

*Heraclitus fr. 10: A Musical Interpretation**

K. M. W. SHIPTON

Fr. 10 is very obscure, even by Heraclitus' standards. There is no general agreement on the text itself, and very different interpretations of the fragment have been proposed. Is the first word συλλάψεις or συνάψεις?¹ What do the succeeding pairs of opposites² mean? How does the final phrase (ἐκ πάντων κ.τ.λ.) fit in with these "opposites"³? More generally what is the fragment as a whole about? Formally, fr. 10 most closely resembles those fragments which describe an initial subject in terms of a series of opposed predicates. But the interpretations advanced so far do not treat fr. 10 as analogous to these apparent parallels. Instead, it is suggested

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that Heraclitus uses the opposed terms of fr. 10 in a manner unique to this fragment.⁴

I hope to cast some light on this obscurity by looking afresh at the term σύναψις. If we consider σύναψις against the background of its cognate form συναφή a new meaning is suggested which is *prima facie* relevant to Heraclitus' doctrine of unity (Sections One and Two). This new interpretation of σύναψις does much to remove our uncertainties about fr. 10. The various pairs of opposites will all make sense, while the final phrase takes on a new appropriateness. Taken as a whole the fragment can now be seen to follow a typically Heraclitean pattern of thought about the unity of the opposites (Sections Three and Four).

Section One: The Subject of fr. 10 — συλλάψεις or συνάψεις?

The MSS are fairly evenly divided between the readings συλλάψεις and συνάψεις with “reputable” support for both.⁵ But since the edition of Kirk, virtually all editors, and most commentators, have preferred to read συλλάψεις.⁶ Kirk's preference for this reading is very largely based on the opinion of Snell⁷ who argues that the Ionic form συλλάψεις would make the more familiar form of συνάψεις a *lectio facilior*. Now it is true that συνάψεις is always a *lectio facilior* in Athens where the α-form of συλλάψεις would be unfamiliar. But συνάψεις is not necessarily always a *lectio facilior* elsewhere, and our ignorance of when the variants arose in antiquity makes Snell's point less attractive than it initially appears to be. There are also a

⁴ Thus there is general agreement, despite much divergence on detailed points, that the opposites of fr. 10 belong to a higher logical category than those of the fragments which are comparable in expression. These fragments (e.g. frs. 60 and 61) discuss some concrete subject (a path, or sea-water) to which the opposite predicates ('up and down', 'safe and harmful') refer. But fr. 10's opposites are treated by commentators as 'topic neutral', with a generality of meaning quite unparalleled by the comparable fragments in Heraclitus.

⁵ Support for *both* readings can be found in the main groups of the *de Mundo* MSS which Lorimer has identified. Thus in the group BCDG, BCG all preserve some form of συνάψεις. And in the group AEHP, AEH support a form of συνάψεις while P has συλλήψεις. It is true that a preponderance of the main MSS favour some συναψ — formation. On the other hand, Apuleius's *de Mundo* seems to follow a συλλάψεις tradition (with Apul. B offering συναπψιας and Apul. V συνληψιας). It therefore looks as if συναψ — and συλλαψ — are ancient variants. Mr. Hussey suggests that at some, possibly early, date some texts of ps. - Ar. *de Mundo* were corrected from some other source for Heraclitus.

⁶ See note 1 above.

⁷ *loc. cit.* note 1 above.

number of difficulties⁸ in συλλάψεις which should make us hesitate to accept this reading without further questioning.

All editors and commentators are agreed that the initial word in fr. 10 must somehow involve the notion of unity or of putting things together. But in the classical period σύλληψις does not have such a connotation. It is used either to refer to the act of physical arrest⁹ or (in Aristotle) to pregnancy. It is only in a later period that σύλληψις may refer to the cognitive act of ‘summing up’ or ‘collecting together’.¹⁰

The term σύναψις on the other hand always has the implication of one thing joining another and appears in this sense in the classical period. Plato used σύναψις quite generally in the *Theaetetus* (195d) to refer to the “fitting

⁸ The difficulties I discuss in this paper are of a general kind and apply to any reading of συλλάψεις. But there is a particular difficulty in Kirk’s own translation of the word which deserves mention here. As Guthrie has duly observed, there is no parallel in the classical period for Kirk’s passive interpretation of συλλάψεις as “things taken together”. Kirk apparently ignores the normal practice in early and classical Greek whereby nouns ending in –ις tend to denote an action or process. Exceptions to this rule do appear in early-ish Greek (cf. p. 115 below) but without clear evidence in the context that there is such an exception in fr. 10 the *onus probandi* is on anyone who assumes that the –ις ending does not refer to a process. Indeed the context of fr. 10 with its list of present active participles in fact suggests that the usual rule is being adhered to. The passive sense suggested by Kirk would normally require the type of ending which connotes a product, viz. –η. In the case of the verb συλλαμβάνειν this would most naturally be found in the cognate noun συλλαβή. It would not be expected in the form σύλλαψις. Kahn, correctly, translates his reading of συλλάψεις by the action-term ‘graspings’.

⁹ σύλληψις has the meaning of ‘arrest’ in Thucydides, Lysias, Aeschines and Polybius.

¹⁰ This late connotation has influenced Kirk’s interpretation of συλλάψεις while Snell too uses the cognitive sense of “taking together”. Marcovich’s “connexions” seems similarly unparalleled in classical Greek, though his criticisms of Kirk’s interpretation of the fragment as a whole seem valid. What the lexicographic evidence *does* suggest is that a “unity” notion based on the verb συλλαμβάνειν would, in the early and Classical period of Greek, be provided by the cognate form συλλαβή. The best evidence here is the quotation from Philolaus preserved by the musical writer Nicomachus (in Jan, *MSG* p. 252.4). In describing the early technical terms used in music by the “most ancient” writers he quotes Philolaus’s use of the term συλλαβά for the musical fourth: ἀρμονίας δὲ μέγεθος συλλαβά καὶ δι’ ὀξεῖαν (= DK 44 B6). Συλλαβά was used, Nicomachus suggests, because the musical fourth was πρώτη . . . σύλληψις φθόγγων συμφώνων. This remark obviously implies that the early writers used the general term for a “collection” or “putting together” to refer specifically to the musical fourth “collection” of notes since that particular interval had a special place amongst intervals in general. And the word for interval or “collection” which those early writers used was συλλαβά, a term which Nicomachus sees as a synonym for his own word σύλληψις. At the time of Heraclitus, therefore, a “unity” term formed from the verb συλλαμβάνειν would be likely to appear as συλλαβή, not σύλληψις.

together” of αἰσθησις and διάνοια. More particularly, it is clear from Aristotle that σύναψις frequently connotes not simply any connection but a connection which involves unity. Thus in *Phys.* 227a10ff, while defining the term συνεχές, Aristotle says λέγω δὲ εἶναι συνεχές ὅταν ταὐτὸ γένηται καὶ ἐν τὸ ἐκατέρου πέρασ οἷς ἄπτονται καὶ . . . συνέχεται. τοῦτο δὲ οὐχ οἷόν τε δυοῖν ὄντων εἶναι τῶν ἐσχάτων. He then introduces the concept of unity: ἐν τούτοις ἐστὶ τὸ συνεχές ἐξ ὧν ἐν τι πέφυκε γίγνεσθαι κατὰ τὴν σύναψιν.

A σύναψις is thus a type of contiguity which involves unity. Although Plato does not explicitly mention the idea of unity it is clear in practice that Plato’s act of cognition, which is what he is concerned to describe in the *Theaetetus*, is in fact a unity composed of the two separate elements of αἰσθησις and διάνοια. Aristotle’s ‘unity’ view of σύναψις is also borne out in the specific uses of σύναψις in astronomy, mathematics and mechanics.¹¹ The conjunction of stars,¹² the meeting of a tangent and the circumference of a circle,¹³ the joining of two levers (whether at the fulcrum or at the point of contact, between the ends of the levers)¹⁴ are all examples of two bodies, or points, coinciding to form a unity out of a plurality.¹⁵

From the point of view of sense, it appears from this evidence that at the time of Heraclitus συνάψεις, and not συλλάψεις, is the appropriate word. We must of course remember that in a writer as inventive in his use of words as Heraclitus¹⁶ lexicographic arguments cannot be conclusive. And it remains true that neither σύλληψις nor σύναψις is actually found before the 5th century B.C. But if we require the sense of ‘unity’ or ‘putting together’ in fr. 10 then the balance of argument must be in favour of σύναψις with its emphasis, throughout its range of application, upon the notion of joining so as to form a unity.

¹¹ Σύναψις is also used by writers on physiology to refer to the connection of parts of the body with each other.

¹² It is used thus by Plato in *Tim* 40c to refer to the conjunction of planets. Taylor *ad loc* argues that Plato refers not merely to a conjunction in the same sign of the zodiac but to a conjunction in the same line of vision, with one body occluding the other. We may compare Heraclitus fr. 103’s observation on the “common place” where the circle begins and ends (echoed by Parmenides fr. 5).

¹³ This problem we know to have interested philosophy not much later than the time of Heraclitus. Protagoras (80 B7) denied that the tangent met the circle at only one point.

¹⁴ Ps.-Ar. *Mechanics* 854a23 and 854a29 uses σύναψις for both these points of contact. Cf. 116 below.

¹⁵ Similarly, the simple ἄψις which first appears in Plato *Parm.* 149a-c again refers to the joining (by contact) of two objects.

¹⁶ See B. Snell, ‘Die Sprache Heraklits’, *Hermes* 61, 1926, 353-81, and H. Jones *loc. cit.*, note 1 above.

Section Two: The Meaning of *συνάψεις* in Fr. 10

a) *Σύναψις* and its cognate *συναφή*

But if *συνάψεις* is the correct reading in fr.10, we are still left with the problem of what precisely Heraclitus meant by the term. There are two general points which may help us here, one positive, one negative. It is clear from fr.51 that the concrete notion of putting a plurality of things together so as to form a unity – a notion involved in virtually all of the usages of the term *σύναψις* – suits Heraclitus' general theory of unity in diversity. However we interpret 51's *παλίντονος*¹⁷ *ἁρμονίη* in detail¹⁸ it is clear that Heraclitus intends this as a general statement of his unity principle. And it is generally agreed that at the time of Heraclitus *ἁρμονίη* will have the concrete sense of “fitting together” or “joining”.¹⁹ It would then be appropriate to find that Heraclitus was interested in the idea of a *σύναψις*. But on the negative side, neither the more general use of *σύναψις* such as we find in Plato's *Thet.* nor the specific usages in areas such as astronomy or mathematics make much sense of the list of predicates which fr.10 associates with the word *συνάψεις*.

Progress may be made, however, if we note the usage of a term cognate to *σύναψις* viz. *συναφή*. The different formations of the two words might seem to argue against interpreting *σύναψις* in the light of *συναφή* since the *-ις* ending suggests a process/action implication, at least in earlier Greek, which the *-η* ending does not. But as we shall see later (p. 122f and nn 44 and 45 below) this is not a hard and fast rule even in the classical period

¹⁷ There is good MSS support for both *παλίντονος* and *παλίντροπος*. In view of Homer's frequent use of *παλίντονος* as an epithet for the bow it seems to me more likely that Heraclitus will repeat this well-known adjective but, as so frequently, refer to another writer's ideas only to show how inadequate they were. For the *παλίντονος ἁρμονίη* which Heraclitus has in mind is both different from, and much more subtle than the *παλίντονος* used of Homer's bow. Heraclitus's views on the *τροπαί* of fire (fr. 31) would encourage the reading *παλίντροπος*. For further arguments in favour of *παλίντονος* see Kirk, *Heraclitus: The Cosmic Fragments*, pp. 211ff.

¹⁸ See in particular Kirk's discussion of the term *op. cit.* note 17, pp. 207ff. Early musical writers such as Philolaus, used the term *ἁρμονίη* to refer to the octave (*cf.* Nicom. *Harm.* 9 in Jan, *MSG* p. 252, and note 48 below). It is just possible that this terminology was used (by Hippasus? Lasus?) by the time of Heraclitus; but such a meaning would have no application to the bow in fr. 51. For a new interpretation of the *ἁρμονίη* structure of the bow and lyre see now J.M. Snyder, 'The Harmonia of Bow and Lyre in Heraclitus fr. 5 (DK)', *Phronesis* 29, 1984, 91-5.

¹⁹ See Kirk, *op. cit.* note 17, p. 208.

where —η and —ις formations from the same verb can appear with identical meanings. If we leave aside, for the moment, these questions of morphology it is *prima facie* plausible to look at the range of meanings for the term συναφή. There is considerable evidence to suggest that the words συναφή and σύναψις very largely overlapped in meaning, with later Greek (certainly from the time of Aristotle onwards) preferring to use the term συναφή.

LSJ distinguishes three main areas of application for the term συναφή: 1) it refers to the idea of a union or connection (in Theophrastus and later writers) and more particularly it may refer to the conjunction of heavenly bodies; 2) it is used to describe any line of junction — where the tangent meets the circle or where the sides of bivalve shells coincide (in Aristotle and later writers); 3) it is a technical term in music to describe the most basic musical σύστημα where two conjunct tetrachords combine to form one musical unit, often the octave (in Aristoxenus and later writers on music).

If we compare this range of usage with that of σύναψις described above it is at once apparent that the two terms largely coincide, with the exception that σύναψις is not found in the musical sense of συναφή. Correspondingly, a number of instances exist where σύναψις and συναφή are used as synonyms. Thus in Ps.Ar. *περὶ ἀτόμων γραμμῶν* 971b17ff the contact between tangent and circle is described as a συναφή: ἡ τοῦ κύκλου τῆς εὐθείας ἄψεται κατὰ πλείω. τῆς γὰρ συναφῆς καὶ ἡ ἐν τῷ κύκλῳ καὶ ἡ ἐν τῇ εὐθείᾳ ἄπτεται καὶ ἀλλήλων. But a few lines further on 971b23ff. states: οὐδὲν . . . διοίσει ἡ σύναψις τῶν στιγμῶν ἐν τῇ εὐθείᾳ καὶ τῇ περιφερεῖ.

Again, in Ps.Ar. *Μηχανικά* where two similar devices, each dependent on the operation of two levers, are described, the terms σύναψις and συναφή are used with apparent indifference. Thus at 854a23 the fulcrum of dental forceps is called a σύναψις: ἡ ὀδοντάγρα δύο μοχλοὶ εἰσιν ἀντικείμενοι, ἐν τῷ ὑπομόχλιον ἔχοντες τὴν σύναψιν τῆς θερμαστρίδος. Precisely the same mechanical arrangement, this time of a pair of nutcrackers, appears at 854a39, but now the term συναφή is used to describe the fulcrum: τὸ . . . ὄργανον ἐκ δύο σύγκειται μοχλῶν, ὑπομόχλιον ἐχόντων τὸ αὐτό, τὴν συναφήν.

On the assumption that both *περὶ ἀτόμων γραμμῶν* and *Μηχανικά* are works produced by the Aristotelian school in the fourth/third centuries B.C. then a certain pattern can be detected in the usages of the terms σύναψις and συναφή: (1) the meanings of συναφή despite their different formation closely overlap; (2) σύναψις occurs earlier than συναφή; (3) Aristotle, and later writers of his school, use the two terms synonymously;

(4) the word σύναψις becomes less popular after Aristotle.

Since the meanings of σύναψις so closely correspond to those of συναφή it seems reasonable to suppose that Greek might also have used σύναψις in the musical sense of συναφή. Moreover, since συναφή as a musical term is only found in later writers, who prefer this formation to that of σύναψις, the possibility at least exists that Greek musical writers of an earlier period may have used σύναψις.

It is therefore worth exploring the musical use of συναφή to see whether it might throw light on Heraclitus's συνάψεις in fr.10. Fr.10's συνάδον καὶ διάδον in particular strongly suggest a musical application and make such an exploration *prima facie* plausible. We begin by considering συναφή as a musical term. We may then examine its applicability to Heraclitus's thought. Finally, we examine the morphological possibility of συνάψεις being used as the equivalent of the musical συναφή.

b) *Musical συναφή*

Writers on musical theory, from Aristoxenus onwards, use the term συναφή to describe what is the most basic structure in Greek harmony — that of the conjunct system of tetrachords. The earliest lyre of which we have any detailed literary evidence is the φόρμιγξ ἑπτάτονος mentioned by Terpander.²⁰ Whether or not the particular tuning of the seven-stringed lyre which Terpander used is the most ancient²¹ it is clear that the lyre worked

²⁰ Terpander, poem 5.

²¹ The 7-stringed lyre itself was very ancient. Winnington-Ingram (in *Mode in Ancient Greek Music*, p. 25f.) suggests that the heptachord itself developed from a tetrachord to which was added another interval of a fourth. But this must have happened at a very early stage of musical development. Nicomachus (in Jan, *MSG* p. 266) even attributes a mythical origin to the heptachord: τὴν λύραν τὴν ἐκ τῆς χελώνης φασὶ τὸν Ἑρμῆν εὐρηκέναι καὶ κατασκευάσαντα ἑπτάχορδον παραδεδωκέναι τὴν μάθησιν τῷ Ὀρφεῖ. Although some sources appear to ascribe the development of the 7-stringed lyre to Terpander (their evidence, however, may well be simply Terpander's own claim ἡμεῖς τοι τετράγην ἀποστέρξαντες αἰοιδᾶν/ἑπτατόνῳ φόρμιγγι νέους κελαδήσομεν ὕμνους *apud* Cleonides (Jan, *MSG* p. 202)), it seems more probable that this development ante-dated Terpander, and that Terpander himself was responsible for altering the notes of the heptachord so as to form an octave. This is suggested by the evidence of ps-Ar. *Problemata* 19.23 and ps-Plut. *de Mundo* 1140f (probably dependent on the 5th C historian Glaucus) where Terpander is credited not with the invention of the 7-stringed lyre but with removing the note τρίτη and adding the note νῆτη so as to form an octave. (The most helpful discussion of these and other relevant passages now appears in A. Barker, *Greek Musical Writings, vol. 1: The Musician and his Art*, p. 43 note 18, p. 198 note 62, p. 208 note 18 and p. 233 note 177.) It is clear from art of the 8th century that a 4-stringed phorminx existed then, while a 5-stringed lyre was also very ancient. Like Terpander's

on the *συνήμμενον* system²² whereby two tetrachords were united by a common note which marked the end of the one and the beginning of the next.

Evidence for this ancient tuning of the lyre is given by Nicomachus (Jan, *MSG* p. 253). In explaining Philolaus's mention of the note *τρίτη* (= DK 44 B6) Nicomachus clearly implies that Philolaus uses the *συνήμμενον* system. But we can go back further than this. For Nicomachus's comments on Philolaus actually state that the *συνήμμενον* system of joining tetrachords was earlier in time than the alternative *διεξεύγμενον* arrangement²³ whereby eight strings were used to cover two tetrachords which had an interval of a tone between the end of the first tetrachord and the beginning of the second. And we have evidence, again from Nicomachus (Jan, *MSG* pp. 244-245), that this *διεξεύγμενον* system was made possible by Pythagoras's introduction of an eighth string.²⁴ Whether or not this really is the true origin of the *διεξεύγμενον* system, it is clear that Nicomachus supposes that the *συνήμμενον* system was known to Pythagoras, whom Heraclitus mentions in several of his fragments.

Although it is not possible to be more precise about its origins it seems certain that the *συνήμμενον* system was the most basic musical arrange-

seven-stringed lyre it probably worked on the *συνήμμενον* system with one tetrachord being defective. It has been suggested that the 5-stringed lyre produced an octave span through the 5 notes *e a b d 'e*) (see references in Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 394 note 38). On the other hand, some sources claim that Pythagoras was the first to introduce an octave system (cf. Nicomachus in Jan, *MSG* p. 244). In general, evidence on ancient tuning is sparse and frequently unclear, with the earliest direct evidence not appearing until Philolaus (quoted by Nicomachus in Jan, *MSG* p. 252 = DK 44 B6). Before then, Olympus is credited (by ps-Plut. *de Musica* 1137aff) with compositions which involved three notes. This is interpreted by Barker *op. cit.* p. 223, note 124 as referring to three notes in each of the tetrachords which together made up the ancient spondeion scale (cf. details of this scale in Barker *op. cit.* p. 255ff). Hippasus (DK 18 A12) knew and studied the numerical ratios of basic concords and Lasus is associated with Hippasus (Jan, *MSG* p. 123) in providing mathematical proofs of *συμφωνία*.

²² cf. Nicomachus (in Jan, *MSG* p. 256 5ff): *τῇ . . . ἀρχαιοτρόπῳ λύρᾳ, τούτεστι τῇ ἑπταχόρδῳ κατὰ συναφὴν ἐκ δύο τετραχόρδων συνεστῶσι.*

²³ *μεμνήσθαι δὲ δεῖ, ὅτι τρίτην νῦν καλεῖ τὴν ἐπὶ τῇ ἑπταχόρδῳ παραμέσῃ, πρὸ τῆς τοῦ διαξευγνύοντος τόνου παρενθέσεως τῆς ἐν ὀκταχόρδῳ.* It is interesting to note that some fifty years after Heraclitus, Philolaus (DK 44 B5) still uses terminology which refers to the *συνήμμενον* system and not to the more recent *διεξεύγμενον* system. Obviously the *συνήμμενον* system is still thought of as the 'standard' method for joining two adjacent tetrachords.

²⁴ Nicomachus (in Jan, *MSG* p. 249) also notes that Pythagoras's 8-string octave could also result from a *συνήμμενον* system where a tetrachord and pentachord shared a note in common.

ment. On the evidence of Nicomachus the system precedes Pythagoras, and this must be the system used by Terpander's seven-stringed lyre.

The earliest definition of the συναφή structure occurs in Aristotle's pupil Aristoxenus who is the first to use the term συναφή in this connection. In section 72 of *Harmonica* (Westphal, *Aristoxenos von Tarent Melik und Rhythmik* vol. 2 p. 42) Aristoxenus describes the joining of tetrachords as follows: τὰ ἐξῆς τετραχόρδα ἢ συνῆπται ἢ διέξευκται καλλείσθω δὲ συναφή μὲν ὅταν δύο τετραχόρδων ἐξῆς μελωδουμένων ὁμοίων κατὰ σχῆμα φθόγγος ἢ ἀνὰ μέσον κοινός. Very similar definitions of the συναφή are put forward by later writers on music. Thus Cleonides (Jan, *MSG* p. 199) defines συναφή in terms of the note shared between the two tetrachords: ἔστι δὲ συναφή μὲν δύο τετραχόρδων ἐξῆς μελωδουμένων ὁμοίων κατὰ σχῆμα φθόγγος κοινός. Bacchius (Jan, *MSG* pp. 301-3) does not directly equate συναφή with the φθόγγος κοινός but instead, like Aristoxenus, describes the circumstances when a συναφή occurs: ὅταν δύο τετραχόρδων ὁμοιοσχημῶν φθόλλος ἐφ' ἐκάτερα κοινωνῇ.

There are three significant features in these accounts of the συναφή structure. The term συναφή may refer to the whole phenomenon, i.e. to the arrangement of two tetrachords with the middle note in common. It may also apply more specifically to the shared note itself. And in either usage, there is an emphasis on the fact that the two tetrachords are arranged in succession.

c) *Musical συναφή and Heraclitus's doctrine of opposites*

All of these features may be paralleled in Heraclitus's doctrine of unity and so make the συναφή structure an apt image for Heraclitus's views. Heraclitus not infrequently lists two opposites, or groups of opposites, claiming that they are connected.²⁵ There are also fragments where unity is expressed in terms of one thing only, most notably those on the λόγος which, like the φθόγγος κοινός of the συναφή, is described as ξυνός.²⁶ Both these features may be seen in fr. 67²⁷ where god, who here represents the idea of unity or connection, is described in terms of a list composed of pairs of successive opposites. Again, the connection or unity which Heraclitus describes is often one which involves a succession (cf. frr. 57, 88 and 126).

²⁵ Cf. frr. 59, 60, 61 and 62.

²⁶ Cf. frr. 2 and 115. Sextus Empiricus, the source for fr. 2, equates the term ξυνός with κοινός (cf. Kirk *op. cit.* note 17, p. 57f).

²⁷ Fr. 67 on Heraclitus's θεός comes in between these two approaches with the opposites being both named individually and identified with one particular object.

Kirk, indeed, takes this connection by succession to be the paradigm example of unity in Heraclitus. Thus all three features of the musical *συναφή* are relevant to Heraclitus' doctrine of unity.

Most interesting of all, however, is the parallelism between the way conjunct tetrachords work and Heraclitus's cosmological doctrine about the unifying role of fire. The musical *συναφή*, at its most basic,²⁸ presents the pattern of two units succeeding each other with an overlap at one point where the note at the end of one tetrachord is also the first note of the next one. Each unit is subdivided into several individual notes. If we ignore the detail that seven notes are involved in the *συναφή* and only five stages²⁹ involved in Heraclitus's system of the changes of fire, then some remarkable similarities exist between the two. Corresponding to the two successive tetrachords Heraclitus has two successive³⁰ paths³¹ of change — from fire to earth and from earth to fire. Like the tetrachords, each path is composed of a number of units: fire, water, earth on the “downwards” path; earth, water, fire on the “upwards” path. On this scheme, earth occupies the same position as the *κοινὸς φθόγγος* between the two tetrachords.

As we have already noted, not all the aspects of the musical *συναφή* can be pressed — besides the different number of stages involved there is also the obvious difference that in the *συναφή* all the notes except the middle one are different. It might not, however, be fanciful to see Heraclitus's return to fire at the end of the “upward” path as parallel to the procedure in the octave *συναφή* (which may have been the standard *συναφή* right from the beginning)³² where the last note is the same as the first, only an octave higher. And whatever small differences of detail exist there are sufficient broad similarities of structure to show that the musical *συναφή* makes a peculiarly apt illustration of Heraclitus's physical doctrine of unity.

There is also a *prima facie* plausibility in suggesting that Heraclitus used a musical image in fr. 10. Even if we disregard reports that he was

²⁸ There were also very complicated structures, involving 11 or more strings, which made use of a number of *συναφαί* connected together.

²⁹ I follow the view that ‘air’ is a Stoic addition to Heraclitus's account of change between the world masses.

³⁰ The precise emphasis which Heraclitus put on change and its frequency remains a moot point. But his description in fr. 31 of fire's ‘turnings’ using a numerical order of ‘first turning’ etc., in itself suggests that change was primarily seen as something successive and not constant. One may also compare fr. 91: *σκιδνησι καὶ πάλιν συναγει*.

³¹ Whether or not fr. 60's *ὁδὸς ἄνω κάτω* should be interpreted cosmologically there are other frr. which make this point explicitly such as fr. 31.

³² See note 21 above.

influenced by the Pythagorean Hippasus³³ who made observations which confirmed the basic musical intervals, his own concern with ἁρμονίη can be seen as a reaction to Pythagorean theory where music played an important part.³⁴ Fr. 54 in particular makes good sense as an attack upon the “obvious” ἁρμονίη which the Pythagoreans literally found in the music of the spheres.³⁵ Moreover, Aristotle interprets Heraclitus’s ἁρμονίη from a musical point of view in *EE* 1235a25, while Apuleius, *de Mundo* 20, which is dependent on ps. Ar. *de Mundo* (the quoting source for fr. 10), gives a purely musical interpretation of fr. 10.³⁶ Heraclitus himself employs an arithmetical ratio parallel to the basic construction of the musical συνᾶφή in fr. 90³⁷ while the Heracliteanising *de victu* (DK 22 C1 18) ascribes an interest in music to Heraclitus in a section containing clear echoes of surviving fragments.

But none of this can help to support a musical interpretation of fr. 10 unless we can show that Heraclitus’s συνάψεις is being used as the equivalent of the term συνᾶφή. Συνᾶφή in its non-musical senses does not occur before Aristotle. As a musical term, it appears only in post-Aristotelian sources. No surviving musical writing uses the term σύναψις. Is it possible to regard Heraclitus’s συνάψεις as equivalent in meaning to the post-Aristotelian musical term συνᾶφή?

d) *Σύναψις as a musical term in Heraclitus*

In general, we would certainly expect by the time of Heraclitus that some term would be in use to describe the phenomenon of the musical συνᾶφή. It is true that the detailed tetrachord analyses of the various ἁρμονίαι (or, as they later became, τόνοι) are typical of the late 5th and early 4th

³³ Cf. DK 22 Ala (Suda). Theophrastus fr. 1 (Diels, *D.G.* p. 475) links Heraclitus with Hippasus in making fire the ἀρχή.

³⁴ Heraclitus echoes many aspects of Pythagorean philosophy, but in a quite novel way. In particular, he develops the ‘Pythagorean’ concepts of λόγος, fire, opposites and harmony. Cf. Burkert’s observation *op. cit.* note 21, p. 291 note 72.

³⁵ For the early, pre-Heraclitean, origin of this doctrine cf. Burkert, *op. cit.* note 21, pp. 355 ff.

³⁶ Sic totius mundi . . . initiorum inter se impares conventus pari nec discordante consensu natura veluti musicam temperavit.

³⁷ Arithmetic and music were closely connected in Greek thought. The musical theorists regarded basic mathematical means (the arithmetic, the geometric and the “sub-contrary”) as parallel to musical ratios. It is interesting to note that just as συνᾶφή can refer to a musical arrangement the similar (in meaning) term δέσμος is used by Plato (*Tim.* 31 c-d) to refer to the geometric mean.

centuries.³⁸ But the importance of the tetrachord structure in Greek music is not merely confined to musical theory. As we saw earlier (pp. 117ff above) the structure of two conjunct tetrachords was a very ancient one, being the most basic arrangement used in tuning the lyre. It was familiar long before the time of Heraclitus.³⁹ In particular, there is evidence to suggest that the most popular⁴⁰ ancient mode – the Dorian mode – was in practice (and not merely in theory) constructed from tetrachords.⁴¹ It is also clear that musical theory began at a fairly early period. Contemporary with, or even earlier than, Heraclitus both Hippasus and Lasus⁴² were investigating musical intervals while Philolaus fr. 6 provides a *terminus ante quem* for the existence of an early school of theorists who had developed their own terminology for the basic musical intervals (cf. p. 117 above). By the time of Plato, there are different schools of musical theorists.⁴³ In view of all this, it would be incredible if the Greek language had not possessed before the time of Aristoxenus a term to describe the most basic structure of Greek music, just as we know they possessed technical terms to describe the musical intervals involved in that structure.

At first sight, the different formation of Heraclitus's σύναψις from the later musical συναφή might seem to argue against an identity of meaning. As we have already briefly noted (p. 115 above) in early and classical Greek verb-derived nouns ending in –ις normally refer to a process or event while those ending in –η tend to refer to products or objects. But this is not an invariable rule, nor is it clear how long Greek continued to practise this distinction of meaning. Thus, if we consider noun formations from ἄπτω/ἄπτομαι, Aeschylus uses the –ις formation ἔφαψις and the –η formations

³⁸ Aristides, however, speaks of two systems of ἁρμονίαι – one the ‘tidy’ Aristoxenian system, but the other an earlier, less systematic, set of scales which he claims to be those mentioned by Plato in *Republic* 397 ff. See Barker, *op. cit.* note 20 above, pp. 165ff.

³⁹ It is clear from *Ion* fr. 5 (DK 36 B5) that in Heraclitus's own life-time, if not before, the lyre had already acquired 11 strings with a greatly increased variety of ἁρμονίαι. *Ion* complains that the 7-stringed lyre was limited to a σπανία μουσα which involved intervals described as διὰ τέσσαρα. This should probably be seen as a reference to the fact that each of the two tetrachords in the simplest συνήμμενον system covered an interval of a fourth.

⁴⁰ cf. the criticism of a young lyre player in Aristophanes *Knights* 985f who refused to tune his lyre to any mode other than the Dorian.

⁴¹ See Winnington-Ingram's account of the Dorian scale, *op. cit.* note 21 above, p. 25f.

⁴² Suda, s.v. Lasus, claims that Lasus was the first to write περὶ μουσικῆς.

⁴³ Pl. *Rep.* 531a ff. Burkert (*op. cit.* note 21 above, p. 372 note 12) also draws attention to Aristotle *Top.* 107^a15 and *Met.* 997^b21.

ἐπάφη and ἀφή as synonyms.⁴⁴ While by the time of Aristotle it becomes impossible to distinguish the implications of σύναψις and συναφή.⁴⁵

It is also clear that musical terminology, like, for that matter, mathematical and philosophical terminology, was very fluid in the early period.⁴⁶ Thus Cleonides cites Terpander for the use of τόνος to refer to a musical note, adding at the same time that τόνος could also be used in no less than three different ways (Jan, *MSG* p. 202.8ff). The Pythagoreans were credited⁴⁷ with using ἁρμονία as a technical term for the octave interval. But we also hear of a different use of ἁρμονία by Lasus and Pratinas⁴⁸ in their discussions of different musical modes.

Given this fluidity,⁴⁹ and the early blurring of the distinction in meaning

⁴⁴ Two passages of Aeschylus are interesting as evidence that – ἀφή and – ἄψις could be used synonymously around the time of Heraclitus. Both concern the eponymous naming of Epaphos. In *Supp.* 16ff: γένος ἡμέτερον τῆς οἰστροδόου/βοὸς ἐξ ἐπαφῆς καὶ ἐπινοίας/Διὸς εὐχόμενον τετέλεσται, ἐπαφή has the active meaning which ἔφαψις has in *Supp.* 40ff where there are many echoes of the earlier passage: ἵνιν τ' ἀνθονόμον τῆς προγόνου/βοὸς ἐξ ἐπινοίας/Ζηνός· ἔφαψιν ἐπωνυμία/δ' ἐπεκράινετο μόρσιμος αἰὼν/εὐλόγως, Ἔπαφον τ' ἐγέννασεν. We may also compare ἔφαψις in *Supp.* 40 ff with the use of ἀφή in *Prom.* 848 ff. (again on Epaphos): ἐνταῦθα δὴ σε Ζεὺς τίθησιν ἔμφρονα/ἐπαφῶν ἀταρβεῖ χειρὶ καὶ θυγῶν μόνον/ἐπώνυμον δὲ τῶν Διὸς γέννημ' ἀφῶν (Weiseler's emendation of the MSS' γεννημάτων) τέξεις χελαινὸν Ἔπαφον. Nor are these isolated examples. If we continue to use Aeschylus as evidence then we may adduce *Supp.* 432 where ἐπιλαβὰς, whose formation suggests the idea of a product, appears instead to refer to a process. While in *Supp.* 935 the simple λαβή similarly refers to a process. Similarly, συλλαβή in *Supp.* 457 can be seen as having an action/process meaning.

⁴⁵ Cf. passages noted on p. 116 above.

⁴⁶ A standard musical terminology was obviously late in developing. It is clear (see in particular Barker, *op. cit.* note 20 above, p. 249 ff.) that the various νόμοι, or modes, developed in the sixth, perhaps even in the seventh, centuries. Yet νόμος is not used as a technical term in music till the fifth century. It appears that each νόμος had its own tuning scheme (ἁρμονία), rhythm, subject matter and number of parts. The ascription to Terpander of a list of kitharodic νόμοι, while probably false, nevertheless suggests that some generic categorising of music existed before the fifth century writers set to work on their technical classifications of different types of ἁρμονία/τόνοι.

⁴⁷ Winnington-Ingram *op. cit.* note 21 above, p. 56 note 1 queries the specifically Pythagorean nature of this usage.

⁴⁸ Lasus (*Poetae Melici Graeci*, no. 702, ed., D. L. Page, Cambridge) and Pratinas (*op. cit.* no. 712 (b)), contemporary with Heraclitus, use ἁρμονία and μουσα in their discussions of different musical modes. The Pythagoreans, on the other hand, used ἁρμονία as a technical term to describe the octave interval.

⁴⁹ It is not clear how early musical terminology became 'fixed'. It is still in a state of flux in Aristotle's time. Thus Iamblichus informs us, in describing the three musical means, that there was a variant terminology for the third mean: the Pythagoreans called it ὑπεραντία, but the associates of Archytas and Hippasus called it ἁρμονική (*Greek Mathematical Works* vol. 1 pp. 110-112, ed. I. Thomas).

between $\text{—}\iota\varsigma$ and $\text{—}\eta$ formation nouns, there seems no insurmountable difficulty in regarding Heraclitus's συνάψεις as a musical term equivalent to the later συναφή .⁵⁰ It may even be that we should interpret the opening words of Aristoxenus's account of conjunct tetrachords⁵¹ as evidence that Aristoxenus was himself responsible for causing συναφή to become the standard technical term.

So far we have seen that συνάψεις is the more appropriate reading in fr. 10 (Section One). We have also seen that the phenomenon of conjunct tetrachords, which later musicologists called a συναφή , was very ancient. Such an interpretation of συνάψεις in fr. 10 would make sense in Heraclitus, while the term συνάψεις itself may readily be accepted as an earlier term for the later preferred form συναφή (Section Two). But none of this can help to support a musical interpretation of fr. 10 unless we can see that συνάψεις , in the musical sense of the later συναφή , fits in with what Heraclitus says in the rest of the fragment. So I turn now to an interpretation of fr. 10 as a whole.

Section Three: Fr. 10 as a musical image

If συνάψεις in fr. 10 refers to the musical system of conjunct tetrachords, then the following list of adjectives should make sense as descriptions of a musical σύναψις . And this indeed is what happens. As we shall see, the pairs of opposites and the concluding phrase of the fragment all have a particularly appropriate relevance to the musical sense of σύναψις .

The first pair of opposites, $\delta\lambda\alpha$ καὶ οὐχ $\delta\lambda\alpha$, makes immediate sense as a precise account of the basic structure of the συναφή where two tetrachords are joined by a common note so as to form one unit. The tetrachords viewed as joined together give a "whole". Viewed as the two separate parts of the structure, however, they are "not whole". $\delta\lambda\alpha$ and οὐχ $\delta\lambda\alpha$ are thus literal, concrete accounts of the physical composition of a συναφή .

The next pair, συμφερόμενον , διαφερόμενον means "there is a coming together" (or "a being brought together") and "there is a coming apart" (or

⁵⁰ It seems that the term συναφή itself could have a variety of implications as a musical term. While it most commonly describes the structure composed of two conjunct tetrachords it also appears in an active sense as the agent which joins the tetrachords. Thus Nicomachus describes three different συναφαί which have the active role of connecting the two successive tetrachords: $\text{συναφὰς δὲ τρεῖς, τὴν τε τὸ ὑπατῶν τῷ μέσων [συνάπτουσιν] καὶ τὴν αὐτὸ τὸ μέσων πρὸς τὸ συνημμένων καὶ τελευταίαν τὴν τὸ διεzeugμένων πρὸς τὸ ὑπερβολαίων}$ (Jan, *MSG* p. 260).

⁵¹ At *Harmonica* Bk. 3, p. 42 (ed. A. von Tarent, *Melik und Rhythmik des Classischen Hellentums*) Aristoxenus begins his account of the συναφή structure with the words: $\text{καλείσθω δὲ συναφή ὅταν . . .}$

“a being brought apart”).⁵² Again, we have an apt description of a musical σύναψις this time with particular relevance to the key⁵³ point of linkage — the middle note or φθόγγος κοινός. The two tetrachords “come together” at that point since the note is common to both. But it is equally true that the middle note unites within itself the two distinct and opposite positions of being both the last note of one tetrachord and the first note of the other. Viewed in this light, the middle note is the point at which the tetrachords ‘pull apart’ with one tetrachord coming to an end and the next one beginning.⁵⁴

On the assumption of a musical σύναψις there is now no embarrassment in taking the succeeding pair συνάδον and διάδον in their obvious musical sense “in harmony” and “out of harmony”.⁵⁵ Once more they have a ready application to the term συνάψεις. It is clear from musical theorists that the Greeks distinguished ‘harmonious’ intervals from ‘inharmonious’ ones.

⁵² We should perhaps take the neuter participles in an abstract sense and not merely as adjectives describing the συνάψεις. Hence my proposed variant translation “there is a coming together” etc. (cf. Parmenides’ use of ἔστι with no expressed subject). I do not see any difficulty *per se* in the case of singular participles after a plural subject — a procedure paralleled in fr. 126 where singulars and plurals are variously used with no apparent difference being intended.

⁵³ This point of junction is such a vital part of the structure that in later writers we find the term συναφή applied to it itself as well as to the structure as a whole. Ps.-Ar. *Prob.* XIX 20 and 36 tells us that the note (in the middle in Terpander’s octave) was so important that it was tuned first and other notes adjusted to fit it.

⁵⁴ In the συναφή the notes at the beginning and end of the tetrachords were regarded as ‘fixed’ while the intervening notes could be varied to suit the particular mode being used. It is just possible that the pair συμφέρομενον, διαφερόμενον would refer to the forming of new intervals (συμφέρομενον) and the corresponding taking apart of ‘old’ intervals (διαφερόμενον). We may compare Nicom. *Harmonica* ch. 5 (in Jan. *MSG* pp. 224-5) where he explains why Pythagoras added an eighth note between the μέση and παραμέση: (He did this) ἵνα μὴ κατὰ συναφὴν ὁ μέσος φθόγγος πρὸς ἀμφοτέρω τὰ ἄκρα ὁ αὐτὸς συγκρινόμενος διαφορουμένην παρέχῃ μόνην τὴν διὰ τεσσάρων συμφωνίαν πρὸς τε τὴν ὑπατὴν καὶ πρὸς τὴν νήτην συγκρινόμενος. Here συγκρινόμενος, which is similar in meaning to συμφέρομενος, is used to describe the combination of two notes — in one case the middle note and the beginning of one tetrachord, in the other the middle note and the end of the other tetrachord. On each occasion the interval of the fourth is produced. I do not regard the fact that ὅλα and οὐχ ὅλα are joined by καὶ whereas the other pairs of words are not as necessarily significant. There is then no need to follow Emlyn Jones *loc. cit.* in taking συμφέρομενον and συνάδον as separate subjects.

⁵⁵ Elsewhere, διάδειν means ‘to contend in singing’. But in view of the same prepositions συν- and δια- being repeated in the first two pairs of words it is natural to suppose that δια- in διάδον has the same meaning as δια- in διαφερόμενον. Later writers use συνῳδία as a synonym for συμφωνία: e.g. Nicom. *Harmonica* ch. 6.11 (in Jan. *MSG* p. 246.9) refers to τὴν διὰ τεσσάρων συνῳδίαν.

The most detailed statement occurs in Cleonides ch. 5 (Jan, *MSG* p. 187 13ff) who distinguishes these two types of interval thus: σύμφωνα ἐστὶ διὰ τεσσάρων, διὰ πέντε, διὰ πασῶν (= octave) καὶ τὰ ὅμοια: διάφωνα . . . τὰ ἐλάττωνα τοῦ διὰ τεσσάρων πάντα καὶ τὰ μεταξύ τῶν συμφώνων πάντα.

If we apply this distinction to the terms συνάδον, διάδον we now find Heraclitus describing a σύναψις from the point of view of all the various intervals which it contains. The basic σύναψις typically covered an octave while the two main ingredients – the two tetrachords – cover an interval of a fourth⁵⁷ and fifth. Any other intervals fit Cleonides' account of the 'inharmonious'. Thus the words συνάδον, διάδον together cover all the individual notes of the σύναψις by covering the two basic types of interval which it contained.

So far, each of the three pairs of opposites has made excellent sense as a description of the musical σύναψις. A pleasing pattern has also emerged in which the first pair looks at the overall structure of the σύναψις while the second has looked at this structure in more detail drawing attention to the dual role of the key component of the structure – the middle note shared by the two tetrachords. The third pair of opposites has taken this detailed analysis even further with a consideration of all the individual intervals which may be found in the σύναψις.

There remains the final phrase ἐκ πάντων ἓν καὶ ἐξ ἑνὸς πάντα. Since all the rest of the fragment has involved pairs of opposites it seems likely that this will be true of the last phrase as well.⁵⁸ As a general statement of unity the phrase may be compared with fr. 50's ἓν πάντα εἶναι. Grammatically

⁵⁶ Cleonides glosses τὰ ἐλάττωνα with δίσεις, ἡμτόνιον, τόνος, δίτονον – all of these being intervals smaller than the fourth which covers two and a half tones. Those which are μεταξύ he glosses as τρίτονον, τετράτονον παντάτονον, and τὰ ὅμοια. For the distinction between 'harmonious' and 'inharmonious' intervals we may also compare Aristoxenus, *Harm. Elem.* 2. 45 (Westphal).

⁵⁷ The fourth is a particularly important interval in the musical σύναψις. In the earliest σύναψις/συναφή, before the introduction of Terpander's octave composed of a fourth and a fifth, the interval between the middle note of the conjunct tetrachords and each of the two ends was a fourth (cf. Bacchius 40 in Jan, *MSG* p. 301). In Pythagoras' octave both tetrachords again covered an interval of a fourth (with a disjunctive τόνος between the tetrachords giving the overall octave range).

⁵⁸ Kirk *ad loc.*, following his view that the previous pairs of opposites contrast the divine 'synthetic' view with the human 'diversifying' view, sees this distinction as continuing in the two parts of the final phrase in the fragment. But quite apart from other difficulties (cf. p. 122f above) his interpretation of the expressions introduced by ἐκ/ἐξ is not satisfactory. Kirk takes ἐκ πάντων ἓν and ἐξ ἑνὸς πάντα as expressing people's change of view from 'unity' to 'diversity' and vice versa. But, as Heraclitus often complains, people do not take the 'unity' view at all. Still less do they move from one view to the other.

this phrase in fr. 50 may well imply both that $\xi\nu$ is $\pi\acute{\alpha}\nu\tau\alpha$ and that $\pi\acute{\alpha}\nu\tau\alpha$ is $\xi\nu$. This interpretation is made more probable by the association of fr. 50 in its quoting source with fr. 51 which describes unity in terms of a $\pi\alpha\lambda\acute{\iota}\nu\tau\omicron\nu\omicron\varsigma$ $\acute{\alpha}\rho\mu\omicron\nu\acute{\iota}\eta$. Ἐκ πάντων κ.τ.λ. also fits in well with fr. 90's explanation of unity in terms of fire where fire is "everything" and "everything" is fire. Thus the balance in fr. 10 between ἐκ πάντων ξν and ἐξ ἐνὸς πάντα agrees with other general statements of Heraclitus' unity doctrine.

But the final phrase also has a particular appropriateness within the context of a musical $\sigma\acute{\upsilon}\nu\alpha\psi\iota\varsigma$. The two conjunct tetrachords typically covered an octave and writers on music frequently called the octave $\eta\ \delta\iota\acute{\alpha}\ \pi\alpha\sigma\omega\acute{\nu}$ — the structure which involves all the strings.⁵⁹ The phrase ἐκ πάντων ξν would thus be a suitable way of describing the unity of the $\sigma\acute{\upsilon}\nu\alpha\psi\iota\varsigma$ if thought of in terms of the musical interval which it produced. Correspondingly, ἐξ ἐνὸς πάντα would emphasise that the octave unity included within itself all the individual notes of which it was composed. On this interpretation the transition to the final phrase is much less abrupt than at first appears. It is not merely a general statement, as in fr. 50 or 90, of Heraclitus's doctrine of unity. It is a particular version of that statement — found only here — whose type of expression is suited to the musical image of unity given in the earlier part of the fragment.

Thus a musical interpretation of the term $\sigma\acute{\upsilon}\nu\alpha\psi\iota\varsigma$ makes excellent sense of the fragment. Not only does the obvious musical implication of $\sigma\acute{\upsilon}\nu\acute{\alpha}\delta\omicron\nu$, $\delta\acute{\iota}\acute{\alpha}\delta\omicron\nu$ fit in with this analysis, but all the other pairs of opposites are also readily understood in the light of a musical image. At the same time, the expression of the final phrase takes on a new appropriateness.

Section Four: Retrospect

We have now seen that $\sigma\acute{\upsilon}\nu\alpha\psi\iota\varsigma$, rather than $\sigma\upsilon\lambda\lambda\acute{\alpha}\psi\iota\varsigma$, should be the reading of the first word in fr. 10. Lexicographic arguments point in this direction and, more significantly, $\sigma\acute{\upsilon}\nu\alpha\psi\iota\varsigma$ as a musical term, equivalent to the later $\sigma\acute{\upsilon}\nu\alpha\phi\acute{\eta}$, makes excellent sense. In general, a musical interpretation of the fragment fits in with Heraclitus's cosmology and, in particular, the list of opposed terms, together with the final phrase, are all suitable as part of the musical image.

As a result of this new interpretation, fr. 10 now conforms to one of the basic patterns shown by those fragments which, like fr. 10 itself, discuss

⁵⁹ Thus Nicomachus, in discussing Philolaus (in Jan, *MSG* p. 252) defines $\eta\ \delta\iota\acute{\alpha}\ \pi\alpha\sigma\omega\acute{\nu}$ (which Philolaus calls $\acute{\alpha}\rho\mu\omicron\nu\acute{\iota}\alpha$) as composed of a $\sigma\upsilon\lambda\lambda\alpha\beta\acute{\alpha}$ (fourth) and $\delta\iota'\ \acute{\omicron}\xi\epsilon\iota\acute{\alpha}\nu$ (fifth).

groups of opposites. In general, the fragments which list groups of opposites and claim that they form an essential unity, fall into two main categories. Some of them use “every day” images where some familiar object is described in terms of groups of opposites (as in fr. 59, 60 and 61). Others do not use an image but either state quite simply that opposites are the same (as in fr. 88) or associate opposites with a Heraclitean concept such as θεός (as in fr. 67). Typically, the fragments in the second group do not merely state a unity of opposites but describe how the opposites are connected — in fr. 88 by the process of succession, in fr. 67 by their adherence to a common base which remains throughout change. By contrast, the opposites in the first group can be clearly seen to belong to the object named, and no explanation is required to show that this is the case.

On the traditional view of fr. 10 the fragment has conformed to neither of these patterns. Although commentators tend to note a parallelism between fr. 10 and 67⁶⁰ they insist that the opposites in fr. 10 work quite differently from those in fr. 67. Thus, in the words of Kahn,⁶¹ the opposed terms in fr. 10 are treated as ‘topic neutral’. They are seen as ‘formal features’ which may be attributed to any subject-matter whatsoever. But in all the other fragments where lists of opposites are attributed, as in fr. 10, to some subject,⁶² that subject is quite specific in reference, be it an every-day subject like ‘a road’, or ‘the sea’ in the first group of unity of opposite fragments or a specifically Heraclitean subject as in fr. 67 in the second group where the opposites are attributes of Heraclitus’s god. There is nothing truly comparable to this ‘generalising’ treatment of the opposites which has been suggested in fr. 10.⁶³

⁶⁰ Both Kirk and Kahn make this comparison.

⁶¹ Kahn, *The Art and Thought of Heraclitus* (Cambridge, 1979), p. 283.

⁶² From the time of Snell onwards (cf. note 1 above) συλλάψεις or συνάψεις has been accepted as the subject of the sentence with the opposed terms which follow it being regarded as predicates (see Kirk, p. 175f). The only exception is Marcovich who in his edition of the fragments takes ὅλα κ.τ.λ. as examples of συλλάψεις, and not as predicates. This is not in itself an impossible interpretation, but the parallelism between fr. 10 and fr. 67 in particular leads one naturally to expect ὅλα κ.τ.λ. to act as predicates. Marcovich’s view is partly based on the problem, for those who translate συλλάψεις/συνάψεις as “acts of taking together”, of how to interpret συνάδον/διάδον as predicates. The problem does not arise on my interpretation of fr. 10 where συνάψεις is a concrete term with a specific meaning.

⁶³ Commentators have seen some connection between fr. 10 and the ‘generalising’ fr. 51 with its παλίντονος ἁρμονίη. But the plural συλλάψεις is a trifle odd when interpreted in a generalising way (a point admitted by Kirk). Moreover in view of Pythagorean thought ἁρμονίη in fr. 51 is readily understandable as a ‘generalising’ term. Συλλάψεις is not.

There is a further difficulty in the account of fr. 10 traditionally offered by commentators. Kirk, followed by Guthrie, believes that in this fragment Heraclitus treats the two opposed 'unity in opposition' and 'diversity' views of things as apparently equally valid alternatives.⁶⁴ Yet, as Kirk himself points out, all the fragments which deal with opposites stress the 'unity in opposition' view advocated by Heraclitus himself and treat as inferior the conventional 'diversity' view which concentrates on differences and fails to grasp the hidden unity. Kirk attempts to meet this difficulty by claiming, on no evidence whatsoever, that fragment 10 does in fact imply the superiority of the 'all is one' view, as in fr. 1 and 50, but prefers to state the 'unity in opposition' and 'diversity' views as alternatives. It does this because, according to Kirk, the fragment is reflecting men's attitudes as they swing from a 'unity in opposition' view to a 'diversity' view, and back.

Such an interpretation of fr. 10 would make the fragment even more unusual. There is no indication elsewhere in Heraclitus that men hold both the 'unity in opposition' and the 'diversity' views. On the contrary, whatever the precise wording of fr. 102 was,⁶⁵ it clearly implies that men take the 'diversity' view (only): it is god (and Heraclitus himself) who sees the unity in opposition view.

All these peculiarities make the traditional interpretation of fr. 10 difficult. There is a *prima facie* plausibility in an interpretation which supposes that fr. 10's treatment of both the opposites and the theme of unity conforms to Heraclitus's remarks elsewhere. This is precisely what happens on the view of fr. 10 which I am advocating. It treats the fragment as parallel to those fragments whose style of expression has always been compared to that of fr. 10 viz. the fragments such as fr. 60, which describe some familiar object in terms of 'opposed attributes'. It would readily be agreed by Heraclitus's readers that the 'up and down' road of fr. 60 is 'one and the same' or that the beginning and end of fr. 103's circle is ξυνός. Similarly, Heraclitus's readers would readily appreciate how the conjunction of successive tetrachords could be described in the opposite terms of fr. 10.

In conclusion we may go a little further in placing fr. 10 in the Heraclitean corpus. It is well known that Heraclitus was critical of Pythagoras (he is attacked in fr. 35 40, 81 and 12a) despite his own use of many

⁶⁴ Apart from other difficulties (see below) in Kirk's interpretation, I agree with Marcovich's arguments against Kirk's assumption of a 'human assessor' in fr. 10.

⁶⁵ It is unlikely that the actual wording in fr. 102 is genuine. See the comments in Kirk *ad loc.* and E.L. Hussey, 'Epistemology and Meaning in Heraclitus', p. 50 note 19 (in *Language and Logos: Studies in Ancient Greek Philosophy* edd. M. Schofield and M. C. Nussbaum).

Pythagorean ideas (see above p. 120f). Fr. 10 may well form a part of this criticism. Like Heraclitus, Pythagoras believed that there was a *ἀρμονία* in the world, but he saw this in terms of the obvious harmony of numerical ratios which existed in the basic musical intervals. And, as Plato tells us,⁶⁶ the Pythagoreans concentrated on audible consonances. In fr. 10 Heraclitus draws attention to a similar 'obvious' harmony – that of the musical *σύναψις* structure. But he does this in order to point out the important 'unobvious' harmony within this *σύναψις*, namely the harmony of opposites which is the essential, but hidden, nature of the system of conjunct tetrachords.

By concentrating on 'obvious' harmony the Pythagoreans, like Hesiod and, indeed, the mass of mankind, failed to observe that *ἀρμονία ἀφανής φανερῆς κρείττων* (fr. 54). This *ἀρμονία ἀφανής* is the important philosophical principle which is exemplified by Heraclitus's musical image in the *συνάψεις* of fr. 10.

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⁶⁶ In *Rep.* 530d ff. Plato complains that the Pythagoreans restricted their musical research to seeking numerical properties in audible consonances.