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The Schumann Ciphers: a coda

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... *The proof is complete*
If only I've stated it thrice.
(Lewis Carroll)

In two earlier articles (MT Aug 65 and May 66) I suggested that Schumann not only used enciphered letters in his music but enciphered music in his letters. Here is an excerpt from a letter of July 1834 to Clara Wieck, as quoted in her edition of Schumann's *Jugendbriefe* (Leipzig 1886, p.247):

Ex. 1

Thu nicht von all-ern das Ge-gen-thail
(= Don't do the opposite of everything)

Schumann's prodigious output of letters, articles and other writings contains only about ten snippets like Ex. 1, and almost all of them are explicitly offered by Schumann as examples of music-cipher. This one may not be quite so obvious; but why should it be an exception?

It is taken from a likely source of secret communication; a playful billet-doux. It happens that enciphered lovers' vows may find themselves broken before long. They yield rather easily, to the "probable phrase" method. This means deciding, for good reasons, that a particular word or phrase is likely to occur in a given message, and then trying it out to see how it works. No phrase could well be more probable, in a letter written by a young man to his future wife, than "I love you". Yet the words used speak of *the opposite*.

This letter is in fact in reply to one¹ about how contrary he is. He stays behind when everyone else has gone, he turns night into day, and day into night; in short, Clara complains, he does the opposite of everything, and she wishes he would stop it. Schumann confirms that this contrariness is indeed a fault of Florestan's. The burden of his queer little melody, "don't do the opposite of everything", looks like an admonition to himself to refrain from being perverse. In it, the words "the opposite" are repeated for emphasis. Only here, in all their voluminous correspondence, is there any special mention of opposites; but in this one exchange the idea turns up 13 times-four times in Clara's letter, nine in Schumann's answer.

Well, we can take a hint. In that case our probable phrase will be "I hate you-meaning of course the opposite". Anyone familiar with Schumann's riddling prose style will be able to assess how plausible that is.

The cipher system to be tested is one discovered in the F sharp minor Sonata, on which Schumann was working at about this time. There he used the musical scale beginning on F, for the key of the piece. To find what scale is being used here it would help to know what key Ex. 1 is supposed to be in Schumann himself tells Clara this: "it's a litany in D sharp minor", he says – which seems if anything rather more convincing as a cipher key than a musical one.

Now we can set out the complete cipher table, thus:

Ex. 2

Row I = b	D	H	A	B	C	E	F	G
Row II = ♯	I	J	K	L	M	N	O	P
Row III = ♯	CH	R	S	T	U	V	W	SCH
	(Q)				--			(X)

¹ LITZMANN, B. *Clara Schumann* (Leipzig 1906) Vol. 1, p.71-2

The theory was that this system was derived from Johann Klüber's cipher manual, *Kryptographik* (Tübingen, 1809). Now, that book gives (p.70) two symbols used in cryptography to signify "this means the *opposite* of what I say". Both are musical signs. The first is a sharp, #. So Schumann might naturally have used as many sharps as possible, to stress the flatness of the contradiction. The second sign given in Klüber as meaning *opposite* is the repeat sign ||::||. So Schumann might also have used repetition to convey the idea of contrariness. That could be why he calls Ex. 1 "a litany", ie a prayer in which the same thing is repeated many times. It could also be why he writes "bis" and adds "etc" at the end, meaning that the last words are to be repeated ad infinitum.

The words he has chosen for this endless repetition are "das Gegenteil" - the opposite.

With all these ritual precautions complete he can now at last venture to add "I hate you" = "Ich hasse Dich" - as follows:

I, from Ex 2 above, is D; or, expressed in terms of sharps, C double-sharp. CH is D #. H is Eb, and hence D# in Schumann's chosen key signature. Klüber says (p.334) that A, if it occurs after H, need not be enciphered. He further says (p.422) that double consonants should be enciphered as single. So the next letter would be S, which is F#. The next, E, would be Bb, and so A# in Schumann's key-signature. The next, D, would be Db, written C#. Finally Klüber lists (p.336, 445) three-letter groups which are common in German, such as "-ich", and should be abbreviated to one symbol, eg in this case to CH or D#.

To sum up. "The opposite of "Ich hasse Dich"" is a probable phrase in its context. Schumann, following Klüber's book, would have enciphered it by using (1) a key of as many sharps as possible, (2, 3, 4) repetitions, as many times as possible; the notes (5) C double-sharp, (6) D#, (7) D# again, (8) F#, (9) A#, (10) C#, (11) D# once more.

Now let us look again at Ex 1 in this light.



It seems a pity about note 10, which ought to be C. And sure enough Schumann's manuscript² shows that, in fact, it was! The fault lies not with his cipher but with the editor of his letters-Clara Schumann, some fifty years later.

What of the first two notes? It is standard practice for a cipher message to begin with some indication of its originator, for example his initials. Schumann's initials were of course E and F, for Eusebius and Florestan, and he often used those letters as a signature. We already know from note 9 that the first note is E; the second is F.

All just coincidence?

² reproduced in BOUOURECHLIEV, A. *Schumann*, German trans Möhring (Hamburg, 1958) back cover; or English trans Bozars (London, 1959), p. 123