the verses they contained had been written before the stroke. His autobiography, *Memories look at me*, was published in 1993, but it was written prior to the stroke nonetheless. Tranströmer was robbed of his ability to speak, and his poetic prose and letters also came to a halt. He then turned to a telegraphic type of poetry, haiku, which he had also explored years before.

His poems already contained highly concentrated language before the stroke, and after that event, they became strikingly brief. Although Tranströmer's haikus did not begin to be published until 2001, the very first ones date back to 1959, when he was the psychologist at Hällby youth prison. He wrote nine haikus that year and sent eight of them to his fellow psychologist and poet Ake Nordin and his wife Ulla as a New Year's greeting. These would not be published until quite some time after his stroke. The Spanish-language edition of *The sorrow gondola* includes several haikus translated by Roberto Mascaró.<sup>41</sup> The haikus appearing in *The great enigma*,



**Figure 3.** Hughes telegraph, 1855. Museo Nacional de Ciencia y Tecnología. City of Arts and Sciences. Valencia, Spain

however, form part of the poems Tranströmer began in 1996 and finished correcting in 2001.<sup>1,11</sup>

In fact, all of the poems in *The great enigma* were written after the stroke. A comparison of these haikus to those written prior to the stroke reveals very few differences, since haikus have no need of syntax and they are essentially an agrammatical and telegraphic style of poetry. From his first collection of haikus, *Prison* (Fängelse, 1959), we find this example:

The boy drinks milk and  
sleeps securely in his cell,  
a mother of stone.<sup>11</sup>

In *The sorrow gondola*, published after the stroke, he wrote:

The night flows westwards  
horizon to horizon  
all at the moon's speed.

*The great enigma*, released at a later date, includes the following haiku; they do not differ linguistically from his earlier offerings.

Stag in blazing sun.  
The flies sew, sew, fasten that  
shadow to the ground.<sup>1</sup>

The November sun  
My enormous shadow swims  
becomes a mirage.<sup>1</sup>

While Tranströmer was never a prolific writer before his stroke, his output suffered a drastic decrease after it. In the words of Niklas Schiöler, Tranströmer became more Tranströmer-like.<sup>3</sup> Tranströmer's 'great enigma' was his ability to create complex language in haiku form even after losing the ability to speak, as in his last published poem:

Birds in human shape.  
The apple trees in blossom  
The great enigma.<sup>1</sup>

## Conclusions

Based on contemporary scientific studies, which in turn are influenced by Jacksonian ideas of neuroevolution, speech therapists and neurologists define language as a complex functional system that depends on the participation of various cortical and subcortical

<sup>3</sup> Comment by the expert and author of a doctoral thesis on the poet and the art of concentrated writing: *Koncentrationens konst. Tomas Tranströmers senare poesi* (1999). Quote also appears in 'Tomas Tranströmer's stroke of genius: language but no words' (Prog Brain Res. 2013;206:157-67).

structures, whose function results from processing taking place both sequentially and in parallel; that is, an articulate system acting as a whole.

Unlike in cases of predominantly sensory aphasia (Wernicke aphasia), the ability to establish metaphors and identify similarities is relatively well-preserved in nonfluent types of aphasia (Broca aphasia).

However, a patient with nonfluent aphasia can only communicate through nonverbal channels, by using body language or communication devices; Tranströmer was able to communicate thanks to his extraordinary wife Monica, as shown by an interview at their home after he had been awarded the Nobel Prize (Figure 4).<sup>2</sup>

These circumstances made Tranströmer a 'medical sensation', the term he so prophetically used in 'Baltics' to describe Russian composer Shebalin who had suffered a similar stroke, but was still able to compose one of his best symphonies.

Tranströmer's great enigma was his success at translating his images and ideas into poetry and creating language without words, as he had no less prophetically announced in From March 1979:

Weary of all who come with words,  
words but no language.  
I make my way to the snow-covered island.  
The untamed has no words.  
The unwritten pages spread out on every side!  
I come upon the tracks of deer in the snow.  
Language but no words.<sup>1</sup>



Figure 4. Interview with the Tranströmers after he was awarded the Nobel Prize



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## Conflicts of interest

The author has no conflicts of interest to declare.

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