

## Solresol Birdsong Translator

*Jim Lloyd 2019*

This project involves building a "Bird Translator" that listens to bird song and translates this to human speech utilising the Solresol musical language of François Sudre (1827). The song is analysed and converted to musical notes (one octave in the scale of C Major: *do-re-me-fa-sol-la-ti*). These seven notes are grouped to form four note "words" which are looked-up in a Solresol-English dictionary. Each note is also assigned a rainbow colour. The system can then output the birdsong, notes, music, translated words and colours in a variety of configurations. The words can be further translated to Enochian – the language of angels developed by John Dee and Edward Kelley in the 16th Century. Text and MIDI (music) files can be saved for further output or processing. The software runs either on a PC or a Raspberry Pi and can use live or recorded bird song.

The work in progress presented here forms part of my art practice-led PhD at Newcastle University School of Arts and Culture funded by the AHRC Northern Bridge Doctoral Training Partnership.

Examples of this work, further information and a copy of this text is available here:  
<https://www.jamesjosephlloyd.com/solresol-bird-translator.html>

## Technical information and acknowledgements

### Solresol dictionary

I used one as originally defined by François Sudre in 1866, Translated by Garrison Osteen in 2011 (see: <https://www.sidosi.org/resources#solresol-pages>). I have edited this to remove different word options (i.e. to give just one meaning per Solresol word) and remove any punctuation and capitalisation. This lists 2660 words and there are actually  $7+(7 \times 7)+(7 \times 7 \times 7)+(7 \times 7 \times 7 \times 7) = 2800$  possible “notewords”, i.e. there are 140 possible that Sudre didn't define; if there is no match a nearby word is selected.

### Software

The software is written using the open source visual programming environment, “Purr Data” by Jonathan Wilkes (<https://puredata.info/>). This is based on Pd-l2ork (by Ico Bukvic) which in turn is based on Pd-extended (by Hans-Christoph Steiner). Pd-extended builds on the core Pure Data copyrighted by Miller Puckette and others. Purr data incorporates several other packages which have been used in particular “GEM” – the Graphics Environment for Multimedia (<https://puredata.info/downloads/gem/>). The pitch analysis is done with the “sigmund.pd” object from Miller Puckette.

### Bird song files

Blackbird: <https://freesound.org/people/squashy555/sounds/341675/> - CC0 Public Domain

Skylark: <https://freesound.org/people/Benboncan/sounds/72752/> - CC BY 3.0

Song Thrush: <https://freesound.org/people/inchadney/sounds/117103/> - CC BY 3.0

Otherwise my recordings using Telinga Pro MK2 mic and parabolic reflector with Zoom f4 recorder.

### Midi Player / sound font

The Pure Data Midi output is sent to the CoolSoft freeware virtualMIDISynth by Claudio Nicora (<https://coolsoft.altervista.org/en/virtualmidisynth>). This uses: the Farfisa piano sound font by Riccardo Loi, the FluidR3 GM bank sound font and the GeneralUser sound font from S Christian Collins (see <http://www.synthfont.com/soundfonts.html> for links to these).

### Text font

The Enochian font is freeware created by the Nu Isis Working Group (<https://www.scribd.com/document/12599187/Nlenoch>). An alternative font used was <https://www.wfonts.com/font/enochian>

### People

I am grateful to my supervisors: Richard Grayson, Irene Brown and Michael Lewis for their guidance and support. John Bowers has also provided valuable insights and encouragement.

# On talking the language of birds (work in progress)

Jim Lloyd 2019

## An essay to accompany the Solresol Bird Translator presentation

The story of the search for the perfect language is the story of a dream and of a series of failures. Yet that is not to say that a story of failures must itself be a failure <sup>1</sup>

One such dreamer was François Sudre who in 1866 published his “*Langue Musicale Universelle*” <sup>2</sup> aiming to create a language for all people of the world. He was influenced by many predecessors who believed that a common language would bring peoples together in civilisation; returning to a state before the fall of the tower of Babel when people lived in harmony and “*the whole earth was of one speech*” (Genesis 11). Inspired by Rousseau <sup>3</sup> who said that “*the first languages were singing*”, he resolved that music was the key to his quest, stating that “*Nature accords all men an intelligence sufficient in all circumstances to comprehend similar sounds*”. His system, known as *Solresol*, uses the seven notes of the C major scale – *do, re, me, fa, sol, la, ti* - in four note groups, to represent words. Despite spending many decades work and much of his own money on the project it faded into obscurity after his death.

Eco <sup>1</sup> points out that a conflation of the concepts of a *perfect* language and a *universal* language was often at the root of the failure of such quests. A perfect language implies an inherent seamless matching between a sign and what is expressed. A universal language implies a set of external signs upon which everyone agrees. There is a conflict here. A perfect language capable of exactly representing our deepest thoughts and every single variation of all objects will be impractical as a universal language since it would require infinite nuance to express every possible thought of every person.

Agamben <sup>4</sup> addresses these issues and one could interpret him to imply that an animal voice is a form of perfect language and that this conflict with the requirement for a universal language will always be present in human discourse. He proposes that a splitting was produced in the voice at the moment we evolved into humans. This was a division between what remained of *animal language* (such as the call of a bird or roar of a lion) and the human language that was developing in its place, external to individuals, as an organ of objective knowledge. Agamben argues that this was the cause of another irreducible splitting that runs through human language. He describes this as the difference between a *musical series* and *semantic series*:

These two series, which *coincided in the animal voice*, separate at each turn and oppose each other in discourse following a twofold and inverse tension, in such a way that their coincidence is impossible and, at the same time, irrevocable. (my emphasis) <sup>4</sup>

With environmental concerns never far from the news, there is much contemporary interest in seeing the world from an animal perspective. Nagel argued <sup>5</sup> that attempting to adopt the sensory apparatus and habits of another creature is incapable of giving us this viewpoint, no matter how advanced our scientific understanding. One could say that what is required instead is for us to understand their voice. In many mythologies understanding the “*language of birds*” <sup>6</sup> gave the initiated great insight, power and knowledge. This understanding was often restricted to special persons such as kings, prophets or shamans. Ingold <sup>7</sup> discusses an example from the Ojibwa people of Northern Canada where certain individuals can understand the speech of the *thunder bird*, which takes on the guise of either a thunder clap or a hawk. Ingold refers to the worldview of the Ojibwa as an example of a “*poetics of dwelling*” and says that, despite its importance to the people, such worldviews are often written off in the West as the outpourings of a primitive mentality. Such myths are seen as being incompatible with a Modern Western scientific outlook – enlightened rationalism sweeps away the old superstitions. The romance of the mystical perfect language is replaced by the practicality of a universal rational scientific one.

A poetical understanding is like Bergson’s concept of *immediate consciousness* <sup>8</sup>, which relates to how things feel to us before we stop to conceptualise them. This contrasts with the *reflective consciousness* that refers to how we think about things using tools such as language, concepts and symbols. He uses the example of a musical melody to illustrate this difference. Even a simple melody must be understood in terms of a continuous movement. If each note is considered statically in turn, then there is no longer a melody; if one note is changed the experience

of the whole melody changes. The direct experience of music is not like that of analysing successive positions, but of comprehending the overall quality of a continually evolving motion. Bergson argues<sup>9</sup> that language alienates us from direct experience. It carves up our experiences into objects designated by words and removes nuance, complexity and qualitative richness. He argues that humans have developed language and science as a necessary means to get to grips with the world and to survive, but he stresses that this knowledge is something extracted from the continual becoming of reality rather than reality itself. The example of the aesthetic pleasure gained from watching a dancer performing with music is very helpful to understand what Bergson is proposing. Our aesthetic feeling comes from an empathy with the dancer's movements and the music. These feelings are pure quality that are changing and interpenetrating and involve a fusion of past, present and future – movements are understood in their *duration*. This feeling is prior to any words or concepts. This type of feeling is the paradigm for inner experience in general.

So, we see the tension between a perfect language and a universal language is reflected in a number of other dualities: inner/outer, immediate/reflective, poetic/scientific, mythical/rational etc. These positions may be reconciled if we follow Ingold's argument<sup>10</sup> and see science as a pursuit of truth, rather than of objectivity. The later requires that we cut all ties with the world whereas the former demands our full and unqualified participation in its continual becoming:

It is a truth that comes not *after* science, in its proud record of discoveries and achievements, but *before* science, in the more humble recognition that we are ourselves beholden, for our very existence, to the world we seek to know. (Italics in original).

Sudre's attempts at creating a universal language may have failed to have any practical value, being "*nothing but the tale of the obstinate pursuit of an impossible dream*"<sup>1</sup>. However, it reminds us of myths, mystics and poets across the ages, seeking the language of birds and angels, with a sense of mystery and wonder at the world. Without this feeling there is no compass to our search for a universal objectivity required for our social survival.

## References

1. Eco, U. (1995) *The search for the perfect language*. Oxford, UK ; Cambridge, Mass., USA: Blackwell.
2. Sudre, F. (1866) *Langue Musicale Universelle*. Paris.
3. Whitwell, D. (2012) 'The Universal Musical Language', in. Available at: <https://i.sidosi.org/resources/la-telephonie/la-telephonie.html>.
4. Agamben, G. (2018) *What is philosophy?* Stanford: Stanford University Press.
5. Nagel, T. (1974) 'What is it like to be a bat', *Philosophical Review*, 83(4), 435-450.
6. Wikipedia (2019) *The language of birds*. Available at: [https://en.wikipedia.org/wiki/Language\\_of\\_the\\_birds#Middle\\_Eastern\\_folklore](https://en.wikipedia.org/wiki/Language_of_the_birds#Middle_Eastern_folklore) (Accessed: 18/08/2019).
7. Ingold, T. (2011) *The perception of the environment: Essays on livelihood, dwelling and skill*. Second edn. Abingdon: Routledge.
8. Bergson, H. (2001) *Time and free will : an essay on the immediate data of consciousness*. Dover publications.
9. Guerlac, S. (2006) *Thinking in Time : An Introduction to Henri Bergson*. Cornell University Press. Available at: <https://www.degruyter.com/doi/book/10.7591/9781501716980>. Available at: <https://www.degruyter.com/doc/cover/9781501716980.jpg>.
10. Ingold, T. (2016) 'From science to art and back again: The pendulum of an anthropologist', *ANUAC*, 5(1), 5-23.