

Colocation and the Stoic Definition of Blending

Reier Helle

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Abstract

This paper considers what function – if any – colocation of bodies may have in the Stoic theory of blending (κρᾶσις), by examining (1) whether colocation is part of the definition of what blending is; and (2) whether colocation is posited by the Stoics as a requirement necessary for the definition to be satisfied. I reconstruct the standard, Chrysippean definition of blending, and I show that the answer to (1) is ‘no’; further, I argue that the evidence gives no reason to affirm (2). Thus, it appears that colocation does not have a central function in the Stoic theory of blending.

Keywords

Stoicism – Stoic physics – Chrysippus – blending – colocation – definition

1 Introduction¹

One of the more contentious issues in the interpretation of Stoic physics concerns the colocation of bodies. Several commentators have thought that the Stoics are committed to the view that multiple bodies may occupy exactly the same place at the same time. Notable among them are the ancient commentators, who treat this as an absurdity on the basis of which the Stoic theory ought to be rejected (see Section 5 below). Of the moderns, some have shared this ancient sentiment; others have argued that Stoic colocation, though unfamiliar and perhaps strange, is not absurd or impossible; and yet others have argued that the Stoics are not committed to colocation, sometimes for the very reason that being so committed would, in the view of these interpreters, be absurd.²

¹ I am grateful to Brad Inwood, Verity Harte, and Jason Carter for helpful comments and questions; to the NYU working group in ancient philosophy and the ancient philosophy group at MUSAΦ, LMU Munich, to whom versions of the argument in this paper were presented; and to an anonymous reviewer for *Phronesis* as well as the Managing Editor, Alexander Long.

² So for instance: Long (1974, 158) and Sedley (1999, 390–1) treat colocation as a paradoxical commitment of Stoic blending. Nolan (2006, 174–5) does not regard colocation as evidently absurd and (somewhat tentatively) interprets Stoic blending as entailing it; Betegh (2016, 410–12) holds that Stoic blending entails colocation, and argues that the Stoics posited certain restrictions reducing its paradoxical character; Marmodoro (2017) and likewise De Harven (2018), argues that colocation is not absurd, and takes it to be a central, explanatorily

It is the Stoic theory of blending (κρᾶσις) which has been alleged to involve colocation. Since blending plays a key role in Stoic physics, as, among other things, the relation by which pneuma and matter combine to compose unified bodies such as animals and plants, it is crucial to determine what function – if any – colocation may have in the theory of blending. So far however, this question has not been addressed precisely or in sufficient detail; nor has it received a clear and convincing answer.

In this paper, I approach this question by way of the Stoic definition of what blending is. Specifically, I consider (1) whether colocation is part of the definition of blending and (2) whether the Stoics posit colocation as a requirement necessary for the definition to be satisfied. Through careful scrutiny of the ancient sources, I will show that colocation is not part of the standard, Chrysippean definition of blending. This means that if blended bodies are colocated with one another on the standard definition, it will be because colocation is a necessary condition of being blended, and not because part of what it is to be blended is to be colocated. However, I will argue that in our sources, it is critics and commentators, not the Stoics themselves, who appear to be concerned with colocation. Further, our best source of evidence for the Stoic theory of blending, Alexander of Aphrodisias, felt the need to argue, in his own voice, that colocation is a consequence of Stoic blending. These facts invite the inference that colocation was not an explicit feature of the Stoics' own theory, even as a mere condition of being blended.

On the standard, Chrysippean theory, blending is defined as a kind of mutual coextension (ἀντιπαρέκτασις) of bodies whole through whole (see Section 4 below). In the scholarly literature, this notion of mutual coextension is regularly interpreted in terms of colocation: by being coextended whole through whole, we should, on this way of thinking, understand that blending bodies are colocated with one another.³ By contrast, I will argue that the relevant relation of mutual

critical part of the Stoic view. Todd (1976) and Lewis (1988) both take colocation to be paradoxical and argue that the Stoics are not committed to it; Long and Sedley (1987 vol. 1, 294–5) suggest that Stoic blending should not be thought to involve colocation of bodies, because that would be paradoxical, but instead colocation of 'bodily functions'.

³ See for instance, De Harven 2018; Marmodoro 2017; Betegh 2016, 402–3, 410–12.

coextension is not a kind of colocation, but rather, it seems, a relation of qualitative modification and contact (Section 4); and there is no evidence that the Stoics thought of colocation as a condition for standing in this relation (Section 5).

Thus, if I am right, it turns out that on the standard, Chrysippean theory, blending is not defined in terms of colocation, and we have no reason to think the Stoics laid it down as a requirement for being blended. And so, it will seem that colocation simply did not play a role in this theory of blending, that is, as understood by the Stoics themselves.⁴

This is an important result for the interpretation of Stoic physics. If colocation is not part of the definition of blending nor posited as a requirement on the standard Chrysippean theory, it means that colocation is not needed for understanding what the Stoics sought to do with blending and how. For instance, it is a central purpose of the theory of blending to help explain how pneuma and matter may, by blending with one another, compose a unified body such as an animal or a plant. If blending is not defined in terms of colocation, then we should not expect colocation to play a key role in this explanation; and if colocation was not an explicit part of the theory of blending, even as a necessary condition, we should expect it to play no role at all.

I shall proceed as follows: first, in Section 2, I clarify the relevant notion of colocation and situate it in relation to the Stoic definition of place (τόπος). In Section 3, I articulate precisely which questions I seek to address, and I offer some remarks on the ancient evidence. Next, in Section 4, I reconstruct the standard, Chrysippean definition of what blending is and I argue that colocation is not part of it. And finally, in Section 5, I consider whether the Stoics nevertheless might have posited colocation as a necessary condition of bodies being blended, and I argue that the available evidence suggests not.

⁴ It is a separate question if colocation in fact is entailed by Stoic blending, whether or not the Stoics recognized it. This paper is not addressed to that question; but see Sections 3 and 6 below.

Before I start, let me offer a brief note on the Stoic provenance of the claims I will defend and the evidence I will be using. The best evidence we have regarding Stoic thinking about blending is preserved by Alexander of Aphrodisias in *De Mixtione* (notably in chs. 3–4).⁵ Alexander is clear that this apparently standard account, parts of which we find in other sources as well, belongs to Chrysippus (*De Mix.* 5.26–2, 6.10–9.13). Though there may have been some Stoics who subsequently disagreed with Chrysippus, we do not know on which points they disagreed, and there can be little doubt that our sources for Stoic blending are primarily concerned with a standard Chrysippean account.⁶ It is, of course, possible, maybe even likely, that Chrysippus' account was later refined and/or elaborated; and some of our sources may be including such adjustments. However, we are not in a position to pinpoint when this may be occurring; our evidence paints a remarkably cohesive picture of Stoic thinking that appears to derive, at least for the most part, from Chrysippus. (I have more to say about the evidence in Section 3 below.) It is with this apparently standard, Chrysippean account of blending that I will be concerned in what follows; and like our sources, I will often refer to it simply as 'the Stoic' account/theory.

2 Place and Colocation

We should first specify what is meant by 'colocation'. We may distinguish between 'loose' and 'strict' colocation. Roughly and informally, loose colocation is being in the same place at the same time, whereas strict colocation is being *only* in the same place at the same time. Thus, Marcus and Lucius are loosely colocated with each other when they both are in the Senate house; likewise, when Phaedo visits Socrates in prison, they are loosely colocated. But in neither case do we have strict

⁵ I use Groisard's 2013 edition of the Greek text of *De Mixtione* (*De Mix.*). Passages are cited by page and line numbers in Groisard.

⁶ Notably, Alexander claims that after Chrysippus, certain Stoics, including one Sosigenes, about whom we know very little, came to adopt more Aristotelian views about blending, while others, presumably most, followed Chrysippus (*De Mix.* 6.3–9). We do not know precisely how these Stoics were supposed to have diverged from Chrysippus' thinking. And I register some hesitancy regarding Alexander's report, which looks somewhat tendentious. In any case, none of this affects my argument in what follows. For further discussion, see Groisard 2013, LXXIII–IV, 59–60. For some comments on the evidence for Zeno's thinking, see Mansfeld 1983.

colocation; for Marcus and Lucius are in different areas of the Senate house, and Socrates is lying on the couch while Phaedo is not. By contrast, when one item is strictly colocated with another, there is nowhere where we might find the first or parts of the first, without also finding the second, either wholly or in part. In this sense, everything is strictly (as well as loosely) colocated with itself; and likewise, when Socrates is sitting on the couch, he is strictly colocated with the sitting thing: he is in the same place as it and nowhere else.

We may define these notions more precisely as follows:

Loose colocation: *A* is loosely colocated with *B* at time *t* just in case at *t* there is a place *P* such that *A* is in *P* or has a part that is in *P* and *B* is in *P* or has a part that is in *P*.

Strict colocation: *A* is strictly colocated with *B* at time *t* just in case at *t* there is a place *P* such that *A* is in *P* or has a part that is in *P* and *B* is in *P* or has a part that is in *P*, and for any place *Q*, if *A* is in *Q* or has a part that is in *Q*, then *B* is in *Q* or has a part that is in *Q*.

To have loose colocation by *A* with *B*, we need at least one place *P*, in which we find both *A* and *B*, either wholly or in part, at the same time; and for any such place, we may say that *A* and *B* loosely colocate at that place at that time, like Marcus and Lucius in the senate house. To have strict colocation, by contrast, we need loose colocation and, in addition, that at the time in question there be no place where *A* or its parts are, where *B* or its parts are not also. Roughly, we may say that when *A* is in a place *P* and nowhere else (as a whole or in part) and *B* is in all of *P* (as whole or in part), then *A* is strictly colocated with *B* at *P*.⁷ For instance, when Socrates is sitting on the couch, he is strictly colocated with the sitting thing, at the place precisely matching his circumference.

⁷ The following should be noted: (i) it is customary in contemporary mereology to count an object as part of itself and use the expression ‘proper part’ for parts that are non-identical with the whole of which they are part. The Stoics by contrast, apparently thought of parthood as irreflexive (Sextus Empiricus, *Adversus mathematicos* [M.] 9.336, 11.24 Mutschmann; Stobaeus, *Eclogae* [Ecl.] 1.178.21–179.5 Wachsmuth; Seneca, *Ad Lucilium epistulae morales* [Ep.] 113.4–5). This was likely the generally held view (see Barnes 2011, 439–40). Here and throughout, I use ‘part’ accordingly, for proper parts only. (ii) Loose colocation is symmetric, while strict colocation is not; in addition to loose colocation, strict colocation at some time *t* requires only that *A* and its parts be nowhere other than where *B* and its parts are at *t*; even if *A* is strictly colocated with *B*, *B* may also

It is an uncontroversial and everyday phenomenon that distinct objects and disjoint objects collocate in the loose sense, like Socrates and Phaedo in the prison.⁸ Strict collocation is not so straightforward: although the notion itself is readily intelligible, it is unclear whether there are any cases of strict collocation that do not involve numerically identical objects or objects related as part and whole or by sharing parts, and what such cases would be like. It is particularly controversial whether disjoint bodies could strictly collocate. Could there for instance be a case in which some wine is located only where some water is, all the while neither is part of the other, and there is no part shared between them?⁹

For us, it is strict collocation which is at issue: we are interested in whether and how strict collocation might be involved in the Stoic theory of blending. Specifically, we will be interested in *mutual* strict collocation by disjoint bodies; for blending bodies, on the Stoic view, remain disjoint, and they are blended with one another *whole through whole*.¹⁰ So, we shall examine whether Stoic blending might mean that the blending bodies are all strictly collocated with one another – all and only in the same place – despite being disjoint. But before turning to the theory of blending, let us consider the Stoic notion of place (τόπος) and see if it provides any guidance regarding the possibility of strict collocation for disjoint bodies.

have parts elsewhere at that time, and so not strictly collocate with *A*. To get *mutual* strict collocation, we must add that *B* at the same time is strictly collocated with *A*; for a case where more than two objects are strictly collocated with each other, we say that each of them is strictly collocated with each of the rest. (iii) The temporal indices are to be interpreted such that collocation, whether loose or strict, occurs at a time *t* just in case the objects in question collocate throughout *all of t*; the time is in each case understood to be exact. In what follows, I will frequently suppress the temporal indices for ease of exposition.

⁸ *A* and *B* are disjoint just in case they are numerically distinct, neither is a part of the other, and there is nothing that is part of both.

⁹ See for instance Gilmore 2018; Leonard 2014; Nolan 2006. The issue is sometimes discussed under the heading of *interpenetration*. Roughly, this will in our terms be strict collocation for disjoint objects, by whole or part: *A* interpenetrates *B* just in case *A* and *B* are disjoint and *A* is strictly collocated with *B* or has a part that is. It is convenient in this context to conduct the discussion in terms of strict collocation.

¹⁰ For the claim that blending bodies are disjoint, see Helle 2018, 96–103; some remarks are also offered in Sections 4 and 5 below. My main argument, in Sections 4 and 5, does not rely on the assumption that blending bodies are mereologically disjoint.

Place (τόπος), on the Stoic way of thinking, is a kind of incorporeal; in our sources, it is described together with the two closely related items, void (κενόν) and room (χώρα).¹¹ Our best evidence is found in Stobaeus, *Ecl.* 1.161.8–11. Here is how Chrysippus appears to have defined place:¹²

T1 And place Chrysippus declared to be that which is occupied through the whole by being, or that which is capable of being occupied by being and which is occupied through the whole either by some [being] or by some [beings].¹³

Place is defined in terms of occupation by beings (ὄντα), which on the Stoic way of thinking will be bodies. The occupation relation (κατέχειν/κατέχεσθαι) is apparently taken as a primitive. Thus, place is simply that incorporeal which is fully occupied by being (body) or more expansively, the one which can be occupied by being and is fully so occupied. By contrast, void (κενόν) is defined as what can be occupied by being but is entirely unoccupied; and room is, roughly, that which can be occupied by being and is in part so occupied (Stobaeus, *Ecl.* 1.161.8–26, SVF 2.503; Sextus Empiricus, *M* 10.3; Aetius, *Placita* I.20.1, SVF 2.504).¹⁴

There are two points of detail to note. First, in T1 ‘being occupied’ is clearly not taken to mean ‘being *wholly/fully* occupied’; otherwise there would be no need to specify that place is that which is occupied *through the whole* (δι’ ὅλου). It appears rather to mean ‘being occupied *at least in part*’. Secondly, there is no reason, as far as I can see, to suppose that what occupies must be doing

¹¹ For discussions of these notions, see Inwood 1991 and Powers 2014. On Stoic incorporeals more generally, see for instance Brunschwig 2003; Vogt 2009.

¹² All translations provided are my own.

¹³ τόπον δ' εἶναι ὁ Χρύσιππος ἀπεφαίνετο τὸ κατεχόμενον δι' ὅλου ὑπὸ ὄντος, ἢ τὸ οἶόν <τε> κατέχεσθαι ὑπὸ ὄντος καὶ δι' ὅλου κατεχόμενον εἴτε ὑπὸ τινός <εἴτε> ὑπὸ τινῶν.

¹⁴ There is some unclarity in our evidence regarding room, which may reflect uncertainty on the part of Chrysippus, at least in the writings on which Stobaeus' source is relying in *Ecl.* 1.161.8–26. For present purposes, the difficulty may be passed over.

so *as a whole*. That is to say, Socrates might be occupying the prison (the place delimited by it) by having his foot through the door, and equally he might occupy it by being wholly contained within it; similarly the cosmos will occupy places wholly contained within it, just as it occupies the place that matches its circumference precisely. If this is right, we can straightforwardly produce equivalences for *Loose colocation* and *Strict colocation*, in terms of the Stoic occupation relation.

Loose colocation, Stoic: *A* is loosely colocated with *B* at time *t* just in case at *t* there is a place *P* such that *P* is occupied by *A* and *P* is occupied by *B*.

Strict colocation, Stoic: *A* is strictly colocated with *B* at time *t* just in case at *t* there is a place *P* such that *P* is occupied by *A* and *P* is occupied by *B*, and for any place *Q*, if *Q* is occupied by *A*, then *Q* is occupied by *B*.

Now, does T1 tell us anything about the possibility of strict colocation for disjoint bodies, on the Stoic understanding of place? At first glance, one might think so. Chrysippus' fullest definition states that place is 'that which is capable of being occupied by being and which is occupied through the whole either by some [being] or by some [beings]'. Chrysippus thus plainly allows that one place may be occupied by several bodies at once. One could suppose that this is to make room for strict colocation by disjoint bodies, perhaps with an eye specifically to the theory of blending (cf. Brunschwig 1994, 137; 2003, 214 n. 22; Collette-Dučić and Delcomminette 2006, 53–4).¹⁵ However, unless we already have reason to think Chrysippus is committed to the possibility of strict colocation for such bodies, this supposition is not warranted (and even then it is rather bold). T1 simply allows that multiple

¹⁵ It is worth noting here that the Stoics do not count bodies according to what we regularly call numerical identity. The Stoics distinguish being the same (ταυτόν/ταύτά) and being non-different (οὐχ ἕτερον/ἕτερα), such that it is possible for bodies to be both not the same and not different (Sextus Empiricus, *M* 9.336, 11.24; Seneca, *Ep.* 113.4–5; Stobaeus, *Ecl.* 1.178.21–179.5, LS 28D, part; see also Barnes 2011). The exact details of the Stoic view are difficult, but it seems clear enough that bodies related as part and whole (or, plausibly, by sharing parts) are taken to be the ones that fail to be different even if they are also not the same. For instance, a human being and their soul, are not the same (roughly because they do not have all the same properties), but they are also not different, because the soul is a part of the human being (Seneca, *Ep.* 113.4–5). If the plural in T1 (εἶτε ὑπὸ τινῶν) is meant to indicate numerical distinctness, as it presumably is, then we may not unreasonably suppose that we are in fact talking about disjoint bodies.

bodies can be in the same place; it does not specify loose or strict collocation. For all we are told, a place may be occupied by several bodies in virtue of strict collocation or in virtue of loose collocation.

In fact, it seems to me improbable that strict collocation is at issue here. Loose collocation among disjoint bodies is an evident fact, which anyone's theory of place ought to permit, one way or another.¹⁶ Without specific evidence to suggest the presence of strict collocation, it is more likely that Chrysippus is thinking of cases of loose collocation where several (disjoint) bodies together fill a place: for instance, we may have a place filled by air, Socrates, and Phaedo (cf. Algra 1995, 279 n. 53).

Another reason to think this is that place is distinguished from void and room specifically by being *fully* occupied (void being entirely unoccupied and room being partially occupied). One way for this to happen is for a single body to occupy a place wholly, as Socrates occupies the Socrates-shaped place where he is. Another way is for several bodies to fully occupy a place together, such that if one body were to be removed, there would (all else being equal) be an unoccupied gap. This will be a straightforward case of loose collocation, which helps to specify what place is, by specifying a way to be fully occupied that is clearly and significantly different from being fully occupied by a single body. By contrast, strict collocation does no such thing: if a place is fully occupied by several bodies because they (or their parts) strictly collocate, the place in question will be fully occupied by each body individually (in the sense that it occupies each part of that place); and so strict collocation adds nothing to the specification of place as that which is fully occupied, in contrast to void and room.

¹⁶ Do we know if the Stoics drew and worked with the distinction between loose and strict collocation, that is explicitly and as such? Some evidence that they did may perhaps be derived from Sextus Empiricus. Sextus reports that certain dogmatists distinguish broad (κατὰ πλάτος, ἐν πλάτει) and precise (κατ' ἀκρίβειαν, πρὸς ἀκρίβειαν, also 'according to circumference', κατὰ περιγραφὴν) senses of 'place' (τόπος) (*M* 10.15, 95, 108; *Pyrrhoneae hypotyposes* [*PH*] 3.75 Mutschmann). In the precise sense, a body's place matches its circumference exactly (Socrates will in this sense always be in a Socrates-shaped place, for instance); in the broad sense, no such match is needed, and so in this sense, someone may be said to be in Alexandria for instance (Sextus Empiricus, *M* 10.15, 95). These unnamed dogmatists may well number the Stoics, whose notion of room (χώρα) resembles that of place in the broad sense (Stobaeus, *Ecl.* 1.161.8–26). Sextus' reports do in any case show that the distinction was around and available; indeed, Aristotle is employing roughly this distinction at *Physics* 209a31–209b1, 211a23–9 (cf. Morison 2002, 64–6, 133; Pfeiffer 2018, 93–4). There is only a very short step from distinguishing precise and broad senses of 'place' to distinguishing loose and strict collocation: being loosely collocated will be to be in the same place in the broad sense, whereas strict collocation will be for one thing only to occupy the place that another occupies in the precise sense (cf. Alexander, *Mantissa* 140.10–20 Sharples, T9 below).

Accordingly, there is good reason to think that loose collocation is at issue, not strict collocation. Most likely, it seems to me, Chrysippus had in mind such ordinary cases as when Socrates, Phaedo and the air together occupy a place through the whole.

So T1 does not positively indicate that strict collocation is possible. Does it exclude the possibility? It would do so if we interpreted ‘occupied through the whole’ so that a place’s being occupied through the whole by some bodies, $A_1\dots A_n$, entailed that it is not also occupied by any other bodies. That is, if we understand a place’s being occupied through the whole as meaning that there is room for nothing more in it. This is perhaps not an unreasonable hypothesis at first glance. But there is nothing in T1 that positively recommends it; and there are no other texts that report such a ‘displacement’-understanding of being occupied for the Stoics. There is a less demanding interpretation available, which, all else being equal, should be preferred. On this reading, being wholly occupied just means that there is no part of the place in question which is unoccupied. So if P is wholly occupied by A , then there is no part of P that is not occupied by A , but it does not follow that P is not also occupied by some other body B , nor does it follow that A and the disjoint body B are not strictly colocated at P . In the absence of further evidence, then, there is no reason to think that strict collocation is ruled out by what it is for a place to be fully occupied.

Relatedly, one could wonder if strict collocation is impossible in virtue of what it is to be a body. On some understandings of bodies this would certainly be the case. But there is no reason to think the Stoic understanding should be counted among them. On the Stoic view, body is defined as what is extended in three dimensions with resistance (τὸ τριχῆ διαστατὸν μετὰ ἀντιτυπίας; Galen, *De qualitativibus incorporeis* [*Qual. inc.*] 19.483.13). But resistance here is not a matter of displacing other bodies; rather, it is a matter of being able to take part in causal interactions by means of contact.¹⁷

¹⁷ Hierocles, *Elements of Ethics* 3.56–4.3 Bastianini and Long; Galen, *Qual. inc.* 19.483.13–16 (LS 45F, SVF 2.381, part); Diogenes Laertius 7.135; cf. Powers 2014, 431; Long and Sedley 1987 vol. 1, 273; De Harven 2018, 3–4. Cooper (2009, 97–8) interprets resistance in the Stoic definition of body as (non-‘displacing’) occupation of space; there is, however, to my knowledge no positive evidence to support such an interpretation. The alternative account in terms of causal interaction through contact is well supported and ought to be preferred.

Hence, we should not think that merely by being bodies, some disjoint objects *A* and *B* will not strictly collocate (though some *kinds of bodies* certainly do not do so, such as Bucephalus and Socrates).

It seems then that T1 provides no evidence one way or the other; as far as the definition of place is concerned, strict collocation may be possible for disjoint bodies, and then again it may not – if there turns out to be some independent reason to rule it out.¹⁸ This conclusion, however negative, is not insignificant. For it indicates that the Stoics do not share the concerns of Aristotle regarding place and strict collocation. In defining place, Aristotle takes care to avoid the need for strict collocation by disjoint bodies, which he thinks is impossible. And it is clear enough that his definition of place – roughly, the innermost limit of the surrounding body – treats disjoint bodies as each having their own place.¹⁹ From what we can tell, the Stoic definition of place is neutral on this issue; and there is no suggestion in our texts that they defined place with an eye to strict collocation.

This difference is worth bearing in mind when we turn to the ancient sources for the claim that the Stoics are committed to strict collocation (see Section 5 below). A number of them seem to share Aristotle’s way of thinking of place and thus make assumptions about strict collocation for bodies that are not licensed by the Stoic definition of place or their general understanding of bodies and the occupation relation.

3 Questions and Evidence regarding Collocation

¹⁸ In Section 5 below, I will suggest that the Stoic way of thinking of the individuation of places occupied by bodies makes it difficult to see how disjoint bodies could strictly collocate.

¹⁹ Aristotle’s final definition of place is ‘the primary/first immobile limit of that which surrounds’ (τὸ τοῦ περιέχοντος πέρας ἀκίνητον πρῶτον, τοῦτ’ ἔστιν ὁ τόπος; *Physics* 212a20–1 Ross, my translation). This defines the ‘proper’ place of a body, i.e. the place which contains no more than the body in question (see 209a31–209b1, cf. 211a23–9; Morison 2002, 65–6, 133–4; cf. Pfeiffer 2018, 93–4). For interpretation of the definition, see for instance Morison 2002. (Strict) collocation of bodies is first introduced by Aristotle as an absurd consequence of the supposition that place is a body at *Physics* 209a4–7, then at 212b23–5, he concludes that his favored account of place avoids this result. On Aristotle’s view of collocation, see for instance Pfeiffer 2016; Betegh 2016, 403–6.

We may now, with some precision, articulate several questions regarding collocation and Stoic blending.

- (1) Is strict collocation part of the definition of what blending is?
- (2) Is strict collocation posited by the Stoics as a necessary requirement of bodies being blended?
- (3) Is strict collocation in fact a necessary requirement of bodies being blended, given the Stoic view of blending?

Question (1) is clear enough: if ‘collocation’ in the sense of ‘strict collocation’ or some evident equivalent, such as ‘being (strictly) in the same place’, occurs in the definition, the answer will be ‘yes’; this will also be the answer if some other term occurs, which straightforwardly means, at least in part, ‘strict collocation’. If neither is the case, then the answer shall be ‘no’.

If the Stoics lay down that strict collocation must occur in order for the definition of blending to be satisfied, then we will answer (2) in the affirmative; otherwise not. Thus, if the answer to question (1) is ‘yes’, then the answer to (2) will also be ‘yes’, but not vice versa; it could be that the Stoics did not include strict collocation in the definition of blending, but still posited it as a requirement of blending.

As for (3), the answer here will be ‘yes’ just in case strict collocation is in fact required for some bodies to be blended in the Stoic way – whether the Stoics say so or not. It could be that the Stoics failed to see that strict collocation is required; it could be that they recognized its need, but did not put forward collocation as a requirement for blending, because it was orthogonal to their purposes or for some other reason.

My focus in what follows will be questions (1) and (2). I shall discuss (1) in Section 4 and (2) in Section 5. I will argue that the surviving evidence shows that (1) should be answered in the negative. There is more uncertainty regarding (2), but here too, the most likely answer seems to me to be ‘no’. Question (3) is philosophically interesting and important; but it is less central for understanding what the Stoics themselves sought to do with their theory of blending, and so also for grasping how Stoic

physics more generally is intended to fit together. It will be set aside for the remainder of this discussion.

Let me now give a brief, outline account of how the available evidence pertains to questions (1) and (2).

First, it is possible to reconstruct what seems to have been Chrysippus' definition of blending, which likely (and as far as we know) remained the standard Stoic definition (I do this in Section 4 below). In *De Mix.* chs. 3–4, Alexander of Aphrodisias explicitly claims to report Chrysippus' account of blending and mixing. There is no good reason to doubt Alexander's reliability here; on the contrary, it is confirmed by several other sources, which testify to bits and pieces of what we find in Alexander. The rest of *De Mix.* also provides valuable evidence of the Stoic theory of blending, and as a whole the work is by far our best source of evidence for the Stoic theory; but chs. 3–4 are of particular importance for presenting Chrysippus' account free from objections and the grumbling to which Alexander is prone in discussing the Stoics. This account is not complete, but it contains a detailed definition of blending along with material that helps interpret the key terms of the definition. My main piece of evidence regarding question (1), then, will be Alexander's report in *De Mix.* chs. 3–4. In addition, I will make use of Hierocles, *Elements of Ethics* 3.56–4.53. Hierocles is himself a Stoic (2nd century CE), and in *Elements of Ethics* 3.56–4.53, he presents several features of blending on the (standard) Stoic view and gives a detailed description of soul-body blending. The text offers direct evidence of Stoic thinking, and it can help clarify exactly how the definition reported by Alexander is supposed to be understood.²⁰

²⁰ Hierocles is, of course, writing several centuries after Chrysippus' death; but he is evidently presenting features of what he takes to be the standard Stoic position, that is, the Chrysippean position. And there is no reason to doubt that this is what he is doing. On the contrary, the parallels in *De Mix.* chs. 3–4 provide good evidence that he is. One such parallel – that blending in each case is said to involve παράθεσις δι' ὄλων – is highlighted in Section 4 below; for further details see Helle 2018.

There are a few other texts that claim to report what the Stoics themselves thought or said about blending, and which to one degree or other speak to the definition of blending.²¹ But these texts report nothing that differs substantively from what we find in *De Mix*; most of them are less reliable than Alexander; and they all fall short in precision and level of detail. Indeed, for us here, they are valuable mainly because they say just enough to confirm the accuracy of Alexander's testimony in *De Mix*. chs. 3–4. Besides these, there are texts whose claims about Stoic blending have no clear connection to its definition or do not pretend to report what the Stoics themselves said or thought. Since we have the central evidence from Alexander (and Hierocles), there is no reason to rely on texts of this sort for answering question (1).

When it comes to question (2), the situation is trickier. Since we cannot exclude texts with no clear connection to the definition of Stoic blending, there is potentially a good deal more evidence to take into account. I have not been able to find a single text which explicitly pronounces, in a Stoic voice (direct or indirect), on whether strict collocation is required for being blended. There are texts that say things, in a Stoic voice, which may be interpreted so as to involve strict collocation. Notably, we have several texts reporting that the Stoics hold that blending bodies are (mutually) extended through one another (ἀντιπαρεκτείνεσθαι, παρεκτείνεσθαι, ἐκτείνεσθαι) whole through whole, that they pass through one another (χωρεῖν) whole through whole, that a (much) smaller body may wholly pass through/extend through a larger one – such as the infamous drop of wine through the ocean.²² These claims could be and have been interpreted in terms of strict collocation.²³

On my view, that bodies pass through or mutually extend through one another, whole through whole, does not straightforwardly mean, even in part, that the bodies in question are strictly

²¹ First and foremost, Stobaeus, *Ecl.* 1.153.24–155.14, SVF 2.471; Philo, *De Confusione Linguarum* 184–8 Wendland, SVF 2.472.

²² E.g. Alexander, *De Mix.* 6.25–7.8, 7.18–23, 8.14–22; Diogenes Laertius 7.151; Plutarch, *De Communibus notitiis contra Stoicos* [*Comm. not.*] 1078E Westman; Stobaeus, *Ecl.* 1.153.24–155.14, SVF 2.471; Philo, *De Confusione Linguarum* 184–8, SVF 2.472.

²³ See for instance De Harven 2018, 13–16, 18; Marmodoro 2017, 7–9; Betegh 2016, 402–3, 410–12; Long and Sedley 1987 vol. 1, 293–4.

colocated; these relations are parts of the definition of Stoic blending, but, as we shall see, blending is not thereby defined as a kind of strict collocation. Of course, this is consistent with the claim that strict collocation is entailed by Stoic blending or that the Stoics posited it as a necessary requirement. But to establish either, we should need an independent argument (see Section 5 below).

Moreover, there are texts which (more or less) clearly say that the Stoics are committed to strict collocation, albeit not in a Stoic voice. There are not many texts of this sort. In each case, strict collocation is ascribed to the Stoics as an impossible/absurd consequence of their theory or as a key part of an argument meant to establish commitment to some other supposedly repugnant claim. These are also *the only* texts that clearly talk about strict collocation in connection with the Stoic theory of blending. I will return to them below, in Section 5.

More likely than not, it seems to me, the answer to question (2) is ‘no, the Stoics did not posit strict collocation as a necessary requirement for blending’. The reason is that it is apparently only critics who expressly claim that the Stoics are committed to the strict collocation of blending bodies; there is no indication that the claim is part of the Stoic theory, as understood by the Stoics themselves; and further, as we will see below, our best source, Alexander, felt the need to argue in his own voice that strict collocation is a consequence of what the Stoics say. All of this suggests that strict collocation was not a Stoic requirement, at least as far as our sources knew. However, our evidence is such that we cannot be sure that the Stoics did not in some lost work posit strict collocation as a necessary requirement of blending. But the silence of our sources indicates that, at the very least, strict collocation did not play a central role in Stoic thinking.

In the case of question (1), by contrast, it is possible to give a clear answer with a high degree of certainty (as these things go) – or so I will argue. For it is clear enough, from what Alexander and Hierocles tell us, how Chrysippus and the Stoics define blending, and it does not include strict collocation as a part.

4 Colocation and the Stoic Definition of What Blending Is

Alexander's report of Chrysippus' account of blending is clearly marked in *De Mix*, starting in ch. 3, at 6.10, and running until the end of ch. 4 (9.13).²⁴ We are told what blending is and how it differs from other kinds of mixing in ch. 3; in ch. 4, Alexander reports on how Chrysippus defended this way of thinking. For us, there are two key passages, which together can be seen to yield Chrysippus' definition of blending: *De Mix*. 7.1–8 (T2), and *De Mix*. 7.18–23 (T3).²⁵ Consider first *De Mix*. 7.1–8:

T2 For he [Chrysippus] says that the mutual coextension whole through whole of two or more bodies through one another, in such a way that each of them preserves in this kind of mixing its own substance and the qualities in it, alone among the kinds of mixing is blending; for it is a peculiar characteristic of the [bodies] that have been blended to be able to separate again from one another, which only happens by the blended [bodies] preserving their own natures in the mixing.²⁶

This passage characterizes blending (κράσις) as a certain kind of *mutual coextension*, ἀντιπαρέκτασις, of two or more bodies whole through whole, i.e. the kind which preserves the substance and qualities of the bodies, so that they are able to separate from one another. In this way, blending is differentiated, as a kind of mixing, from the other two kinds, which have been described immediately prior (*De Mix*. 6.13–25): mixing by juxtaposition (μίξις παραθέσει) and mixing by fusion (μίξις συγχύσει). Specifically, blending is different from the latter because it preserves the ingredient

²⁴ 6.10: "Ἔστι δὲ ἡ Χρυσίππου δόξα περὶ κράσεως ἥδε... 9.12–13: Καὶ αὕτη μὲν ἡ περὶ κράσεως δόξα Χρυσίππου τε καὶ τῶν κατ' αὐτὸν φιλοσοφούντων.

²⁵ I discuss both of these passages in detail in Helle 2018; some further remarks are added in Helle (forthcoming).

²⁶ τὴν γὰρ δύο ἢ καὶ πλείονων τινῶν σωμάτων ὅλων δι' ὅλων ἀντιπαρέκτασιν ἀλλήλοις οὕτως ὡς σώζειν ἕκαστον αὐτῶν ἐν τῇ μίξει τῇ τοιαύτῃ τὴν τε οἰκείαν οὐσίαν καὶ τὰς ἐν αὐτῇ ποιότητας λέγει κράσιν εἶναι μόνην τῶν μίξεων· εἶναι γὰρ ἴδιον τῶν κεκραμένων τὸ δύνασθαι χωρίζεσθαι πάλιν ἀπ' ἀλλήλων, ὃ μόνον γίνεται τῷ σώζειν ἐν τῇ μίξει τὰ κεκραμένα τὰς αὐτῶν φύσεις.

bodies, which are destroyed in mixing by fusion;²⁷ and it differs from the former because blending is a kind of ἀντιπαρέκτασις whole through whole, while mixing by juxtaposition is merely by surface contact, as when grains of wheat and beans are put together in a bowl (I return to this difference below).

Chrysippus' procedure in *De Mix.* ch. 3 is a recognizably Stoic way of arriving at definitions: he gives the more general kind, μίξις, divides it into subkinds – i.e. mixing by juxtaposition, mixing by fusion, and blending – and specifies their differentiae.²⁸ We also know that Chrysippus understood definition to be a matter of specifying what is 'peculiar', ἴδιον, to the definiendum (see T4 below), and specifying what is peculiar to blending is precisely what he is reported to be doing in T2. So, it seems that we are given at least parts of a definition of blending here.

That Alexander is reporting genuine Stoic thinking is confirmed by two other texts (see note 21), which preserve the same kind of division and classification. What sets Alexander's testimony apart is that it presents a far more detailed account of precisely what blending is, according to Chrysippus. Following T2, Alexander goes on in *De Mix.* 7.18–23 to tell us how Chrysippus understands the ἀντιπαρέκτασις whole through whole which occurs in blending. Crucially, this is the only text in our possession that preserves Chrysippus' account of this relation. Here is what Alexander says:

T3 And he [Chrysippus] supposes that such a mutual coextension of [bodies] blending occurs by the blending bodies passing through one another so that no part in them is not

²⁷ In blending, the particular bodies that blend persist throughout, with their original matter (the relevant Stoic sense of 'substance' here) and qualities intact, and they are capable of separation and of existing separately. On this, see Helle 2018; Helle (forthcoming).

²⁸ See Sextus Empiricus, *M* 11.8–11 and Diogenes Laertius 7.60–2 (regarding the definition of human being); Sextus Empiricus, *M* 7.247–52 (cf. Diogenes Laertius 7.51, Sextus Empiricus, *M* 7.242–6); Sextus Empiricus, *PH* 2.135–43; Galen, *Adversus Lycum* 3.7 (LS 32G, SVF 2.230, part).

participating in all the [ingredients] in such a blended mix; for if this were not the case, what is occurring would no longer be blending, but juxtaposition.²⁹

The mutual coextension, ἀντιπαρέκτασις, which is blending (identified in T2 above), is here given a complex specification in terms of two further notions: (a) the blending bodies *pass through one another* (χωρεῖν δι' ἀλλήλων), and they do so in such a way that (b) each part of each of them *participates* (μετέχειν) in all the ingredients in the blending. Mutual coextension so understood distinguishes blending from mixing by juxtaposition.³⁰

I will turn to the interpretation of (a) and (b) below. What is important for us here is that there is good reason to think that T2 and T3 together give us Chrysippus' definition of what blending is.³¹ To see this, we should notice how Chrysippus defined definition (ὄρος):

T4 A definition is a rendering of what is/the peculiar (ὄρος ἐστὶν ἰδίου ἀπόδοσις).³²

Most likely, this means that a Chrysippean definition specifies what the definiendum uniquely and essentially is, that is, by rendering what is peculiar to it.³³ Now, first, as I also pointed out above,

²⁹ τὴν δὲ τοιαύτην ἀντιπαρέκτασιν τῶν κίρναμένων ὑπολαμβάνει γίνεσθαι χωρούτων δι' ἀλλήλων τῶν κίρναμένων σωμάτων, ὡς μηδὲν μόριον ἐν αὐτοῖς εἶναι μὴ μετέχον πάντων τῶν ἐν τῷ τοιοῦτῳ κεκραμένῳ μίγματι· οὐκέτι γὰρ ἂν, εἰ μὴ τοῦτο εἶη, κῤῃσιν, ἀλλὰ παράθεσιν τὸ γινόμενον εἶναι.

³⁰ The last sentence (οὐκέτι γὰρ ἂν...) may well be a comment by Alexander on the view attributed to Chrysippus in the first sentence, rather than a straightforward part of that attribution; however, Alexander is a reliable witness here, and his comment is in any case very plausible.

³¹ Stoic use of the notion of body passing through body (σῶμα διὰ σώματος χωρεῖν) in the context of blending can be seen also in Diogenes Laertius 7.138–9. Todd (1976, 74–88) has argued that this is not a Stoic notion, but rather a Peripatetic imposition. However, the argument is ultimately not persuasive, and it does not give reason to doubt Alexander's testimony in T3.

³² This account is attributed to Chrysippus in Diogenes Laertius 7.60, and in the scholia on Dionysius Thrax, 107.5–7 Hilgard (printed as LS 32B, SVF 2.226, part). It is also mentioned by Alexander in the commentary on the *Topics* (*In Top.* 42.27–43.8 Wallies), in the context of discussing the Stoic position on definition, although not attributed to Chrysippus.

³³ That Chrysippean definitions specify what is essential is not uncontroversial. However, for present purposes, this and other points of controversy and unclarity may be set aside. What is important here is that a

Chrysippus is in T2 explicitly said to be specifying what is peculiar (ἴδιον) to blending bodies. The feature specified there is that blending bodies are preserved so that they may separate. Notably, this is not sufficient uniquely to distinguish blending from the other kinds of mixing. For bodies that mix by juxtaposition are also preserved in this way. When beans and grains for instance are mixed in a bowl by juxtaposition, the individual grains and beans remain fully intact and can be taken out again (cf. *De Mix.* 6.13–20). This is why we are given the further specification of the relevant kind of ἀντιπαρέκτασις in T3: it is not yet fully clear what differentiates blending as a kind of mixing. Thus, it seems that Chrysippus in this context is aiming to provide a full specification of what is peculiar to blending (as a kind of mixing), and that T3, along with T2, is part of that specification.

A later passage in *De Mix.* confirms that Chrysippus is defining blending in these texts. Here is *De Mix.* 13.21–4:

T5 So then [the proposition] that body passes through body, which they employ for rendering blending, is false and contrary to the common preconceptions and the natural criteria of truth according to them.³⁴

This passage is from the opening of ch. 7, when Alexander has just finished arguing that the proposition ‘that body passes through body’ (τό σῶμα διὰ σώματος χωρεῖν) must be rejected (in chs. 5–6). The key part for us is Alexander’s claim that the Stoics use this proposition ‘for rendering blending’ (πρὸς τὴν τῆς κράσεως ἀπόδοσιν). This term, ‘rendering’ (ἀπόδοσις), regularly occurs in contexts of definition, and Alexander elsewhere appears to show specific awareness of its role in the

Chrysippean definition, in rendering what is peculiar, uniquely specifies the definiendum, and this is not in question. For discussion, see for instance, Crivelli 2010 and Brittain 2005.

³⁴ τό τε οὖν σῶμα διὰ σώματος χωρεῖν, ὃ χρῶνται πρὸς τὴν τῆς κράσεως ἀπόδοσιν, ψευδός τε καὶ παρὰ τὰς κοινὰς προλήψεις καὶ τὰ φυσικὰ κατ’ αὐτοῦς τῆς ἀληθείας κριτήρια...

Chrysippean account of definition (T4).³⁵ There is one and only one plausible and possible reference for Alexander's remark here in T5: our previous text T3, where Chrysippus is said to specify the ἀντιπαρέκτασις in blending as *bodies passing through one another* (χωρεῖν δι' ἀλλήλων) in a certain way.³⁶ Alexander thus seems to be saying that T3 is part of Chrysippus' rendering (ἀπόδοσις) of blending, i.e., his rendering what is peculiar to blending. Since T2 and T3 are parts of Chrysippus' specification of what is peculiar to blending, and a Chrysippean definition is a rendering of what is peculiar, it appears very likely, then, that we in these passages are indeed being given a definition of what blending is.

If that is correct, what exactly is the definition in question? We might formulate it in a somewhat simplified fashion as follows:

Chrysippean blending: blending is_{def} mutual coextension of two or more bodies whole through whole, which preserves them so that they may separate, and in which the bodies pass through one another so that each part of each of them participates in all the ingredients.

This represents the fullest and most precise surviving account of Chrysippus' definition of blending. Chrysippus will presumably have had more to say about the various components of this definition; there is some important evidence of what that may have been, to which I shall turn shortly. We also cannot rule out the possibility that Chrysippus gave other definitions of which we know nothing. But

³⁵ As pointed out above (note 32), Alexander registers the account cited in T4 when discussing Stoic views of definition in *In Top.* 42.27–43.8, albeit without attributing it to Chrysippus; however, it seems very plausible that Alexander is aware of its Chrysippean provenance. For other relevant instances of ἀπόδοσις and the corresponding verb, ἀποδιδόναι, see for example Aristotle, *Topics* 101b38–102a5, 128a20–9, 128b16–21 (cf. 101b19–23), 142b30–143a11, 149b12–23, 149b31–9.

³⁶ I am grateful to Allison H. Piñeros Glasscock and Marko Malink for helpful comments on T5.

with the available evidence, this is, I think, the best that can be done (with any degree of certainty), and it is not bad at all.

We may now begin to consider the relation between the definition of blending and strict collocation, starting with question (1), whether strict collocation is part of the definition.

First, an obvious point: there is no explicit mention of collocation, strict or otherwise, or of place. These terms do not occur in the definition of blending, nor are they used to describe blending elsewhere in Chrysippus' account in *De Mix*. The same is true of the more superficial reports in Stobaeus and Philo (see note 21).

By contrast, in *De Mix*. ch. 3, immediately prior to T2 and T3, mixing by juxtaposition is explicitly specified in terms of collocation, that is, *loose collocation*: when mixed in this way, bodies are said to be together in the same place so as to be in surface contact with one another – as when grains of wheat and beans are put together in a bowl, i.e. all together in the place delimited by the bowl (*De Mix*. 6.13–20).³⁷

So, there is an explicit concern for place and collocation in *De Mix*. chs. 3–4 but the collocation in question is loose, not strict, and it pertains to mixing by juxtaposition, not blending.

This much is clear. It is less evident whether any of the terms in *Chrysippean blending* straightforwardly mean, at least in part, that blending bodies are strictly colocated. In particular, one might wonder whether mutual coextension (ἀντιπαρέκτασις) whole through whole here straightforwardly means (at least in part) to be strictly colocated. Several scholars seem to hold this view, though it is generally left unargued.³⁸ If this is right, then strict collocation will turn out to be part of the Stoic definition of blending after all.

³⁷ This is the meaning of εἰς ταὐτὸν συντεθειμένων καὶ παρατιθεμένων ἀλλήλαις at *De Mix*. 6.15–16: mixing by juxtaposition occurs when one or more bodies *are put together in the same place and juxtaposed with one another*. The sense of εἰς ταὐτὸν συντεθειμένων is not captured in the translations of Groisard 2013 and Todd 1976.

³⁸ E.g. De Harven 2018, 13–16, 18; Marmodoro 2017, 7–9; Betegh 2016, 402–3, 410–12; Long and Sedley 1987 vol. 1, 293–4.

‘Ἀντιπαρέκτασις’ is an extremely rare term. In the texts we have access to, almost all its occurrences are found in the context of the Stoic theory of blending.³⁹ The general meaning of the term is clear enough, i.e. (roughly) *mutual coextension*; but this does not tell us what the term means in the definition of blending. Clearly, it is being used to do particular philosophical work in the Stoic theory of blending, for which it will have been given specific content. Thus, we must try to determine what that content might be.

The only text we have that explains what the Stoics themselves mean by ἀντιπαρέκτασις whole through whole in the definition of blending (or elsewhere) is T3. What this text provides is a complex specification in terms of the blending bodies passing through one another (χωρεῖν δι’ ἀλλήλων), so that each part of each of them participates (μετέχειν) in all the ingredients. We may refer to this latter as *the participation claim*.

First and most importantly, it is necessary to determine what is meant by the participation claim. For this is being used to specify the way in which bodies pass through one another. Secondly, I will consider what more might be meant by whole through whole ἀντιπαρέκτασις understood as body passing through body.

Participation (μετέχειν) is here best understood in terms of *qualitative modification*, caused by bodies interacting in a certain way. So, each part of each blending body will participate in all the ingredients in the blending by *being qualitatively modified in accordance with the kinds of body in question*. For instance, in a blending of water and wine, the parts of the water will be wine-like in addition to being water, and vice versa for the parts of the wine. And this qualitative modification obtains because the blending bodies, by being mutually coextended whole through whole, continuously interact with one another whole through whole by means of direct pressure, striking, and contact. This interpretation has been defended in Helle 2018 (see also Helle 2021, 204–8).

³⁹ Emblematically, LSJ define it as interpenetration of two or more bodies in Stoic κρᾶσις.

For present purposes, it is enough to indicate the main reasons to adopt an interpretation of this sort. First, this account of the participation claim explains how blending may preserve the (original) ingredient bodies and still differ from mixing by juxtaposition (see T2 and T3 above): blending differs from mixing by juxtaposition because the blending bodies are mutually coextended so as to be qualitatively modified through and through; and it may yet preserve the original ingredient bodies because the qualitative modification in question occurs through a form of interaction that does not require destructive changes, i.e. through direct pressure, striking, and contact. This picture is supported by several pieces of evidence: i) our sources indicate that participation for the Stoics is a relation which specifies (wholly or in part) what the participating item is or what it is like;⁴⁰ ii) we have reports that blending bodies are in direct contact whole through whole (see notes 44-6 below); iii) Hierocles describes a case of blending (body and soul) in terms of ongoing interaction whole through whole by pressure, striking, and contact, and he appears to link the qualitative condition of each part of the blending bodies to this interaction;⁴¹ iv) in general, it seems that bodies, on the Stoic way of thinking, are qualified in the way they are by having (and being caused to have) a certain pattern of locomotion (and rest) throughout them, i.e. the kind of pattern that will be modified by continuous interaction through pressure, striking, and contact.⁴²

Further, because blending will be understood in terms of causal interaction and qualitative modification, this type of interpretation is able to explain how blending can be the relation by which

⁴⁰ Stobaeus, *Ecl.* 1.136.21–137.6 (LS 30A, SVF 1.65), 2.57.19 (SVF 3.70), 82.11ff (SVF 3.141); Diogenes Laertius 7.94–5, 101; Clement, *Stromateis* 2.20.110.4–111.2 (SVF 2.714), 4.6.39.3 (SVF 3.114); cf. Diogenes Laertius 7.60–1; Sextus Empiricus, *M* 11.24.

⁴¹ Hierocles, *Elements of Ethics* 4.38–53 (on which, see Helle 2018, 104–8).

⁴² Simplicius, *In Aristotelis physicorum libros commentaria* 1320.19–21 Diels (SVF 2.496); Stobaeus, *Ecl.* 1.165.15 (SVF 2.492); Galen, *Synopsis librorum de pulsibus* 9.458.8–14 Kühn (LS 55H, SVF 2.356) (cf. LS 55F); Alexander, *De Fato* 191.30–192.28 Bruns (LS 55N, SVF 2.945); Simplicius, *In Aristotelis categorias commentarium [In. Cat.]* 237.30–238.32 Kalbfleisch; Hierocles, *Elements of Ethics* 4.38–53; Simplicius, *In Cat.* 269.14–16; Nemesius, *Natura Hominis* 2.18.2–10 Morani (LS 47J). On this, see my 2021 196–7; Bobzien 1998, 18–58 and Menn 1999, 243–7; cf. Sambursky 1959, 27 and Long 1974, 158. Pressure, strike, and contact are basic forms of corporeal interaction, for the Stoics; on this see Simplicius, *In Cat.* 302.29–32; Proclus, *In Platonis Parmenidem* 841.4–5 (in SVF 2.343); Hierocles, *Elements of Ethics* 3.58–4.2 (cf. 4.40–7).

pneuma and matter combine so as to compose a unified body such as an animal or a plant (see my 2021, 203–210).

Accordingly, the participation claim in T3 should not be thought straightforwardly to mean that the blending bodies are strictly colocated. In the definition of blending, participation has nothing to do with collocation, strict or otherwise, or with place at all; it is rather a matter of qualitative modification, such as occurs because the blending bodies interact whole through whole.

More generally, whether or not we accept this particular interpretation, there is no indication that participation may be understood so as directly to yield strict collocation in the definition of blending. Since the participation relation apparently specifies what the participating item is or what it is like (see note 40), and collocation does neither, collocation will not be a suitable candidate for what it might be to participate in this context.⁴³ This is an important result. For the participation claim is what determines precisely the mutual coextension whole through whole that is blending, according to Chrysippus. Still, we cannot conclude, on the basis of this negative finding about participation alone, that strict collocation is not part of the definition of blending.

In T3, the mutual coextension whole through whole that is blending is said to occur by body passing through body in a certain way, i.e., such that the participation claim holds. One might suppose, then, that in the definition of blending, we have a general notion of mutual coextension, understood as body passing through body, and this general notion, which the participation claim helps specify as blending, means (at least in part) that the bodies in question strictly collocate. In

⁴³ It was suggested by an anonymous reviewer that *De Mix.* 1.3–5, 12–14 provides evidence that the participation claim in T3 should be interpreted in terms of strict collocation. In *De Mix.* 1.3–5, 12–14, Chrysippus is said to hold that no part of an ingredient body is '*kath' hauta* and separated from the other [ingredient]' (*De Mix.* 1.4–5) and that 'certain bodies pass through one another wholly, so that no part of theirs is *kath' hauta*' (δι' ὅλων ἀλλήλων χωρεῖν τινα σώματα ὡς μηδὲν αὐτῶν μόνιον εἶναι καθ' αὐτό, *De Mix.* 1.12–14). It is plausible that Alexander here has in mind T3 and the participation claim. But if we are to interpret *De Mix.* 1.3–5, 12–14 in terms of strict collocation, we need an independent reason to think that the parts' failing to be *kath' hauta* (and separated) here means that the blending bodies are strictly colocated. We ought to interpret *De Mix.* 1.3–5, 12–14 by looking to T3 and our independently established interpretation of this text, not the other way around. The parts of blending bodies will fail to be *kath' hauta*, then, (at least in part) because they participate in all the ingredients in the blending. Thus, *De Mix.* 1.3–5, 12–14 does not provide evidence of strict collocation for Chrysippus, nor does it suggest that strict collocation would be a way to participate.

other words, Chrysippus could be adding the participation claim to the relevant notion of ἀντιπαρέκτασις which independently means strict colocation.

It is true, I think, that the relevant notion of ἀντιπαρέκτασις whole through whole is not exhausted by what we are told in T3. Indeed, it seems clear enough that there should be more to say about it; for one thing, we do not yet know how being mutually coextended whole through whole could be a way for the participation claim to hold. But there is no good reason to think that what is left out is strict colocation. First, there is no evidence that the Stoics themselves understood whole through whole ἀντιπαρέκτασις and body passing through body in terms of strict colocation; the sources that attribute commitment to strict colocation to the Stoics do so in their own voice, not as a part of the Stoic view (see Section 5 below). Secondly, and more importantly, we have reports, in a Stoic voice, of another candidate for what this might mean, apart from the participation claim.

This is the notion of *juxtaposition whole through whole* (παράθεσις δι' ὅλων), which is mentioned in two of our texts, Hierocles, *Elements of Ethics* 4.10 and Alexander, *De Mix.* 9.10. Hierocles – himself a Stoic – presents juxtaposition whole through whole as a general feature of blending on the standard Stoic picture (see note 20 above); in Alexander, it is part of the description of a Chrysippean example of blending.⁴⁴

Juxtaposition, in this context, is a relation of direct contact and touch; it is to be positioned so as to be in direct contact.⁴⁵ Whole-through-whole juxtaposition will accordingly be a relation of direct

⁴⁴ As part of his explanation of how soul and body blend, Hierocles says: ‘for the blending is most similar to those occurring in the case of red-hot iron; for there the same as here the juxtaposition is whole through whole’ (προσφερεσάτη γ(άρ) ἡ κρᾶσις τοῖς ἐπὶ τοῦ δ(ια)πύρου σιδήρου γινομ(έν)οις· [ἐ]κεῖ τε γ(άρ) ὁμοίως κἀνταῦθα δι' ὅλων) (ἐστὶν) ἢ π(αρά)θεσις; *Elements of Ethics* 4.8–10 translation modified from Helle 2018, 99, and Ramelli 2009). The point is that soul and body are juxtaposed whole through whole, just as other blending bodies are (Alexander, *De Mix.* 9.1–2, 18.2–4; Stobaeus, *Ecl.* 1.154.14–21).

Alexander, *De Mix.* 9.9–10: ‘Destructive poisons and smells, as many things as are of this sort, [the Stoics] think blend with those affected by them, being juxtaposed whole through whole’ (Δηλητήρια τε τὰ φθείροντα καὶ τὰς ὀσμάς, ὅσαι τοιαῦται, ἡγοῦνται κινεῖσθαι τοῖς ὑπ' αὐτῶν πάσχουσιν, ὅλα δι' ὅλων παρατιθέμενα).

⁴⁵ Alexander, *De Mix.* 6.16–20, 14.13–27, 28.7–9; Stobaeus, *Ecl.* 1.154 10–14 (in SVF 2.471); Hierocles, *Elements of Ethics* 4.38–53 (with 3.58–4.2, 4.8–10); Plutarch, *Comm. not.* 1080E–F; Diogenes Laertius 7.135. See also Sextus Empiricus, *M* 9.78 (cf. Simplicius, *In Cat.* 214.24–37); Sextus Empiricus, *PH* 3.42–3, 62; Simplicius, *In Cat.* 302.28–36 (contains SVF 2.342).

contact whole through whole. To say that two bodies *A* and *B* are juxtaposed whole through whole is to say that *A* and *B* are related such that each part of *A* is in direct contact with part(s) of *B* and vice versa for each part of *B*.⁴⁶

It seems to me very likely that being juxtaposed whole through whole is part of what is meant by being mutually coextended whole through whole and body passing through body in Chrysippus' definition of blending. There are two reasons for this. First, it should be possible to say why the relevant notion of ἀντιπαρέκτασις is a kind of mutual coextension and body passing through body, that is, how it fits the general meaning of these terms. Juxtaposition whole through whole provides the needed explanation: for to say that bodies are juxtaposed whole through whole gives a general sense in which they are passing through and coextending with one another whole through whole. And crucially, there is clear and positive evidence that παράθεσις δι' ὅλων is a feature of Stoic blending.

Secondly, juxtaposition whole through whole helps explain how the participation claim would hold: for bodies to be so juxtaposed is for them to be in (direct) contact whole through whole, and bodies related in this way will accordingly be in a position to affect one another whole through whole; such affecting may then be supposed to be the grounds for the fact that each part of each blending body participates in all the ingredients in the blending.⁴⁷

If this is right, we may conclude that strict collocation is not part of what blending is. Whole-through-whole juxtaposition is a relation of direct contact; there is no indication that being strictly collocated is part of what it is for bodies to be so juxtaposed.⁴⁸ We have already seen that the

⁴⁶ Whole-through-whole contact for blending bodies is evidenced in Hierocles, *Elements of Ethics* 4.38–53; Seneca, *Naturales Quaestiones* 2.1–2 (reading the mss. text); cf. Sextus Empiricus, *M* 9.260. Alexander reports that for the Stoics, blending bodies are supposed to retain their own surfaces (*De Mix.* 1.1–6, 12–16), and he takes it that upholding this will mean that Stoic blending is juxtaposition of parts to parts (*De Mix.* 14.13–27). On this, see also Helle 2018; Helle 2021, 204–6.

⁴⁷ This is in fact the kind of story Hierocles seems to give us in *Elements of Ethics* 3.56–4.53. In Diogenes Laertius 7.138–9 and Alexander, *De Mix.* 20.17–20, 21.18–21, body passing through body in blending is treated as involving causal affection, which lends further credence to this interpretation.

⁴⁸ To say that some bodies are juxtaposed with one another here appears to indicate that they are mereologically disjoint from one another. For each will, it seems, have its own surface and its own limits, at and

participation claim has nothing to do with strict collocation. And there is no reason to think that strict collocation would otherwise enter into the definition of blending. We thus appear to have a satisfactory account of the definition and its terms, based on the evidence of the Stoics' own thinking, which makes no reference to strict collocation.

One may of course still suspect that the Stoic definition of blending commits them to strict collocation. Nothing I have said so far rules that out. But as concerns the content of the definition, such suspicions are neither here nor there.

5 Is Strict Collocation a Stoic Requirement for Blending?

I turn now to question (2), whether strict collocation is posited by the Stoics as a necessary requirement for bodies being blended. As noted above, it is rather difficult to answer this with any kind of certainty, since there are no surviving texts that clearly pronounce on the issue. However, I will argue in this section that there is some reason to think the answer is 'no'.

Before I do that, there is a point worth noting: several interpreters attribute strict collocation to the Stoics (more or less) directly based on the reports that blending is a kind of whole-through-whole ἀντιπαρέκτασις and body passing through body (see note 38 above). Given the interpretation set out in the last section, this seems to be a mistake. That blending is a kind of whole through whole

by which it is in contact with the other(s): see Alexander, *De Mix.* 14.13–27 (with 1.1–16); Plutarch, *Comm. not.* 1080E–1081A; Galen, *De Usu Partium [UP]* 1.1–2.3; notes 60–1 below; Helle 2018, 96–103. This is arguably significant for the structure of the places of the ingredient bodies in blending and for the possibility of strict collocation for bodies juxtaposed whole through whole; see Sections 5 and 6 below. One might think that juxtaposition whole through whole, then, contrasts with Alexander's report of Chrysippus' view at *De Mix.* 1.3–5, 12–14, according to which no part of an ingredient body in blending is *kath' hauto* (see note 43 above). This worry was raised by an anonymous reviewer. There is, to my mind, no such contrast. At *De Mix.* 1.1–6, 12–16, Chrysippus is reported to hold both that no part of an ingredient is *kath' hauto* (or separated from the other ingredient) and at the same time that each ingredient retains its own original surfaces. This last claim is what we would expect and what seems to be needed in order to say that blending bodies are juxtaposed (whole through whole; *De Mix.* 9.8–10, 14.13–27). For what it means for the parts of the ingredients to fail to be *kath' hauto*, we should look to the account given in *De Mix.* chs. 3–4, not least T3 and the participation claim (see also my 2021, 204–8). And we should not think that the two claims reported for Chrysippus at *De Mix.* 1.1–6, 12–16 were intended by him to stand in an objectionable contrast to one another. On the interpretation of Chrysippean blending that I am proposing, we can see how they fit together.

ἀντιπαρέκτασις does not straightforwardly mean, for the Stoics, that the blending bodies are strictly colocated. To show that the Stoics are committed to strict collocation, we shall need a further story explaining how strict collocation follows from the relevant notion of mutual coextension whole through whole. And without a further argument that the Stoics considered and accepted this entailment, it will remain unclear whether strict collocation is a posit of theirs or a further consequence.

My strategy in this section is the following. First, I will consider several ancient texts that clearly seem to say that the Stoics are committed to strict collocation for blending bodies: Plutarch, *Comm. not.* 1077E; Themistius, *In Aristotelis physica paraphrasis [In phys.]* 104.12–19 Schenkl (LS 48F part, including SVF 2.468); Sextus Empiricus, *PH* 3.59–60; Alexander, *De Mix.* 9.18–10.2; *Mantissa* 140.10–20. There are other passages of potential relevance. But these are the ones that most clearly and in the greatest detail address the Stoic commitment to strict collocation; and together, they constitute our best and most important evidence.⁴⁹ The passages are all hostile to the Stoics, and I will argue that severally or together, they give no indication that the Stoics themselves posited strict collocation as a requirement; in fact, they seem, on the whole, to suggest the opposite. Secondly, I will offer, in outline form, one reason why this might be: that it is difficult to see how strict collocation for disjoint bodies (blending or otherwise) could in principle occur, given how the Stoics appear to have thought about the individuation of places (τόποι).

We may first consider Plutarch, *Comm. not.* 1077E and Themistius, *In Phys.* 104.12–19:

T6a For first, to what genus will you refer place? Or is it clear that [it will be] to body? For place too is extended in three [dimensions]. But in this way the most absurd of all will turn out to be the case. For body will pass wholly through body and two bodies will occupy the

⁴⁹ Though clearly concerned with collocation and Stoic blending, I do not consider Alexander, *De Anima* 20.6–8, 15–19 Bruns here, because it contributes nothing beyond *De Mix.* 9.18–10.2 and *Mantissa* 140.10–20.

same place; for if the place is a body and what has come to be in it is a body, and both are equal in their dimensions, the body will be in a different equal body. And this belongs to Chrysippus and the views deriving from Zeno, but the ancients reduced it to clear impossibility (*In Phys.* 104.12–19, LS 48F part, including SVF 2.468).⁵⁰

T6b It is contrary to the [common/natural] conception that body is the place of a body and that body passes through body, if neither contains void but instead what is full sinks into what is full and that which has no interval nor room within itself due to its continuity receives what is mixed in (Plutarch, *Comm. not.* 1077E).⁵¹

In T6a, Themistius argues that if place is thought to be a body, then there will be two bodies occupying the same place. The reason given is that if place is a body, then one body will be in another body, i.e. the place it occupies. ‘This’ is then said to be the view of Chrysippus and the Stoics, which the ancients showed to be impossible.

It is not clear exactly what Themistius is attributing to the Stoics. The referent of ‘this’ (τοῦτο) in the last sentence might be the claim that two bodies can occupy the same place or it might be the claim that one body can be in another body. The difference matters, because the latter – that one body can be in another body – could plausibly refer to the Stoic view that bodies, in blending, mutually coextend and pass through one another whole through whole. And so, in that case,

⁵⁰ πρῶτον γὰρ εἰς τί γένος ἀνάξεις τὸν τόπον; ἢ δῆλον ὅτι εἰς σῶμα; καὶ γὰρ ὁ τόπος ἐπὶ τρία διέστηκεν. ἀλλ’ οὕτω τὸ πάντων ἀτοπώτατον ἀπαντήσεται· σῶμα γὰρ διὰ σώματος χωρήσει δι’ ὅλου καὶ δύο σώματα τὸν αὐτὸν ἐφέξει τόπον· εἰ γὰρ καὶ ὁ τόπος σῶμα καὶ τὸ γενόμενον ἐν αὐτῷ σῶμα καὶ ἴσα τοῖς διαστήμασιν ἄμφω, τὸ σῶμα ἔσται ἐν ἴσῳ ἐτέρῳ σώματι. τοῦτο δὲ Χρυσίππῳ μὲν καὶ τοῖς ἀπὸ Ζήνωνος δόγμασιν ἔστιν, οἱ παλαιοὶ δὲ ἀπάγουσιν ὡς εἰς ἀδύνατον ἐναργῶς. This is the text printed in Long and Sedley 1987 vol. 2, 291, which differs slightly from Schenkl’s text in punctuation and excludes the emendation printed by Schenkl at 104.18 (τοῖς ἀπὸ Ζήνωνος <ἐν> δόγμασιν).

⁵¹ Παρὰ τὴν ἔννοιάν ἐστι σῶμα σώματος εἶναι τόπον καὶ σῶμα χωρεῖν διὰ σώματος, κενὸν μηδετέρου περιέχοντος ἀλλὰ τοῦ πλήρους εἰς τὸ πλήρες ἐνδουομένου καὶ δεχομένου τὸ ἐπιμιγνύμενον τοῦ διάστασιν οὐκ ἔχοντος οὐδὲ χώραν ἐν αὐτῷ διὰ τὴν συνέχειαν.

Themistius would not be saying that the Stoics themselves hold that two bodies can occupy the same place, only that they hold something of which this, to his mind, is an entailment.

It seems to me most likely that ‘this’ refers to the content of the immediately preceding claim, that one body can be in another equal body. But even if Themistius is attributing colocation to the Stoics directly, it is not clear that he is reporting what they themselves said, as opposed to what he thinks they are committed to. Indeed, the context suggests that Themistius is relying on other commentators, notably Alexander, regarding the Stoics (*In Phys.* 104.19–22).

In T6b, Plutarch has the Stoic theory of blending in view (cf. *Comm. not.* 1077F–1078A), and though he does not say so explicitly, it may plausibly be supposed that he is charging the Stoics with commitment to strict colocation. However, he is evidently not trying to report what the Stoics in fact say in their theory; he is attempting to refute the theory by articulating what he takes to be an absurd consequence of it: that a body that is full and without space in it receives what is likewise full, so that body ends up being the place of body. This is not stated in the Stoic theory of blending, and Plutarch is not trying to pretend otherwise. T6b thus tells us little more than that Plutarch believes Stoic blending ends up requiring strict colocation.

It is safe to say that T6a–b do not give any specific reason to think the Stoics themselves posited strict colocation as a requirement for blending.

Next, we have Sextus Empiricus, *PH* 3.59–60:

T7 It remains to say that both the qualities of the blending items and their substances pass through one another and bring about the blending by mixing. Which is stranger still than the options previously mentioned: for this kind of blending is impossible. So, for instance, if one cup of hemlock juice has been mixed with ten cups of water, the hemlock would be said to be mixed together with all the water; then if one were to take even the smallest part of the

mix, one will find it filled with the power of the hemlock. (a) And if the hemlock is mixed in with each part of the water and coextends with it whole with whole in virtue of the passage of the substances and their qualities through one another, so that the blending occurs in this way, and things that coextend with one another in every part occupy the equal place (which is why they too are equal to one another), (b) then the cup of hemlock will be equal to the ten cups of water, so that the mix must be twenty cups or two only, as far as concerns this supposition of the manner of blending.⁵²

No doubt, Sextus is discussing the Stoic theory of blending. And he is connecting it to (strict) colocation when he says that ‘things that coextend with one another in every part occupy the equal place’ (τὰ παρεκτεινόμενα ἀλλήλοις καθ’ ἅπαν μέρος τὸν ἴσον ἐπέχει τόπον). This may be treated as equivalent to the following: if some things are mutually coextended whole through whole, then they are strictly colocated with one another (cf. T9 below). So, we apparently have an expression of the claim that strict colocation is a consequence of bodies being blended in the Stoic way.

However, it is far from clear that this entailment is supposed to be understood as a part of the Stoic view. It is found in Sextus’ attempt to refute the Stoics, in the complex protasis I have marked as (a) above. And there is no indication in T7 or the surrounding context that it is part of the view being criticized rather than a claim that serves Sextus’ purposes. The first part of the protasis (‘the hemlock is mixed... in virtue of the passage’ etc.) can be confirmed as more or less an instance of the Stoic way of thinking of blending bodies (cf. *De Mix.* 6.25–7.8, 7.18–22). But there is no text

⁵² λείπεται λέγειν, ὅτι καὶ αἱ ποιότητες τῶν κίρναμένων καὶ αἱ οὐσίαι χωροῦσι δι’ ἀλλήλων καὶ μινύμεναι τὴν κρᾶσιν ἀποτελοῦσιν. ὁ τῶν προειρημένων ἐστὶν ἀτοπώτερον· ἀδύνατος γὰρ ἐστὶν ἡ τοιαύτη κρᾶσις. οἶον γοῦν ἐὰν δέκα κοτύλαις ὕδατος κωνείου χυλοῦ κοτύλη μίχθῃ, παντὶ τῷ ὕδατι συνανακίρνασθαι ἂν λέγοιτο τὸ κωνεῖον· εἰ γοῦν καὶ τι βραχύτατον μέρος τοῦ μίγματος λάβοι τις, εὐρήσει πεπληρωμένον αὐτὸ τῆς τοῦ κωνείου δυνάμεως. (a) εἰ δὲ ἐπιμίγνυται τὸ κωνεῖον παντὶ μέρει τοῦ ὕδατος καὶ παρεκτείνεται αὐτῷ ὅλον ὅλω κατὰ τε τὴν τῶν οὐσιῶν καὶ τῶν ποιότητων αὐτῶν δι’ ἀλλήλων δίοδον, ἴν’ οὕτως ἡ κρᾶσις γένηται, τὰ δὲ παρεκτεινόμενα ἀλλήλοις καθ’ ἅπαν μέρος τὸν ἴσον ἐπέχει τόπον, διὸ καὶ ἴσα ἀλλήλοις ἐστίν, (b) ἴση ἔσται ἡ κοτύλη τοῦ κωνείου ταῖς δέκα κοτύλαις τοῦ ὕδατος, ὡς εἴκοσι κοτύλας ὀφείλειν εἶναι τὸ μῖγμα ἢ δύο μόνας, ὅσον ἐπὶ τῇδε τῇ ὑποθέσει τοῦ τρόπου τῆς κράσεως.

that tells us whether strict colocation is posited by the Stoics. And we should hesitate to think so based on T7, since the entailment from Stoic blending to strict colocation is plainly asserted in (a) in order to enable Sextus' rather unimpressive move to the absurd conclusion, (b).⁵³

Hence, T7, no different from T6a–b, apparently gives no clear evidence that the Stoics themselves posited strict colocation as a requirement for blending. Considered in its context in T7, this requirement seems rather to belong to Sextus' *reductio*.

The last two texts I want to consider are from Alexander. First, here is *De Mix.* 9.18–10.2:

T8 Indeed, what is said by them about blending not only does not use the natural conceptions, but also completely departs from them. For that body passes through body, whole coextended with whole, not only is not the case according to the common conceptions, but is also preconceived to be impossible. For due to a natural conception they have been seen to hold that what is full cannot still receive something into itself (for what has in itself room receptive of something similar cannot still be full), on account of which natural and common preconception it already seems to some to be reasonable that what is receptive of bodies is that which we call place.⁵⁴

⁵³ Sextus' move is unimpressive because he fails to distinguish between the volume of a place and the quantity of a body occupying a place, and so assumes that if some bodies each wholly occupy the same place (at the same time), then there is the same quantity of each body present in that place. The distinction should be made and the assumption should not be accepted without further comment, especially not by someone who countenances strict colocation by disjoint bodies. For the distinction and this reply, see White 2003, 148–9. Alexander reports that Chrysippus in the context of blending distinguished between the bulk/quantity/extension of which a body is capable on its own and that of which it is capable when aided by other bodies, and sought to use it to explain how it could be possible for a ladle of wine to blend with a large body of water (*De Mix.* 7.25–8.22). Even though Sextus' objection is not addressed in Alexander's report (or elsewhere), it seems clear that Chrysippus had the conceptual tools to handle the root issue, that is, roughly, the need to make a distinction between the quantity of a body considered on its own and the quantity of a body in blending (which is independent of the question of strict colocation).

⁵⁴ Τὰ γοῦν περὶ κράσεως ὑπ' αὐτῶν λεγόμενα οὐ μόνον οὐ προσχρῆται ταῖς φυσικαῖς ἐννοίαις, ἀλλὰ καὶ πλεῖστον ὅσον ἀποδεῖ. Τό τε γὰρ σῶμα διὰ σώματος χωρεῖν ὅλον ὅλω παρεκτεινόμενον οὐ μόνον <οὐ> προσπίπτει κατὰ τὰς κοινὰς ἐννοίας, ἀλλὰ καὶ ἀδύνατον εἶναι προεἰληπταί. Φυσικῆ γὰρ ἐννοία τὸ τὸ πλήρες μηκέτ' ἐν αὐτῷ δύνασθαι δέχεσθαι τι (μὴ γὰρ ἔτι πλήρες εἶναι δύνασθαι τὸ χῶραν ἔχον ἐν αὐτῷ δεκτικὴν

This passage is the clearest indication in *De Mix.* that the Stoics, to Alexander’s mind, are committed to (strict) colocation.⁵⁵ Alexander does not explicitly mention colocation; he uses the notion of the full (τὸ πλήρες) receiving something into itself. But as Betegh argues (2016, 403–4), Alexander is surely relying on Aristotle’s remarks about why this is impossible; specifically, we may plausibly interpret T8 in light of *Physics* 213b5–11, where Aristotle gives an argument that the full cannot receive something into itself because then two bodies would be in the same place, and that yields various undesirable and supposedly impossible results.⁵⁶ For us, the key point is that Aristotle is clearly thinking of the full receiving something into itself as a case of (strict) colocation. We may reasonably take it, then, that for Alexander too, (strict) colocation is part of what it means that the full receives something into itself here in T8.

If this interpretation is correct, what does T8 tell us about the Stoic theory of blending? Not much, and certainly not that the Stoics themselves posit strict colocation.

The passage is likely corrupt; I have translated the text printed by Groisard (2013, 9), which seems to be the best that can be done given the mss.⁵⁷ For this text, the following interpretation of Alexander’s argument, underlined above, appears most probable (cf. Groisard 2013, 67–8): (i) that

ὁμοίου τινός) ὥφθησαν ἔχειν, δι’ ἣν φυσικὴν τε καὶ κοινὴν πρόληψιν ἤδη δοκεῖ τισιν εὐλογον εἶναι τὸ τῶν σωμάτων δεκτικὸν ὄν καλοῦμεν τόπον.

⁵⁵ There is no explicit statement anywhere in *De Mix.* that the Stoics are so committed. Chs. 5–6 are devoted to refuting the claim that body passes through body whole through whole; but Alexander does not pursue this goal by charging the Stoics with strict colocation, that is, apart from in T8, where this is plausibly part of what is going on. At 11.7–10, it may be argued that he is proceeding on an assumption that entails strict colocation for Stoic blending; likewise, in 12.1–9. But in neither case is he attributing this claim to the Stoics. Further, in each of these passages, the point is to show that bodies’ passing through one another has certain other supposedly absurd consequences (following 11.10, that bodies do not combine in the way they ought to; in 12.1–9, that the Stoics must admit to void within the cosmos, contrary to what they in fact hold). And in any case, there is no indication that strict colocation is considered a part of the Stoic view.

⁵⁶ Aristotle, *Physics* 213b5–11 Ross: οὐ γὰρ ἂν δοκεῖν εἶναι κίνησιν, εἰ μὴ εἴη κενόν· τὸ γὰρ πλήρες ἀδύνατον εἶναι δέξασθαι τι. εἰ δὲ δέξεται καὶ ἔσται δύο ἐν ταύτῳ, ἐνδέχοιτ’ ἂν καὶ ὅποσαοῦν εἶναι ἅμα σώματα· τὴν γὰρ διαφορὰν, δι’ ἣν οὐκ ἂν εἴη τὸ λεχθέν, οὐκ ἔστιν εἰπεῖν. εἰ δὲ τοῦτο ἐνδέχεται, καὶ τὸ μικρότατον δέξεται τὸ μέγιστον· πολλὰ γὰρ μικρὰ τὸ μέγα ἐστίν. On this text and Aristotle’s argument, see Pfeiffer 2016, 377ff; Betegh 2016, 404–5.

⁵⁷ On this, see Groisard’s astute comments (2013, 67–8).

body passes through body, whole coextended with whole, as per the Stoic theory of blending, is preconceived to be impossible; for (ii) there is a natural conception that what is full cannot receive something into itself – because this would be strict collocation – and (iii) if body passes through body, whole coextended with whole, then the full receives something into itself; (iv) what is more, the Stoics are (in some sense) seen to accept this natural conception.⁵⁸

According to this argument, the Stoics are committed to strict collocation and the full receiving something into itself, which is preconceived to be impossible; they are also, in fact, contradicting themselves, since they, in some sense, accept that the full cannot receive something into itself.

Now, for us, what is important is the status of (iii), which states that strict collocation is a consequence of Stoic blending. In T8, (iii) is a necessary but unspoken assumption of Alexander's argument. Unsurprisingly, then, we are not expressly told whether it is a feature of blending posited by the Stoic theory itself. However, we may still say with some confidence that it is not present here as such a feature. For the Stoic theory of blending does not talk about bodies receiving bodies or the full receiving anything into itself, either in Alexander's own previous account of it in *De Mix.* chs. 3–4 or elsewhere. It seems clear that (iii) is Alexander's own claim (which may, of course, be more or less justified). And the fact that he goes on to imply that Stoic blending involves body receiving body in a manner appropriate to place (τόπος) only confirms this.

The last passage I will look at is *Mantissa* 140.10–20:

T9 Further, if wholes coextend with wholes and the smallest with the greatest to the point of their last surface, the composite will occupy the place that the one occupies. For the parts of

⁵⁸ This last claim cannot reasonably be interpreted as saying more than that the Stoics can, according to Alexander, be shown to be committed to the impossibility of strict collocation (and the full receiving something into itself) (cf. Groisard 2013, 67–8).

the whole, if they are in the whole, not being circumscribed by their own limits, reasonably are not in a place by themselves, and each of the items that have been mixed is circumscribed through limits in the same way as the whole [composed] from both, if indeed they are passing through one another wholly. For each of them will occupy the entire place that the one had occupied before the mixing and that the composite [occupies] after the mixing. For it is necessary that what has been mixed [with something], since it comes to be equal to something else, occupies the same and equal place as that. Hence, there will be several bodies in the same place, and each of them will occupy the whole place.⁵⁹

This passage forms part of Alexander's extended case in the *Mantissa* that body cannot go through body (σῶμα διὰ σώματος ἀδύνατον διήκειν: 139.29–141.29). There are certain parallels here to *De Mix.* chs. 5–6, and Alexander certainly has the Stoics and their theory of blending in his sights (139.33–4). However, T9 has no counterpart in *De Mix.*

For us, this text is interesting for two reasons: first, it contains the most precise and explicit treatment of strict collocation in our sources. Alexander carefully specifies that, in blending, the bodies will not only all occupy the same place, but they will also each occupy the whole of it (and no other place). Secondly, he is giving a detailed argument from the Stoic view that body wholly coextends with body in blending to the claim that bodies so coextended will be strictly collocated with one another. Alexander is not *reporting* Stoic thinking in this context; he is clearly in the business of articulating and defending in his own voice a *reductio* of their view.

⁵⁹ ἔτι εἰ ὅλα ὅλοις παρεκτείνεται καὶ τὰ βραχύτατα τοῖς μεγίστοις μέχρι τῆς ἐσχάτης ἐπιφανείας, ὃν κατέχει τὸ ἐν τόπον, τὸ συναμφοτέρον καθέξει. τὰ μὲν γὰρ μόρια τοῦ ὅλου, ἔστ' ἂν ἐν τῷ ὅλῳ ἢ, πέρασιν οἰκείους μὴ περιγεγραμμένα, εἰκότως οὐκ ἔστιν ἐν τόπῳ καθ' αὐτά, τῶν δὲ μεμιγμένων ἐκάτερον ὁμοίως τῷ ὅλῳ τῷ ἐξ ἀμφοτέρων ὑπὸ πέρασιν περιέγραπται, εἴ γε δι' ὅλων κεχωρήκασιν ἀλλήλων. ἐκάτερον γὰρ αὐτῶν τὸν πάντα καθέξει τόπον, ὃν καὶ θάτερον κατεῖχεν πρὸ τῆς μίξεως καὶ μετὰ τὴν μίξιν τὸ συναμφοτέρον. καὶ γὰρ τὸ μεμιγμένον, τῷ ἐτέρῳ ἴσον αὐτῷ γινόμενον, ἀνάγκη τὸν αὐτὸν καὶ ἴσον ἐκείνῳ κατέχειν τόπον. ἔσται ἄρα ἐν τῷ αὐτῷ τόπῳ πλείω σώματα, καὶ ἕκαστον αὐτῶν τὸν ὅλον καθέξει τόπον.

Alexander's argument appears to turn centrally on the claim that the ingredient bodies will not each have a place of their own in the blending, since they will not have their own limits by which to determine such a place (*Mantissa* 140.12–15). This last is not the position of the Stoics; there is good reason to think Alexander knows that the Stoics, on the contrary, insisted that blending bodies and their parts retain their own surfaces/limits (*De Mix.* 1.1–16, 14.13–27; see also my 2018).

However, what is important in this connection is not the details of the reasoning, but rather the fact that Alexander, our best source for the Stoic theory of blending, evidently has a need to show through an argument of his own that strict colocation is a consequence of Stoic blending. Such a procedure would make no sense if the Stoics themselves stated that blending bodies are strictly collocated or the Stoics posited this as a requirement of mutual coextension whole through whole – that is, at least as far as Alexander knows (cf. *De Mix.* 25.3–17, with Groisard 2013, 96).

Let us take stock. Of the passages we have considered, T6–9, none provides positive evidence that the Stoics themselves posited strict colocation. What they do, first and foremost, is show that a range of critics took this to be a consequence of Stoic blending.

Our examination of these texts also lends credence to the following conjecture: the reason we are not told that the Stoics posited strict colocation is that they *did not do so*. Plutarch would certainly not hesitate to quote Chrysippus (or another Stoic) admitting that blending bodies strictly collocate, if he had the means, nor would he more generally hold back from reporting this fact, if he knew it to be a fact. The reason he does not is surely that he did not have the grounds for either. Likewise, if whole-through-whole ἀντιπαρέκτασις and body passing through body were recognized by the Stoics as requiring strict colocation, we would expect Alexander to tell us and to trumpet this Stoic admission of what he takes to be absurd and impossible. But not only does he not do this, he also goes out of his way to argue in detail that strict colocation follows from Stoic blending.

Based on the available evidence, the most likely answer to our question (2) thus appears to be 'no, the Stoics did not posit strict colocation as a requirement of bodies being blended'. Of course,

the case for this is indirect and founded on the silence of our sources. We cannot entirely rule out the possibility that the Stoics did admit to needing strict colocation for their theory of blending to work. This should mean that our sources were unaware of this fact or chose to omit it (however unlikely that would be). A further inference also seems safe: strict colocation did not play a central role in the Stoic theory of blending. Whether or not strict colocation is in fact required and whether or not the Stoics were aware of any such requirement, it seems clear that their theory of blending was not focused on this. To suppose otherwise would require us to think that our sources missed a central part of the Stoic theory.

This completes my main argument concerning question (2). The last thing I want to do in this section is to outline a general difficulty for the supposition that disjoint bodies may strictly colocate, on the Stoic way of thinking. If the following interpretation is along the right lines, the Stoics will have had a clear reason not to posit strict colocation for blending bodies, which would explain why our sources do not report such a posit.

In Section 2 above, we saw that the general definition of place (τόπος) does not rule out strict colocation or positively suggest that it is possible. However, from the way the Stoics appear to have thought about *the individuation* of places, there is nevertheless some difficulty in seeing how strict colocation in principle could occur.

The reason is this: we are told by Sextus (*M* 10.3, SVF 2.505) and Stobaeus (*Ecl.* 1.161.8–26, SVF 2.503), and Iamblichus confirms (in Simplicius, *In Cat.* 361.7–12, SVF 2.507), that places, for the Stoics, are limited by the bodies that occupy them, and not vice versa. That is to say, more precisely: *the limits of the bodies* that occupy places determine the limits of those places (which do not independently have limits of their own). So, a place wholly occupied by Socrates, for instance, will thus be limited and determined according to the limits of Socrates.⁶⁰

⁶⁰ On Stoic thinking regarding limits, see for instance Ju 2009; Robertson 2004.

The limits of a body distinguish it from other bodies and they distinguish its parts from one another and from the parts of other things.⁶¹ The limits of a place will presumably do likewise. So, we will individuate places (and their parts) by reference to the bodies that occupy them.

If this is right, it has an important consequence for strict colocation. Strict colocation, we recall, requires precise sharing of places: roughly, *A* strictly collocates with *B* just in case *A* occupies a place *P* and no other place, and *B* also occupies all of *P* (see Section 2 above). Now, if places are individuated in accordance with the limits of the occupying bodies, it will be impossible for bodies strictly to colocate *unless the bodies in question share limits* (some or all). For this is, apparently, the only way for there to be a single place fully occupied by both. Since disjoint bodies have their own distinct limits by which they are distinguished, it follows that such bodies do not strictly colocate.

There is good reason to think that blending bodies, on the Stoic way of thinking, remain wholly disjoint and retain their own limits (see note 48 above; Helle 2018, 96–103). And if so, it seems that blending bodies will be precluded from strictly collocating as a consequence of how places are individuated.

Naturally, much would be needed to fill out this argument.⁶² For us here, the key point is that the Stoics appear to think of the individuation of places in a way that makes it difficult to see how one could have strict colocation for disjoint bodies. This would be a reason for them not to posit strict colocation for blending bodies, and it could help explain why our sources do not report them doing so.

⁶¹ That limits have an individuating and distinguishing function is not a specifically Stoic view. For Stoic applications of the general idea, see Plutarch, *De Stoicorum repugnantiis* 1054B–C Westman, *Comm. not.* 1074B–C; for the case of bodily limits, see for instance Plutarch, *Comm. not.* 1080D–E, with 1081A (cf. 1078B); Alexander, *De Mix.* 14.13–27, 1.1–16; Galen, *UP* 1.1–2.3; Diogenes Laertius 7.135. For the related Stoic view that bodies joined by parthood are not fully distinct and not counted separately, see note 15 above.

⁶² For example, it is assumed that since disjoint bodies each have their own distinct limits, there will be some corresponding distinctness in the places occupied by such bodies. This also seems to be Alexander's assumption in T9: that bodies with their own distinct limits have their own distinct places. But if this is denied, strict colocation may be possible for disjoint bodies. Thus, if there is reason to think that when bodies are blended their distinct limits *do not* determine distinct places for them, then blending bodies may turn out to be strictly collocated, despite being disjoint.

6 Concluding remarks

In this paper, I have argued that strict collocation is not part of the Stoic definition of blending, i.e. the standard, Chrysippean definition, and that there is at least some reason to think that the Stoics did not even posit strict collocation as a necessary requirement of blending. This is an important result for the interpretation of Stoic physics. It means that strict collocation is not supposed to play a central role in accomplishing the work assigned to blending and may have no role at all – contrary to what is held in most current Stoic scholarship.

A further question that I have not addressed is whether strict collocation is in fact required for bodies to blend in the Stoic way (see Section 3 above). From the point of view of the present paper, this is left open. It is consistent with my interpretation, then, to hold that strict collocation is entailed by Stoic blending. This would most likely mean that the Stoics did not recognize the entailment or else failed to call attention to it. So, for all I have said so far strict collocation could be an important feature of Stoic blending, that is, in the sense of being a philosophically significant feature of blending according to a fully worked out theory of the sort favored by Chrysippus and the Stoics.

Above I noted that strict collocation by disjoint bodies may seem to be precluded by Stoic thinking about the individuation of places. If that is right, the Stoics had a good reason not to require strict collocation for blending bodies. But to settle the question of whether strict collocation is in fact required, we would need a more detailed inquiry into the relations between bodies and their locations, and, in the end, we would have to decide if a way of thinking of location *should be preferred* on which Stoic blending entails strict collocation. My concern here has been to understand Chrysippus' and the Stoics' own thinking about blending, and for that, it is not necessary to settle this issue.

So far, I have focused on blending itself and left to one side its wider role in Stoic physics. Let me now briefly make one point in this regard. A central function of blending in Stoic physics is to help explain how pneuma and matter combine so that a unified body is composed – a human being, a plant, etc. In assessing interpretations of the Stoic theory of blending, we should consider how this function is served in each case. To interpret blending in terms of strict colocation would contribute only minimally: at best, strict colocation might explain how pneuma and matter are *in a position* to compose a unified body; to say that pneuma and matter are strictly colocated does not itself shed light on the how and why of the composition in question. This should make it less surprising to find that the Stoics did not define blending in terms of strict colocation, nor apparently posited strict colocation as a requirement for blending. It also gives us further reason to seek a different interpretation of Stoic blending. I have defended such an interpretation (Helle 2018, 2021; see also Section 4 above), according to which blending is to be understood in terms of causal interaction and qualitative modification, and which at least provides a schema for how pneuma-matter blending could help explain the composition of unified bodies. But whether or not this particular account is accepted, interpretations that assign pride of place to strict colocation seem ill-equipped even to attempt the task at issue.

And we have seen that our best evidence of how the Stoics define blending and understand the conditions under which the definition is satisfied does not invite us to interpret blending in terms of strict colocation. On the contrary, it seems clear that strict colocation has no part in the definition of what blending is, and we have found no good reason to say that the Stoics posited strict colocation as a further condition.

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