The term āśraya (“support” or “basis”) is used in manifold ways in the Abhidharmakośa and its bhāṣya (AKBh). This comes from the fact that its basic meaning, indicating anything on which something else depends or rests, is quite generic. Despite the plasticity of its usage, we can find some recurring and distinct technical applications of the term in the AK(Bh), which I explore in my paper. First, I look at its usage of characterising a member of various asymmetric dependence relationships on which the arising and sometimes also the persistence of the other relatum depends. Through examining the nature of various āśraya-āśrita dependence relations the AK(Bh) discusses, I show that āśraya stands for an entity that determines the fundamental nature of the thing it supports. In the second half of the paper, I move on to those occurrences of the term where āśraya has a specific referent. While āśraya can refer to the six sense faculties (indriya) individually, it can also stand for them collectively pointing towards its widespread meaning as ‘psychophysical basis’. In this context, the focus often shifts either to the material or the mental elements that make up a sentient being. I will dedicate special attention to the discussion of the transformation of the basis (āśrayaparāvṛtti), where, on my reading, it is more natural to interpret āśraya as referring primarily to the mind (citta), with its bodily connotations being marginal.

Keywords Vasubandhu · Abhidharmakośabhāṣya · āśraya · Support · Basis
meaning is quite generic. It can denote virtually any entity or event on which another depends, and it occurs in a variety of contexts ranging from how a wall supports a painting to philosophically more complex ideas such as ontological dependence. Despite the plasticity of its usage, we can find some recurring and distinct technical applications of the term in the AK(Bh), which I will explore in my paper.

First, I will look at its usage of characterising a member of various asymmetric dependence relationships on which the arising and sometimes also the persistence of the other relatum depends. Through examining the nature of various āśraya-āśrita dependence relations the AK(Bh) discusses—focusing on the relation between the great elements (mahābhūta) and the derivative material forms (upādāyarūpa); and the sense faculties and their respective consciousnesses—I will show that āśraya primarily stands for an entity that determines the fundamental nature of the thing it supports. While the term occasionally refers to one-off generative causes, it is more often used in the context of ontological dependence relationships where the support also accounts for the continued existence of the supported.

After discussing these relationships, I will move on to those occurrences of the term where āśraya has a specific referent. While āśraya can refer to the six sense faculties (indriya) individually, it can also stand for them collectively pointing towards its widespread meaning as ‘psychophysical basis’. In this context, as we will see, the attention of the text often shifts either to the material or the mental elements that make up a sentient being. In certain cases, such as when talking about the body’s injuries, beauty or repulsive appearance it is the bodily connotations of the term that are dominant. However, in soteriological contexts, more precisely in the discussion of the transformation of the basis (āśrayaparāvṛtti), on my reading, it is more natural to interpret āśraya as referring primarily to the mind (citta) or mind-stream (cittasaṃtati), with its bodily connotations being marginal.

The Basic Meaning: āśraya as a “Basis” or “Support” in Dependence Relations

In the AK(Bh), the term āśraya (a noun derived from the root ā-śrī meaning, in its most general sense, to rest, lean or depend on) frequently appears in the context of asymmetric dependence relationships. By this I mean those relationships where one relatum depends on another, but not the other way round. For instance, to use a popular Buddhist example, there cannot be fire without fuel, but there can be fuel without fire.1 As such, āśraya is contrasted with the notion of āśrita (a past passive participle of the same root) indicating something that is supported by or based on that āśraya. In this basic meaning, āśraya or its variants are typically predicated (as

---

1 Besides their asymmetric existential relationship, fuel and fire also stand in a notional dependence relationship. In this sense, fuel also depends on fire, since we only call a heap of wood ‘fuel’ when we consider it in relation to the fire it might sustain.
in ‘X is an āśraya of Y’) of any phenomenon that in the given context functions as a support of another.

The ways an entity may depend on another are various. Probably the most straightforward case is when it depends on something else for its existence, like fire does on fuel. Such existential dependence relations include one-off generative causes as well as more sustained, so-called ontological dependence relations. This latter refers to relationships where an entity requires another entity not simply for its arising but its continued existence, hence they are sometimes held to indicate a ‘deeper’ ontological relation than mere causal dependence. For instance in a quotation attributed to the Buddha, it is said that “poems are based on (saṃniśrita) words, and the poet is the basis (āśraya) of the poems”. It is clear that the way the poem depends on the poet is completely different to how the poem depends on its words. While the poet is only a one-off generative cause where the supported, that is the poem, can exist independently, even long after the cessation of its support, the poem only persists as long as the words constituting it exist. For describing the relationship between the poem and its words the text does not use the term āśraya but the related variant saṃniśrita. A similar contrast between these two terms can be observed in another passage of the AKBh concerning the relation between the four great elements (earth, water, fire, and wind) and one specific type of derivative material form accepted by the Vaibha¯ṣikas, the so-called unmanifest material form (avijñaptirūpa). The AKBh differentiates those past great elements of the body (involved in the manifest bodily or vocal actions) which served as the cause of the arising (pravṛttikāraṇa) of avijñaptirūpa, considering them to be its āśraya, and those present great elements of the body which are the cause of its persistence (anuvṛttikāraṇa), calling them its saṃniśraya. It is important to note that the moral character of avijñaptirūpa, that is whether it is auspicious (kuśala, śubha) or inauspicious (akuśala, aśubha), is defined by the moral nature of the manifest action that gave rise to it.

On the basis of these examples, we might suppose that āśraya is used in the sense of being a one-off generative cause. However, if we survey the term’s occurrences in the text, we find no such consistent terminological difference, and, in fact, āśraya —when used in its basic meaning—predominantly features in ontological dependence relations. Although it is sometimes challenging to fit the Buddhist examples into these categories, various forms of ontological dependence relations are

2 Ney (2014, pp. 54–55) and Tahko and Lowe (2020).
3 AKBh 81.23 ad AKK 2.47ab: nāmasaṃniśrītā gāthā gāthānāṃ kavir āśrayaḥ iti | By default I refer to the edition of Pradhan 1975 (= AKBh). In case I find its reading better, I cite Shastri 1998 (= AKBhS), indicating the noteworthy differences between the two editions. For the abbreviations of works I use, see the Bibliography.
4 Avijñaptirūpa plays a crucial role in explaining the karmic efficacy of bodily and vocal actions in Sarvāstivāda-Vaibha¯ṣikas Abhidharma. On Vasubandhu’s views on avijñaptirūpa see Dowling (1976), Gold (2021).
5 AKBh 199.18–20 ad AKK 4.4cd: prathamāt kṣaṇād ārdhvaṃ avijñaptiḥ kāmāvacarī atītātī mahābhūtānāv api dāyaotpadyate | tān asyā āśrayārthena bhavanti | pratyutpānānā śatīramahābhūtāni saṃniśrayārthena | pravṛttyanuvṛttikāraṇatvādi yathākramam |
6 See AKK 1.11 and AKBh 8.3–6.
differentiated in contemporary philosophical literature. These include cases where the support determines all properties of the supported, for example, mereological dependence, that is, the relation wholes bear to their parts, or supervenience, ordinarily defined as the impossibility of a change in a thing (property or fact) without there being a corresponding change in the thing (property or fact) it depends on.\(^7\) Substance-attribute dependence, that is the idea that attributes need a substance for their existence, is also often discussed as a form of ontological dependence.\(^8\) Even though it is not standard in modern classifications, on the basis of its broader definition seen above, it will also be worthwhile to include any cause required for the sustained existence of another entity in the category of ontological dependence relations.

At this point, we should look at some additional passages of the AK(Bh) to get a better grasp of how the term āśraya is used. The example of fuel and fire mentioned above is analysed in chapter 9 of the text, which focuses on the rejection of the various self-related conceptions developed by Buddhist, namely the Vātsīputriyas (also often labelled as pudgalavādins), as well as non-Buddhist philosophical traditions. According to the Vātsīputriyas, the person (pudgala) is neither the same nor something different from the five aggregates (skandhas).\(^9\) In their attempt to defend this position, Vasubandhu’s interlocutor claims that the pudgala is ‘conceived in dependence upon the aggregates that are internal, appropriated, and [exist] in the present’.\(^10\) Perplexed by this statement, Vasubandhu challenges his opponent to clarify what the phrase ‘in dependence upon’ (upādāya) means, who in order to illustrate the relationship between the skandhas and the pudgala appeals to the simile of fuel and fire. One possible interpretation raised in the text for analysing the relationship between fuel and fire is that fuel serves as a support of (āśraya) and co-exists with (sahabhāva) fire. Adapting the simile to the skandhas and the pudgala, Vasubandhu argues that such a relationship would mean, on the one hand, that the skandhas and the pudgala are clearly distinct entities, and, on the other, that if the skandhas did not exist, the pudgala would not exist either, just as there can be no fire without fuel.\(^11\) Although this passage does not clarify the exact nature of an āśraya-āśrita relationship, the association of āśraya with the idea of co-existence (sahabhāva) recalls our notion of ontological dependence. The concept of āśraya

\(^7\) Ney (2014, pp. 55–56). These categories, however, are not necessarily mutually exclusive, since mereological dependence is sometimes considered to be a form of supervenience, see Kim (2005, especially pp. 567–568).

\(^8\) Tahko and Lowe (2020).

\(^9\) Siderits (2003, pp. 12, 85–90) describes this position as the pudgala non-reductively supervening on the skandhas. Non-reductive supervenience (or emergentism) refers to the view that genuinely novel properties emerge from its supervenience “base”, that is, properties which, though determined by, cannot be explained in terms of the properties of the base. See also Goodman (2005, p. 391). For a critical analysis of the pudgalavāda position see Siderits (2003). For a detailed examination of Vasubandhu’s arguments against the pudgalavāda and the tīrthikas specifically, see Duerlinger (2003).

\(^10\) AK Bh 461.20–21: ādhyātmikān upāttān varttamānān skandhān upādāya pudgalān prajñapyate \(\mid\)

\(^11\) AK Bh 462.17–19: yady āśrayārtha upādāyārthāḥ sahabhāvārtho vā | skandhā apy evam pudgalasyāśrayasahabhāvāḥ prāpnuvantāti vispaṭaṃ anyātvaṃ pratijñāyate \(\mid\) tad abhāve ca pudgalābhāvāḥ práppnoti | indhanabhāva śvāyānabhāvah \(\mid\) For an analysis of how these two claims contradict the pudgalavāda position see Duerlinger (2003, pp. 157–158).
therefore is not limited to one-off generative causes but, as the example shows, can also be used to indicate a cause that sustains the existence of another entity over time. Taking into account the Abhidharmic notion of momentariness (kṣanikavāda), the distinction between the one-off and this sustained form of causal dependence might seem less clear-cut, since the latter can be analysed in a similar manner to, say, the case of the poet and the poem, as, strictly speaking, it is only a momentarily existing dharma that serves as the one-off cause of another momentarily existing dharma. However, a significant difference between these cases is that, unlike the poem, a sustained effect such as fire, construed as a distinct continuum or series of momentary dharmas, is inseparable from its āśraya insofar as there is no moment of fire without a distinct moment of fuel causing it (whether they exist in the same moment or the former immediately follows the latter).

As we have seen above, the AKBh considers the great elements to be the support of avijñaptirūpa, a specific type of derivative material form. The great elements, however, do not only serve as the support for the unmanifest material form. When analysing the term mahābhūta, Vasubandhu notes that they are called ‘great’ because they are the basis (āśraya) of all other kinds of matter, which, as Yasōmitra’s commentary, the Spuṭārthā Abhidharmakośavyākhyā (AKVy), confirms, refers to all forms of derivative matter. Although neither Vasubandhu nor Yasōmitra specifies what is meant by this relationship here, certain passages of the AKBh suggest a mereological or constitutive relation (which, as we have seen, is a kind of ontological dependence relationship). For instance, in the commentary of AKK 2.22d and 1.13d, it is noted that derivative matter is supported (āśraya) by a tetrad of primary elements (with the latter conceived here as property particulars or tropes). A natural reading of these passages is that derivative matter is supported by the primary elements in the sense of being constituted by the four of them. Some other Abhidharmic texts, such as Skandhila’s Abhidharmāvatāra, also seem to substantiate a mereological interpretation, claiming that the mahābhūtas are ‘great’ because they are found in all secondary matter. Mereological analysis was commonly used in Buddhist philosophical treatises in order to show that anything that disappears when deconstructed either physically or by the mind, exists only nominally (prajñaptisat), but not ultimately (paramārthasat). Despite their seemingly mereological dependence on the great elements, most Ābhidharmika masters accepted (at least some of) the derivative material forms as ultimately real entities, that is having the same ontological status as the great elements. Masters

12 AKBh 8.14 ad AKK 1.12ab: mahattvam esām sarvānyarūpāśrayatvena ndārikatvā | AKVy 42.19–20: sarvopādāyarūpāśrayatvena mahattvād ity arthah | According to the Vaibhāṣikas, derivative material forms include the five sense faculties, their five respective objects and avijñaptirūpa, see AKK 1.9ab, AKBh 5.23–26.

13 AKBh 53.25–26 ad AKK 2.22d: evam api hūyāṃsi bhūtadrayyāni bhavany upādāyārūpānān pratyekeh bhūtacatuskāśritatvāt | AKBh 9.26–10.1 ad AKK 1.13d: cchāyādi varṇaparamānānān pratyekeh svabhūtacatuskāśritatvābhupagamāt | On atoms (paramānā) considered as a bundle of tropes, see Goodman (2004, pp. 399–400). On the relationship between primary and secondary matter as well as the Abhidharmic atomic theory, see Dhammajoti (2015, pp. 219–238).

14 Dhammajoti (2015, p. 220).

15 On mereological and conceptual dependence in connection with the dharmas, see Westerhoff (2018, pp. 71–73).
such as Dharmatrāta or Srīlāta questioned only the reality of avijñāpārika or the derivative tangible forms. Buddhadeva, in contrast, held secondary matter to be nothing else than the specific type or state of the mahābhūtas.\footnote{Dhammajoti (2015, p. 220). For Buddhadeva’s position and its critique see AKbh 24.1–15 ad AKK 1.35c. Siderits (2004, p. 415, n. 15.) notes that in AKBh ad AKK 2.22d the Vaibhāsika speaker seems to admit that derivative matter is reducible to a complex arrangement of primary elements, therefore phenomenal properties such as colours or odours do not exist independently of the mind. With regard to AKBh ad AKK 2.65b, Goodman (2004, pp. 398–399) by contrast argues that Vasubandhu construes the relationship between primary and secondary matter as non-reductive supervenience. As he explains, what makes his position non-reductive is that Vasubandhu accepts derivative material forms to be real entities.}

In any event, we might also interpret the āśraya-āśrīta relationship between the great elements and the derivative material forms in a broader sense of causal dependence. Vasubandhu differentiates five ways in which derivative material forms are held to be caused by the mahābhūtas.\footnote{Vasubandhu provides alternative names for all the five causes, see AKbh 103.1–2: evam eṣāṃ jānnavikārākāraśthānādīhitvāhitvatvaṁ ākhyaṁ bhavati | AKBh 102.26–27: jananahetussa bhavyaṁ bhūtānām ākhyaṁ tu bhauktasya tebhya utpatteḥ | AKVy 356.13–14: jananahetuvam eṣāṃ bhūtānām ākhyaṁ tu bhauktasya tebhya utpatteḥ | AKBh 102.27–28: niśrayahetasaḥ sa bhūtānusviddyāvītvā pariṣṭhitvārthaṁ ācāryāṇiśrayavat | AKVy 356.14: vikārāhitvāmaḥ tadanusvidhyāvītvā | AKVy 355.26–27: bhūtānusvidhyāvītvā iti | bhauktamāṃ bhūtānāṃ anvidhitate | advikāre vikārāti | AKBh 102.28: pratiṣṭhāhetuḥ ādhārbhūvāt | citrakrtyavat | AKVy 39.8–9: pratiṣṭhāhetuḥ ādhārabhūvāt citrakuṣṭaḥ | For a passage where ādhāra is used interchangeably with āśraya see e.g. AKBh 73.27–28 ad AKK 2.45b.}

The first is to be their generative cause (jananahetu), also called by Vasubandhu as a cause of arising (janmahetu).\footnote{AKVy 355.26–27: janmahetuḥ | janmahetaḥ | janmahetus tebhya utpatte | evam eṣā | janmanahetuvam eṣāṃ bhūtānām ākhyaṁ bhavati | akhyātaḥ bhavati | AKBh 102.26–27: jananahetussa bhavyaṁ bhūtānām ākhyaṁ tu bhauktasya tebhya utpatteḥ | AKVy 356.13–14: jananahetuvam eṣāṃ bhūtānām ākhyaṁ tu bhauktasya tebhya utpatteḥ | AKBh 102.27–28: niśrayahetasaḥ sa bhūtānusviddyāvītvā pariṣṭhitvārthaṁ ācāryāṇiśrayavat | AKVy 356.14: vikārāhitvāmaḥ tadanusvidhyāvītvā | AKVy 355.26–27: bhūtānusvidhyāvītvā iti | bhauktamāṃ bhūtānāṃ anvidhitate | advikāre vikārāti | AKBh 102.28: pratiṣṭhāhetuḥ ādhārabhūvāt | citrakrtyavat | AKVy 39.8–9: pratiṣṭhāhetuḥ ādhārabhūvāt citrakuṣṭaḥ | For a passage where ādhāra is used interchangeably with āśraya see e.g. AKBh 73.27–28 ad AKK 2.45b.} This relationship seems to be quite straightforward since both according to Vasubandhu and Yasōmitra, it means that the derivative material forms arise from the great elements.\footnote{AKBh 73.27–28 ad AKK 2.45b.} The second cause, which bears a name visibly related to āśraya, is the supporting cause (niśrayahetu). With regard to the supporting cause, Vasubandhu says that the arisen derivative material forms follow or conform to the great elements.\footnote{Vasubandhu says that the arisen derivative material forms follow or conform to the great elements as the view that they undergo a change whenever the great elements change.\footnote{Vasubandhu says that the arisen derivative material forms follow or conform to the great elements as the view that they undergo a change whenever the great elements change.} Accordingly, niśrayahetu is also called as a cause of modification or change (vikārāhetu). This relationship between primary and secondary matter is compared by Vasubandhu to the way a student relies on their teacher. Yasōmitra’s remarks are especially helpful here as he glosses Vasubandhu’s claim about the derivative material forms following or conforming to the great elements as the view that they undergo a change whenever the great elements change.\footnote{Yasōmitra’s commentary on niśrayahetu does not only recall our definition of supervenience seen above, but, as we will see it shortly, is also in line with Vasubandhu’s definition of āśraya given in the context of the six sense faculties (indriya) and the consciousnesses (vijñāna). The third way derivative material forms are held to be caused by the great elements is that the latter serve as their establishing cause (pratiṣṭhāhetu) or substratum cause (ādhārahetu). Ādhāra is occasionally used as a synonym for āśraya, and Vasubandhu appeals to the simile of a wall supporting a painting to illustrate this sort of relation between the two forms of matter.\footnote{For a passage where ādhāra is used interchangeably with āśraya see e.g. AKBh 73.27–28 ad AKK 2.45b.} The painting should probably be understood here as a mural, suggesting that the great}
elements do not simply provide the locus, but the substratum or physical support of the derivate material forms. Concerning the fourth cause, the maintaining (upastambhahetu) or sustaining cause (sthitihetu), Vasubandhu claims that it is by virtue of the great elements that the temporal existence of the derivative material forms is not interrupted or cut off. In the case of the strengthening cause (upavrmahanahetu), Vasubandhu and Yāśomitra only say that it is synonymous with the cause of growth (vrddhiheto). Although it is listed as a separate cause, on account of its two names, it can be interpreted as being similar to vikārahetu: the great elements cause certain changes in the secondary material forms, specifically that they grow or become stronger.

In light of the passages discussed so far, we have multiple options for interpreting the sense in which the great elements are the āśraya of the derivative material forms. As we have seen, the commentary on AKK 2.22d and 1.13d suggesting that derivative forms of matter consist of the primary elements allows for a reading along the lines of a mereological or constitutive dependence relation. It is, however, also plausible that the great elements are regarded as the āśraya of derivative material forms in five causal ways, in the sense of bringing them about, determining their states and growth, as well as spatio-temporally sustaining them. This causal interpretation would make the dependence relationship meant by āśraya identical to that expressed by upādāya, a term used to denote the fivefold causal dependence between primary and secondary matter in the commentary on AKK 1.11.

While we cannot exclude the possibility that an āśraya-āśrita relationship may refer to different relationships in different contexts, assuming that Vasubandhu had a unified and more specific technical application of āśraya in mind, it is reasonable to think that the āśraya-āśrita relationship consists in the second out of the five causes, that is the niśrayahetu. Accordingly, the reason why the great elements are regarded as the āśraya of derivative material forms is that the state of the latter conforms to the state of its support. This interpretation of āśraya is substantiated not only by the similarity of their names (i.e. niśraya and āśraya), but also by an important passage in the AK(Bh) to be discussed below that analyses the relation between the sense faculties (visual, auditory, olfactory, gustatory, tactile and mental faculties) and their respective consciousnesses (vijñāna). Looking at this passage will also give us a better picture of why the mereological and the fivefold causal

23 Siderits (2004, pp. 400–401) construes pratiṣṭhāhetu more strongly as ‘material-base cause’ in the sense of ‘material constitution’. In the Praṇānavārttika of Dharmakīrti, ādhāra seems to indicate a cause that locates and keeps things at the same place, see Franco (2020, p. 83). As we will see it later, the latter interpretation seems to be more in line with another example Vasubandhu gives in chapter 9 of how the fruit is supported by the bowl, as well as with his ensuing explanation.

24 AKBh 103.1: upastambhahetur anucchedahetuttvā | AKV 356.15: sthitihetuvam anucchedahetuttvā | AKVy 356.15–17: vrddhihettvam upavrmahanahetuttvād iti

25 The five causal connections are also discussed in Sthiramati’s Pañcasandhakavihāsā but they show some dissimilarities to Vasubandhu’s and Yāśomitra’s explanations, see PSK 6.5–9.

26 AKBh 8.7 ad AKK 1.11: hetvartha upādāyārtha iti vaibhāṣikāḥ | jananādihetubhāvāt | Here upādāya is considered to be equivalent with hetu.
interpretations are less feasible avenues to pursue in understanding the meaning of āśraya.

In the commentary on AKK 1.45ab, Vasubandhu’s opponent raises the question of why only the sense faculty is to be considered the āśraya of consciousness and not the object as well, when the arising of consciousness depends on both of them. The question shows that the opponent has a broader understanding of āśraya, including any cause of the arising of an entity. Vasubandhu specifies that in order to consider something an āśraya it needs to fulfill an important condition which does not hold true of the objects.

The eye and so on are the supports [of the respective consciousnesses], since due to the change [of the faculties], there is a change [of consciousnesses].

Due to the change of the eye and so on, there is a change of the [respective] consciousnesses, because they conform [to the faculties] being treated, impaired, sharp or weak. But there is no such change [of consciousness] due to the change of the visual objects, etc.28

Although consciousness depends on a sense faculty as well as an object for its arising, Vasubandhu claims that only the faculty serves as the āśraya of perception, for the change or modification of the faculty brings about a change in the respective consciousness.29 The object, on the other hand, does not have the same effect on consciousness. Just as we have seen in the case of niśrayahetu (or vikārahetu), Vasubandhu describes the dependence relationship between āśraya and āśrīta in terms of the supported relatum following or conforming to the modification of its support. This close and invariable dependence, which is missing in the case of the objects, makes the respective faculty the support of consciousness.30 Clarifying what sort of change he has in mind, Vasubandhu gives various examples of such modifications of the faculties: for example when one treats the eye, as Yaśomitra specifies, by applying ointment on it, when it is impaired by dust or some other substance, or when it is sharp or weak. In the case of the eye being treated by ointment or impaired by dust, Yaśomitra notes that consciousness arises accompanied by pleasant (sukha) or unpleasant (duḥkha) feeling, respectively. As an

28 AKBh 34.19–21 ad AKK 1.45ab: tadvikāravikārītvād āśrayāś caṇsurādayāḥ | […] caṇsurādīnāṁ hi vikāreṇa tadvijñāṇānāṁ vikāro bhavaty anugrahapagāhāpatuṃmandatānuvidānāt na tu rūpādīnāṁ vikāreṇa tadvikāraḥ |

29 Although Vasubandhu talks simply about the ‘eye’, he means the indriyas. As other passages of the AKBh elucidate, the coarse sense organs, such as the eyeball, are the adhiṣṭhāna, i.e. ‘seat’ or ‘basis’ of the respective faculties, see for instance AKBh 21.6–7 ad AKK 1.30cd. Nonetheless, the sense faculties are also held to be composed of atoms arranged in a unique way in the adhiṣṭhānas, see AKBh 33.16–23 ad AKK 1.44ab.

30 In the same verse (AKK 1.45cd), Vasubandhu notes another difference, namely, that the indriyas, unlike the objects, are ‘not shared’ (asādhāraṇa). What he means by this is that eye is the āśraya of the visual consciousness exclusively, while an object of perception, for instance a visible form, can be the object of both the eye and the mental consciousness. The bhāsa, however, does not consider this remark as an explanation of why the sense faculty is the āśraya of consciousness, but why the consciousnesses are named after their indriyas.
example of a weak (*manda*) eye, he mentions old age, while as for being sharp (*paṭu*), he refers to the eye of a vulture.\(^{31}\) The reason why the objects are not thought to similarly modify consciousness is somewhat elucidated by Yaśomitra’s sub-commentary, who outlines two opposite scenarios: (a.) the eye being in a favourable (*anugṛhīta*) condition while the visible object being damaged (*upahata*), and (b.) the eye being damaged while the object being in a favourable condition. With regard to the first case, he gives the example of those who are indifferent towards or no longer attached to the object perceived. According to Yaśomitra, their consciousness is not modified by the object, since it arises without *duḥkha*.\(^{32}\) On the other hand, if their *āśraya* does not function properly, their consciousness is affected by various misrepresentations or illusions, for example, when due to jaundice (*kāmala*) one sees everything with a yellow hue, or due to ophthalmia (*timira*) one sees things covered with a ‘net of hair’.\(^{33}\) While, as the first scenario shows, the object does not have the capacity to modify consciousness in and of itself, the altered state of the faculties will necessarily bring about an overarching change in the mode of consciousness.

As I mentioned with regard to *nisrayahetu*, Vasubandhu’s analysis of the *āśraya-āśrita* relationship in terms of the supported entity conforming to the change of its support is reminiscent of our notion of supervenience.\(^{34}\) Despite the similarities, there are some differences between Vasubandhu’s idea and the modern conception of supervenience that should be noted here.\(^{35}\) While Vasubandhu says that if there is a change in the *āśraya* there must be a change in the *āśrita* as well, supervenience is generally defined the other way round, that is, if there is a change in the supported entity there must be a change in the support as well. Vasubandhu’s phrasing allows for the possibility that the support does not wholly determine the supported, or in other words, not all changes of the supported entity depend on its support. Using Vasubandhu’s example of a student relying on their teacher, while a change in the teacher’s thoughts will inevitably influence the student’s ideas, it does not follow

\(^{31}\) See AKVy 126.12–28.

\(^{32}\) AKVy 126.21–23: *tathā hi cakṣusy anugṛhīte rūpe copahate tadvātarāgānāṃ madhyasthānāṃ ca cakṣurväjñānāṃ avikāram utpadyate | na tu saduḥkham utpadyate | *  

\(^{33}\) AKVy 126.23–25: *rūpe punar anugṛhīte pariyakte cakṣūṣi copahate kāmalavyādhinā timiropaghātena vā pūtadarśanāṃ bhrāntaṁ keśoṇ ukāḍidārśanaṁ vā pravartate |*  

\(^{34}\) Ganeri (2012, pp. 132–133) interprets the relationship between the faculties and the consciousnesses as supervenience.

\(^{35}\) Discussing the relationship between the great elements and derivative matter, Goodman (2004, pp. 398–399) notes that a noteworthy difference between supervenience and the notion of *nisrayahetu* is that supervenience is generally considered a simultaneous relationship, while *nisrayahetu* exists one moment before the derivative form it produces. Nonetheless, he still calls it supervenience as it remains true that the higher-level properties metaphysically depend on a supervenience basis. As I mentioned in passing, in the Buddhist context, I also consider a moment delay between cause and effect to be compatible with ontological dependence. On the other hand, limiting his investigation to the relationship between primary and secondary matter Goodman does not clarify whether *nisrayahetu* necessarily excludes simultaneity. It should be noted, however, that the Vaibhāṣikas, unlike the Sautrāntikas, endorsed a theory of simultaneous causation, claiming that consciousness, albeit an effect, exists at the same time as its causes, the sense object and the *āśraya*, i.e. the sense faculty. On simultaneous causation and its critique see Westerhoff (2018, pp. 67–70, 79–80).
that all changes of the student’s thinking necessarily come from the teacher.  
Vasubandhu’s phrasing and especially his simile suggest that he had a looser sort of
determination relationship in mind that we might distinguish from supervenience.
At any rate, compared to Vasubandhu’s weaker analogy of the student and the
teacher, the relationship between the great elements and the derivative material
forms displays stronger resemblance to supervenience, since it is reasonable to think
that all states of the derivative materials forms are determined by the great elements.

The case of the faculties and consciousnesses is more complicated, though. Our
passage identifies two entities on which the arising of consciousness depends (i.e.
the sense faculty and the object) and claims that it is the sense faculty that
determines the mode of consciousness. It is, however, ignored here that the five
sensory consciousnesses, in fact, have two āśrayas. In the preceding verse (AKK
1.44cd) and its commentary, the five sensory consciousnesses are said to be
supported not only by their unique and simultaneous indriyas (sahaja āśraya) such
as the eye, etc., but also the manas construed as the similar and immediately
preceding condition (samanantarapratyaya) for consciousness. Here, however, we
are not told either by Vasubandhu or Yaśomitra whether and, if so, in what sense the
latter determines or modifies consciousness. One possibility is that the manas is
considered to be an āśraya only in the sense of being a necessary condition for the
arising of a phenomenon, which in giving way to a new instance of consciousness
does not influence the nature or mode of the five sensory consciousnesses. As such,
āśraya is understood here in the same way as it was by Vasubandhu’s interlocutor
supposing that both the object and the faculty are the āśrayas of consciousness.
Another passage, however, appeals to the manas to explain the mental nature of the
five sensory consciousnesses. The discussion starts from the problem that if
avijnaptirūpa is considered to be rūpa on account of its basis (āśraya) being
physical, then consciousnesses should also be physical. In order to solve this
conundrum, the Vaibhāṣika appeals to the twofold support of the five sensory
consciousnesses, claiming that they inherit the mental nature of the manas, and not,
like avijnaptirūpa, the physical nature of their material āśrayas. It is also worth
recalling here that it is its āśraya that determines the moral character of
avijnaptirūpa. We see an analogous correspondence between the moral nature of
the support and the supported in the case of the manas as well, since, as a similar

---

36 For other possible ways to spell out Vasubandhu’s metaphor, see Goodman (2004, p. 398).
Vasubandhu’s explanation also leaves the converse question open whether all aspects of the support are
relevant to determining the nature of the supported phenomenon. While this problem is not addressed in
the text, based on Vasubandhu’s analogy, we might suppose that the determination relation the support
bears to the supported only concerns its fundamental aspects, as some minor changes, say, in the ideas of
the teacher will not influence the ideas of the student.

37 AKBh 34.6–10 ad AKK 1.44cd: caramasyāśrayo ‘titāḥ | manovijñānadhātaḥ samanantararuddhaṃ
mana āśrayoḥ | pañcāṇāṃ sahajāḥ ca taiḥ || afīṣāḥ ceti caśabdah | tatra caṅkṣavrījñāṇasya caṅkṣaḥ sahaja
āśrayo yāvat kāyavijñāṇasya kāyaḥ | afīṣāḥ punar eṣāṃ āśrayo mana ity apy ete pañca vijñānakāyi
indriyadvayāśrayāḥ ||

38 AKBh 9.22–23 ad AKK 1.13d: āśrayabhūtirūpaṇāḍ ity apare evam tathā caṅkṣavrījñāṇādhyām apy
āśrayarūpaṇād ity apare evam tathā caṅkṣavrījñāṇādhyām apy rūpayatvaprasaṅgāh |

39 AKBh 10.3–6: anye punar atra parihāram āhuh caṅkṣavrījñāṇādhyām āśrayo bhedaṃ gataḥ | kaścid
rūpyate caṅkṣurādhiḥ kaścin na rūpyate yathā manaḥ | na tv evam avijnaptih |
and immediately preceding condition (samanantarapratyaya), it induces a subsequent moment of consciousness with a similar moral quality. So, while the sense faculties determine the mode of appearance of consciousnesses, they do not account for all of their modifications, as their mental and moral nature are determined by their “second” āśraya. In a strict sense, therefore, we cannot say that the consciousnesses supervene on their unique faculty in every respect.

Having investigated the concept of niśrayahetu and the dependence of the consciousnesses on the faculties, we can draw the conclusion that the essence of an āśraya-āśrita relationship consists primarily, if not exclusively, in determination, insofar as the āśraya, as the supporting relatum of an asymmetric dependence relationship, determines the fundamental nature or mode of its āśrita. The modification of the great elements, the sense faculties, and, as we now see it retrospectively, the fuel necessarily brings about the transformation of the supported entity as well. The support can determine the nature of the supported entity in various respects, such as its mode of appearance, ontological status or moral character. Furthermore, as in all three cases examined, āśraya is predominantly used to characterise ontological dependence relationships, which, strictly speaking, is another necessary condition for being an āśraya. Broadly speaking, however, as we have seen in the case of avijñaptirūpa, this sort of determination is true for certain one-off generative causes as well, which explains why they can also be called an āśraya. Accordingly, in its basic meaning, āśraya might be best construed as the basis that determines the nature or fundamental transformation of something else.

As for the alternative interpretations of āśraya I raised concerning the relation between primary and secondary matter, assuming that Vasubandhu is working with a unified concept, a mereological or constitutive relation makes little sense in the case of the sense faculties and the consciousnesses. The distinctive nature of the dependence relation between the consciousnesses and the faculties also separates the āśraya-āśrita relation from the fivefold causal relation obtaining between primary and secondary matter expressed by the term upādāya. The similar description of their meanings confirms that the concept of āśraya is to be identified with that of niśraya, a specific subcategory of upādāya. Similarly, when discussing the pudgalavāda position, due to the generic nature of the term, Vasubandhu invites his opponent to clarify the exact meaning of upādāya (see AKBh 461.20ff), entertaining the idea that it should be understood in terms of the more specific āśraya-āśrita relationship.

---

40 See AKBh ad AKK 2.62ab. For the various Abhidharmic solutions on how, nonetheless, consciousness moments of different moral quality can follow each other, see Cox (1995, pp. 79–106).

41 In the AK(Bh), Vasubandhu uses other terms as well, such as pratītya, for expressing dependence. Some passages concerning the arising of perception indicate that, just like upādāya, pratītya is intended as a looser or broader term for dependence. For example, in the commentary on 1.42cd, it is said that consciousness comes into being in dependence upon (pratītya) a sense faculty and a sense object (AKBh 31.13 ad AKK 1.42cd: caksur hi pratītya rūpāṇi copadyate caksuvijñānam). In light of the explanation of āśraya seen above, replacing pratītya with āśritya would be imprecise in this case, since the object is not the āśraya of perception. A more detailed investigation of all the terms meaning dependence in the AK(Bh), however, is beyond the scope of the present paper.
Although the usage of āśraya discussed so far represents a significant cluster of its occurrences in the AK(Bh), we can find cases that somewhat diverge from this pattern. For instance, in the claim that the mind (citta) is the basis (saṃnīśraya) of the notion of ‘I’ (ahāmkāra), and hence is metaphorically called the ātmā, its cognate is used to mean the referential basis of false superimposition. Āśraya is also used in connection to substance-attribute dependence, when in chapter 9 Vasubandhu criticises the non-Buddhist conception of the ātmā. In this critical context, even though the term āśraya is used in the framework of an ontological dependence relationship, its core aspect of determining the nature of the supported phenomenon is missing. Vasubandhu’s non-Buddhist interlocutors argue that it is necessary to accept the existence of a self (ātmā) as an underlying substance (dravya), otherwise the various thoughts, conditioning factors (saṃskāras), memory or sensations as accidents or qualities (guna) would not have a support or bearer (āśraya), and hence would not exist. As for the putative relationship between the ātmā and, for example, its thoughts or saṃskāras, Vasubandhu asks his opponent again to explain how the relationship between the support and the supported is to be conceived. Vasubandhu notes that evidently it cannot be taken physically, such as how a wall supports a picture, or a bowl supports fruits (just as we have seen above, Vasubandhu here uses the term ādhāra), as it would lead to the consequence that (i.) there is physical obstruction (pratīghāta) between the self and, for example, the thoughts it has, and that (ii.) they are separated (yuta), which, according to Yasomitra, means that they occupy different spatial locations (prthagadeśatva).

The opponent proposes that the relationship rather resembles that between the earth and its qualities, such as its odour, implying that the ātmā is the āśraya of its various mental states not as a physical support but in the metaphysical sense of being the underlying bearer of its qualities. Vasubandhu, however, turns the analogy to his own advantage and, in contrast to the opponent’s ‘pin-cushion’ model (according to which properties are attached to substances as pins to a pincushion), interprets it in terms of a ‘bundle-theory’. Accordingly, the self is only a convenient designation for the bundle of various physical and mental processes, just as there is no earth distinct from its qualities.

Although, in favour of this mereological explanation, Vasubandhu rejects the existence of an āśraya taken in the sense of an

42 AKBh 27.6–7 ad AKK 1.39b: ahaṃkārasannīśrayatvāc cittam ātmety upacaryate | The claim shows interesting similarities with the first verse of the Trīṃśikā (147.1–2): ātmadharmaopacāro hi vividho yah pravartate | vijnānaparināme ’sau parināmaḥ sa ca triḍhā |

43 See e. g. AKBh 475.22–23, 475.11–12, 476.16–17.

44 AKBh 1224.3–4: saty ātmāni tayoḥ sambhava iti cet | vāṃmāraṃ | āśrayah sa iti cet | yathā kah kasyāśrayah | AKBh 475.11 reads saty ātmāni tayoḥ saṃyoga iti cet | AKVy 1224.22–23: saty ātmāni tayoḥ saṃskāracitayaḥ sambhavaḥ ity ato ’sty ātmety |

45 AKBh 475.12–14: na hi te citravadarādīvad ādhāre nāpi sa ku vauṇ ādīvad ādhāro vuktaḥ | pratīghātyutvaḥsāt naiva sa evam āśrayah | AKVy 1225.8–9: pratīghātyutvadāsād iti | pratīghātīt-vadāsād yutatvadāsāc ca | sa pratīghātyutvaprasāt pṛthagadeśatvaprasāt cety arthāḥ |

46 AKBh 475.14–16: yathā gahādhānāṃ pṛthivītī cet | atiparītostāḥ smah | idam eva hi nabh pratīyākam nāstī ātmeti | yathā na gahādādyo ’nyā pṛthivītī | ko hi sa gahādādyo ’nyāṃ pṛthivīṃ nirdhār ayati |
underlying substance, he later makes it clear that nonetheless there is an āśraya to which sensations such as pleasure or pain pertain, in a way the flowers belong to the trees on which they appear or fruits belong to the forests in which they grow.47 This āśraya, however, is no other than the six internal āyatanas (ṣaḍāyatanas), which is an alternative way of denoting the six indriyas. As Yasomitra’s commentary further elaborates, even though the subject-predicate structure of our statements suggest that there are substances distinct from the qualities they appear to support, such as trees bringing flowers or forests bearing fruits, in fact there is no such thing as a tree or (giving an even more perspicuous example) a forest conceived as whole over and above its parts.48 While Vasubandhu’s conception of āśraya put forward here as an alternative to its non-Buddhist understanding is ostensibly related to our previous discussion of the relation between the six sense faculties and their consciousnesses (Yasomitra even quotes AKK 1.45ab to remind us of their determination relation), Vasubandhu and Yasomitra make a slight shift from characterising the six indriyas as āśrayas individually to calling them so collectively. This leads us to the discussion of the specific referents of āśraya.

Āśraya with a Specific Referent: The Psychophysical Basis and its Shifting Connotations

After looking at the basic meaning of āśraya and examining the nature of the dependence relations in which it appears, I now turn to the specific referents of the term. We have already seen one of the most common referents of āśraya: the six sense faculties serving as the support of the consciousnesses. In light of this relationship, in a few passages of the AK(Bh), āśraya is simply used as an epithet in place of the indriyas. For instance, when discussing the eighteen sense fields (dhātu), Vasubandhu notes that the twelve internal (ādhyātmika) ones are the six consciousnesses and the six āśrayas.49 Although these passages are not necessarily concerned with the nature of their relationship, the rationale behind calling the faculties a support is often made evident by mentioning them alongside the entities that depend on them, that is, the corresponding consciousnesses.

We have also seen that the six indriyas, construed individually, are regarded as āśrayas because each of them acts as the support of its respective consciousness by determining its mode of appearance. Vasubandhu’s arguments against the conception of ātman, however, already pointed to the direction of calling them āśraya collectively as well. This usage is made even more conspicuous in the commentary on AKK 2.5 claiming that the basis of citta (cittāśraya) is the six sense faculties or

47 AKBh 476.16–18: asatī ātmani ka eṣa sukhih duḥkhito vā | yasminn āśraye sukham utpannam duḥkham vā | yathā puskito vyktāḥ phalitām vanam iti | khaṇ punar anayōr āśrayāḥ | sa āyatanam |
48 AKVy 1227.23–27: puskīto vyktā iti drṣṭāntāḥ | yatra siddhante vykṣavayavā nesyaḥ […] | phalitām vanam iti | na hi vanam nāma kimcid asti | yathā yasmin vane phalam utpannam tat phalitam iti ucyate |
49 AKBh 27.5 ad AKK 1.39b: sa vijñānāni sa āśrayā ity ete dvādaśa dhātava ādhyātmikāḥ
the six sense spheres (āyatana), which are said to be the main constituents of a being (maula sattvadṛavya).\(^{50}\) In the rest of the passage, Vasubandhu discusses how this sixfold aśraya relates to other indriyas, for example that the aśrayas can be differentiated on account of their sexual faculties (strīpuṣṭendriya), that is whether the aśraya is female or male, or that the aśraya persists for a certain period of time by virtue of the life-faculty (jīvitendriya).\(^{51}\) Accordingly, in several passages of the AK(Bh) the sensible translation of aśraya seems to be ‘psychophysical basis’, ‘personal basis’ or ‘sentient being’, referring to the individuum the six sense faculties make up together.\(^{52}\) For example, one passage says that the stages of the path of preparation (prayogamārga) can be realised by a kāmāśraya, meaning a sentient being that resides in the kāmadhātu.\(^{53}\)

Although, as one of its specific referents, aśraya often simply means psychophysical basis (that is, the five material indriyas or āyatanas and the manas), the term is to be understood in a context sensitive way, insofar as the attention often shifts (or is even restricted), as I aim to show, either to the physical or the mental constituents of a sentient being. Accordingly, we can find a significant number of passages where aśraya refers primarily to the body. In verse 3.41, Vasubandhu talks about two kinds of sustenance (āhāra), one nourishing the support (aśraya), while the other the supported (aśrita). As he explains in the commentary, aśraya refers to the body together with its faculties (sendriya kāya) which are sustained by edible food. The aśrita, on the other hand, refers to the mind and the mental concomitants (cittacaittā) which are nourished by contact (sparśa).\(^{54}\) The body-mind relation put forward here can be interpreted along the same lines as the relation between the indriyas and the vijñānas discussed so far. Citta in the AK(Bh) is said to denote the same thing (ekārtha) as manas and vijñāna, therefore they might be used interchangeably.\(^{55}\) As for the relationship between the body and the faculties, the five material indriyas are held to consist of pellucid or clear matter (rūpaprasāda) which is supported by the coarse sense organs, the adhiṣṭhānas (meaning ‘seat’ or ‘basis’)—the collection of which seems to be the referent of the ‘body’ (kāya) here.\(^{56}\) The idea that the body is regarded as the aśraya of the mind on account of the indriyas supporting the consciousnesses is corroborated by the claim

\(^{50}\) AKBh 40.14 ad AKK 2.5: tatra cittāśrayaḥ sa indriyaṇi | etac ca sa āyatanam maulaṃ sattvadṛavyam |

\(^{51}\) AKBh 40.14–16: tasya strīpuṣṭavikalpaḥ strīpuṣṭendriyāḥbhāvam sthitir jīvitendriyena samkleśo vedanābhīḥ |

\(^{52}\) Yamabe (2018, p. 301, n. 67.) in this context translates it as ‘personal basis’, Sangpo (2012, e. g. 542–545, 648) as ‘person’ or ‘personal basis’, Schmithausen (1987, e. g. 52) renders it as ‘basis [of personal existence]’.

\(^{53}\) AKBh 346.17–20 ad AKK 6.21a.

\(^{54}\) AKBh 154.13–14 ad AKK 3.41b: iha puṣṭartham aśrayāśritavayor dvayaṃ | [...] aśrayo hi sendriyāḥ kāyaḥ | tasya puṣṭaye kava ikārāhārāḥ | aśrītaś cittacaitāṃ teṣāṃ puṣṭaye sparśaḥ |

\(^{55}\) AKK 2.34ab: cittāṃ mano ‘tha vijñānam ekārtham |

\(^{56}\) On the material nature of the indriyas see AKK 1.9 and AKK 5.21–6.3. It is worth noting here that Thirumati’s Trīṣṇikāviṇāpitībhāṣya (TrBh 52.14–15) defines aśraya as “sādhīṣṭhānam indriyarūpam nāma ca”, that is the physical and mental constituents of the individuum, the physical being divided into the indriyas and their seats (adhiṣṭhāna).
that the sustenance of \textit{citta} is contact (\textit{sparśa}), which is said to arise from the coming together of the sense faculty, the sense object and the consciousness.\footnote{AKBh 54.21–22 ad AKK 2.24: \textit{sparśa indriyaviśayavijñānasannipātajā sprṛṣṭih} | 
AKK 4.1a: \textit{karmajām lokavācītīraya} | 
AKK 192.7–8 ad AKK 4.1a: \textit{karmāy eva tūṇeyava jātyānī vāyamiśrakārīnām sattvānām yad āśrayaś ca vranabhūtā jāyante bhogāś ca ramyās tatpratīkārahūyāh}! It should be noted that another passage of the AKBh (308.16 ad AKK 5.40) calls the six \textit{āyatanas} ‘abscesses’ through which the impurities (\textit{āśrayas}) flow out. In light of this remark, it is possible that this passage does not talk exclusively about the coarse body, after all.}

While the \textit{indriyas} have an important role in explaining why the body is regarded as the support of \textit{citta}, they sometimes fade into the background. Relatedly, it is also worth noting that even though calling the body (with its faculties) an \textit{āśraya} presupposes its relation to the \textit{citta} as an \textit{āśrita}, in certain passages the term is used on its own without any indication of the entity it supports. For instance, in one passage of the AK(Bh) Vasubandhu declares that the variety of the world arises from \textit{karma}.\footnote{AKBh 12.25–13.1 ad AKK 1.19d: \textit{ekadhātuvte ‘pi tu cakṣurādīnām dvayoḥ sambhava āśrayasya śobhārthaḥ} | anyathā hy eka caksuḥsrotādhibhūṭhānānaṁkāryānāṁkāaryaṁvaptaḥ mahad vairocam śyād iti | 
AKK 3.42abc: \textit{chedasamādhānā vairāgyahānikcyutypapattayaṁ manovijñāna evesṭāḥ} | AKBh 156.7–8 ad AKK 3.43a: \textit{nāpy acittasya sā na hy acittaka upakramitum śakyeta} | 
AKVy 502.15–16: \textit{acittako nirodhasamāpattisamāpānam .AP. santājñāsamāpattisamāpānnaṁ tadvipāke vāvasvāhāḥ} | 
AKBh 156.8–9: \textit{yādā cāśyāśraya vipārinantum ārahbate tadāvāśayasya tadaśrayaṇaḥ pratiṣuddhāḥ cittam sammukhibhūya paścāt pravayetā nāyathā} |} Hearing this claim his interlocutor wonders why the actions of beings generate both pleasurable things such as sandalwood, and unpleasurable things such as bodies (\textit{śarīra}). As Vasubandhu explains, it is due to their mixed, that is both auspicious (\textit{kusāla}) and inauspicious (\textit{akusāla}), actions that the beings experience delightful phenomena as well as \textit{āśrayas} (used as a synonym for \textit{śarīra} here) with wounds or abscesses (\textit{vraṇa}).\footnote{AKBh 54.21–22 ad AKK 2.24: \textit{sparśa indriyaviśayavijñānasannipātajā sprṛṣṭih} | 
AKK 4.1a: \textit{karmajām lokavācītīraya} | 
AKK 192.7–8 ad AKK 4.1a: \textit{karmāy eva tūṇeyava jātyānī vāyamiśrakārīnām sattvānām yad āśrayaś ca vranabhūtā jāyante bhogāś ca ramyās tatpratīkārahūyāh}! It should be noted that another passage of the AKBh (308.16 ad AKK 5.40) calls the six \textit{āyatanas} ‘abscesses’ through which the impurities (\textit{āśrayas}) flow out. In light of this remark, it is possible that this passage does not talk exclusively about the coarse body, after all.} In another interesting passage where \textit{āśraya} seems to refer primarily to the body, Vasubandhu claims that even though the eye sense faculty (as well as the ear and nose sense faculty) constitutes one \textit{dyātu}, insofar as it generates a single visual consciousness, it exists in pairs for the sake of the beauty of the \textit{āśraya}. The text adds that with a single ‘seat’ (\textit{adhisthāna}) such as with one eye, ear or nostril, one would be unattractive, which underlines that \textit{āśraya} is meant to refer to the coarse body here.\footnote{AKBh 12.25–13.1 ad AKK 1.19d: \textit{ekadhātuvte ‘pi tu cakṣurādīnām dvayoḥ sambhava āśrayasya śobhārthaḥ} | anyathā hy eka caksuḥsrotādhibhūṭhānānaṁkāryānāṁkāaryaṁvaptaḥ mahad vairocam śyād iti | 
AKK 3.42abc: \textit{chedasamādhānā vairāgyahānikcyutypapattayaṁ manovijñāna evesṭāḥ} | AKBh 156.7–8 ad AKK 3.43a: \textit{nāpy acittasya sā na hy acittaka upakramitum śakyeta} | 
AKVy 502.15–16: \textit{acittako nirodhasamāpattisamāpānam .AP. santājñāsamāpattisamāpānnaṁ tadvipāke vāvasvāhāḥ} | 
AKBh 156.8–9: \textit{yādā cāśyāśraya vipārinantum ārahbate tadāvāśayasya tadaśrayaṇaḥ pratiṣuddhāḥ cittam sammukhibhūya paścāt pravayetā nāyathā} |} 

In a further example, which also hints at another explanation of why the body is considered the \textit{āśraya} of the mind, we read that since death (\textit{cyutū}) and birth (\textit{upapatti}) concern the mental consciousness (\textit{manovijñāna}), someone without mental activity (\textit{acittaka}) cannot die or be reborn.\footnote{AKBh 54.21–22 ad AKK 2.24: \textit{sparśa indriyaviśayavijñānasannipātajā sprṛṣṭih} | 
AKK 4.1a: \textit{karmajām lokavācītīraya} | 
AKK 192.7–8 ad AKK 4.1a: \textit{karmāy eva tūṇeyava jātyānī vāyamiśrakārīnām sattvānām yad āśrayaś ca vranabhūtā jāyante bhogāś ca ramyās tatpratīkārahūyāh}! It should be noted that another passage of the AKBh (308.16 ad AKK 5.40) calls the six \textit{āyatanas} ‘abscesses’ through which the impurities (\textit{āśrayas}) flow out. In light of this remark, it is possible that this passage does not talk exclusively about the coarse body, after all.} According to Yasomitra, \textit{acittaka} refers for example to those practitioners who are in the meditative states of \textit{nirodhasamāpatti} or \textit{asamjñīsamāpatti}.\footnote{AKBh 54.21–22 ad AKK 2.24: \textit{sparśa indriyaviśayavijñānasannipātajā sprṛṣṭih} | 
AKK 4.1a: \textit{karmajām lokavācītīraya} | 
AKK 192.7–8 ad AKK 4.1a: \textit{karmāy eva tūṇeyava jātyānī vāyamiśrakārīnām sattvānām yad āśrayaś ca vranabhūtā jāyante bhogāś ca ramyās tatpratīkārahūyāh}! It should be noted that another passage of the AKBh (308.16 ad AKK 5.40) calls the six \textit{āyatanas} ‘abscesses’ through which the impurities (\textit{āśrayas}) flow out. In light of this remark, it is possible that this passage does not talk exclusively about the coarse body, after all.} However, when their \textit{āśraya} is altered (or in this case rather damaged), as Yasomitra adds for instance by a weapon or fire, the mind (\textit{citta}) which is bound to that \textit{āśraya} manifests, and the person dies.\footnote{AKBh 54.21–22 ad AKK 2.24: \textit{sparśa indriyaviśayavijñānasannipātajā sprṛṣṭih} | 
AKK 4.1a: \textit{karmajām lokavācītīraya} | 
AKK 192.7–8 ad AKK 4.1a: \textit{karmāy eva tūṇeyava jātyānī vāyamiśrakārīnām sattvānām yad āśrayaś ca vranabhūtā jāyante bhogāś ca ramyās tatpratīkārahūyāh}! It should be noted that another passage of the AKBh (308.16 ad AKK 5.40) calls the six \textit{āyatanas} ‘abscesses’ through which the impurities (\textit{āśrayas}) flow out. In light of this remark, it is possible that this passage does not talk exclusively about the coarse body, after all.} That the passage talks about the physical damage of the \textit{āśraya} suggests that the term refers primarily to the body here. Concerning the impossibility of rebirth, the \textit{bhāṣya} notes that since—being mental concomitants—there are no defilements (\textit{kleśa}) in a
mindless state, the causes of rebirth are also missing.\textsuperscript{64} In his commentary, Yasomitra remarks that the mind is bound to the āśraya insofar as the latter has the potentiality (bīja) to regenerate it.\textsuperscript{65} This is an allusion to the problem of how the body and mind can rearise after states where either the body (for example, in the ārupyadhātu, i.e. the immaterial realm) or the mind (such as in the two meditative states mentioned above) has ceased or been suspended for a long time. The AKBh mentions the view of the ‘earlier masters’, associated by Yasomitra with the Sautrāntikas, that the body and the mind have the capacity to give rise to each other.\textsuperscript{66} So, according to this explanation, after the mindless meditative states it is the body with the faculties (sendriya kāya) from where the mind rearises.\textsuperscript{67}

While the bodily connotations of the term āśraya have a strong presence in the AK(Bh), and, accordingly, scholars often emphasise that its usage in the text is centred on the body,\textsuperscript{68} as we have seen for instance in AKK 2.5, āśraya is typically meant to denote the entirety of the sentient being, having equally in mind its physical and mental constituents. Moreover, in certain passages the focus occasionally shifts to the mind, especially in soteriological contexts. Even though in many of the passages cited so far, the mind was characterised as āśrita, we have also seen instances where it was considered an āśraya. When discussing āśraya as a referential basis of false superimposition, I adduced Vasubandhu’s claim that since the mind (citta) is the basis (saṃnīśraya) of the notion of ‘I’ (ahamkāra), it is metaphorically called the ātman. AKK 2.34ab and its commentary also make it clear that the mind can be regarded an āśraya. Vasubandhu claims that while citta, manas and vijñāna denote the same thing (ekārtha), these terms carry different connotations. As a possible etymological explanation of citta, he says that the mind is being accumulated (cita) with auspicious and inauspicious karmic potentialities (dhātu).\textsuperscript{69} With regard to the manas and the vijñāna, he says that

\begin{itemize}
\item \textsuperscript{64} AKBh 156.9–10: upapattau ca cittacchedahetvabhāvād vinā ca klesānupapattier ayuktam acittakatvam
\item \textsuperscript{65} AKVy 502.19–20: […] asya tadānāṁ āśrayapratibaddham cītām āśraye bijabhāvenaśti
\item \textsuperscript{66} According to Schmithausen (1987, p. 286, n. 170.), the designation ‘earlier masters’ (pūrvācārya) seems to refer to the early Yogācāra masters and to the Yogācārabhūmi specifically.
\item \textsuperscript{67} AKBh 72.22–24 ad AKK 2.44d: evam cītām api asmād eva sendrīyāt kāya jāyate na cītāt | anyonyabhjukam hy etat ubhayam yad uta cītām ca sendrīyas ca kāya iti pūrvācāryāḥ | The passage has a particular relevance to the early development of the Yogācāra conception of the alayavijñāna. For a recent discussion of the Sautrāntika idea of the body and mind having the capacity to give rise to each other see e. g. Buescher (2008, pp. 52–53).
\item \textsuperscript{68} For interpretations stressing its meaning as body, see e. g. Yamabe (2018, p. 300), Brunnhölzl (2012, pp. 57–58). Compared to Yamabe (2018), Yamabe (2020, especially in fn. 7 and 24.) underlines more that the mental constituents are not necessarily excluded from the scope of āśraya. However, he still emphasises that the term has strong bodily connotations, and without contextual specification, āśraya normally refers to the body. It also worth noting that some translations tend to overemphasise the bodily connotations of āśraya by invariably translating it as corporeal or physical basis, even in the soteriological contexts I turn to at the end of this paper. See for instance Cox (1995, pp. 94–95) or King (1998, pp. 7–8).
\item \textsuperscript{69} Yasomitra connects this conception of cītā with the Sautrāntika and Yogācāra views of the accumulation of vāsanās (karmic imprints), apparently taking it as a synonym for elements (dhātu). AKVy 208.18–19: cītāṃ śubhāśubhāṁ dhātubhir iti cītām | vāsanāsanniveśayogena sautrāntikamatena yogācāramatena và
\end{itemize}
the former expression stresses that the mind is a support (āśraya), while the latter that it is also supported (āśrita). The manas is considered to be an āśraya due to its function of being the particular support of the mental consciousness, as well as the past support of the five sensory-consciousnesses. In a further passage related to the discussion of how the body and the mind have the capacity to give rise to each other, an interlocutor asks what the basis (niśraya) of the beings’ mental stream (cittasamtati) is in the ārūpyadhātu, if physical matter is absent. Here Vasubandhu agrees with the Sautrāntika position that at least in the immaterial realm the mind can serve as its own support (niśraya) without relying on anything other than itself. He adds that if a being has craving for physical matter, it will be reborn in a physical body with its mind-stream being supported by its body—otherwise it is able to function independently of matter.

An important context where the focus falls almost exclusively on the mental constituents of the āśraya, with its bodily connotations being marginal, is that of the āśrayaparāvṛtti. In both of its discussions in the AKBh, the transformation (parāvṛtti or parivṛtti) of the āśraya characterises those practitioners who have transformed from an ordinary being into an ārya. While analysing the various examples of the āśraya-āśrita relationship, we have seen that in paradigmatic cases the transformation of the āśraya entails a fundamental change in the āśrita as well. The passage mentioned earlier discussing the relation of the sixfold āśraya to other faculties of the sentient being illuminates what the āśrita of the transformed āśraya could be here. Vasubandhu there says that the six indriyas or āyatanas are the basis (āśraya) of the continuation of samsāra. In light of this, it is reasonable to interpret āśrayaparāvṛtti as a transformation that puts an end to the beings’ wandering in cyclic existence.

In the first passage discussing the transformation of the āśraya, the Vaibhāṣīka speaker invites their Sautrāntika opponent to explain how those who have abandoned the afflictions (kleśa), i.e. the āryas, and those who are still under their sway can be told apart if we do not presuppose the existence of the controversial

70 AKBh 61.23–62.1 ad AKK 2.34a: citam śubhāsubhair dhātubhir iti cittam | tad evāśrayabhūtaṁ manaḥ | āśritabhūtanāṁ vijñānam ity aparac |

71 AKBh 112.9–10 ad AKK 3.3b: yathā rūpināṁ sattvānāṁ rūpaṁ niśritya pravarttate cittasamtātir evam ārūpyeṣu kim niśritya pravarttate | AKBh 112.19–23 ad AKK 3.3cd: tad etac cittasamtatāu samāṇāṁ cittacattāṣu vā | tasāṁ nāstv arūpināṁ sattvānāṁ cittasamtatāt anvāṁ niśraya iti sautrāntikāḥ | api tu yasyāḥ cittasamtātāḥ akṣepahetur avītasṛṇo rūpe tasyāḥ saha rūpeṇa saṃbhavād rūpaṁ niśritya pravṛttir yasyāḥ tu hetur viśrūṣṇo rūpe tasyāḥ anapṛkṣya rūpaṁ pravṛttir | See also Kritzer (2003, pp. 346–348).

72 Besides describing the transformation of the psychophysical basis, or, in the Yogācāra context, the transformation of the ālayavijñāna, in certain texts, the notion of āśrayaparāvṛtti is also used to describe change of sex from female to male or vice versa, see Brunnhölzl 2012, 58.

73 AKBh 40.20 ad AKK 2.6: pravṛttir āśrayah sa indriyāṇi | AKVy 143.18–19: tatra sa āyatanam mūlasattvadrayabhūtaṁ saṃsarafiti pravṛttir āśrayah |
**dharma** called ‘possession’ (prāpti). According to the Sautrāntika position, what differentiates the āryas from ordinary beings (prthagjana) is the distinct state of their āśraya (āśrayaviśeṣa). In the case of the āryas the āśraya is transformed (parāvr̥tta) by the power of the path of seeing (darśanamārga) and the path of cultivation (bhāvanāmārga), therefore the afflictions to be abandoned by these paths cannot sprout again. Continuing with the botanical metaphor, Vasubandhu says that when the āśraya no longer has the seeds (bīja), that is the capacity, to regenerate the afflictions, one can be said to have completely eradicated them. He later clarifies that bīja refers to any psychophysical entity (nāmarūpa) which has the capacity to produce a fruit either directly or indirectly through the distinct modification (parināmaviśeṣa) of the ‘stream’ or ‘continuum’ (saṁtati). Vasubandhu here explains saṁtati as the conditioning factors (saṁskāra) of the three times (past, present and future) having the nature of cause and effect, while in chapter 9 he defines it as the continuous arising of the mind (citta) preceded by karma.

In the other passage mentioning āśrayaparāvr̥tti, Vasubandhu differentiates five types of person with regard to whom any harm or auspicious action is immediately ripened. Examining the transformation of the āśraya, it is the last two groups of persons who are relevant for us: those who have attained the darśanamārga, that is just turned into an ārya, and those who have attained the fruit of arhatship. With regard to both, Vasubandhu notes that they have a pure continuum (saṁtati) because their āśraya has transformed into a new one (pratyagrāśraya) as a result of completely eradicating the defilements to be abandoned by that path.

Even though both passages acknowledge that a being is a stream or continuum of various psychophysical constituents, on the most natural reading of these passages, the focus of āśrayaparāvr̥tti is on the transformation of the mental stream.

---

74 On the disputed status of the Vaibhāṣika notion of prāpti in the Abhidharma tradition, see Cox (1995, pp. 79–105).
75 AK Bh 63.19–23 ad AKK 2.36d: etac caiva kathāṃ bhāvivyatay esām prahāṇaḥ klesa esām aprahāṇaḥ iti | prāptau satyāṃ etat sidhyati tadvīgamāvimānaḥ | āśrayaviśeṣād etat sidhyati | āśrayo hi sa āryānām darśanabhāvānāmārgasāṃkarṣyātyāt tathā parāvr̥tto bhavati yathā na punas tatprahēyāṇām klesāṇām prarohasamārtho bhavati | ato ‘gnidagdhavṛhīvad avijñhūte āśraye klesāṇām prahāṇaklesā ity ucyate |
76 According to Yasomitra, bīja is synonymous with sākta or vāsanā. AKVY 219.7–8: sāktaṃ bijam vāsanet eva ‘yam arthaḥ | He also makes it clear that bīja is only a nominally existing entity (prajñaptisat). AKVY 219.30–31: na bijam nāma kūcid asti | prajñaptisattvāt |
77 AK Bh 64.5–6 ad AKK 2.36d: kim punar idaṃ bijam nāma | yam nāmarūpam phalotpattau samartham sākṣat pāramprapyaṇa vā | saṁtaitipariṇāmaviśeṣāt |
78 AK Bh 64.7: kā caeyam sataitih | hetuphalabhūtas triayadhvikāḥ samskārāḥ | AK Bh 1230.6–7: kā punah sataitih […] | yah karmarpūra uttarottaracātataraprasavah sā saṁtaitih | Accordingly, Waldron (2003, pp. 74–75) consistently translates saṁtaiti as mental stream in this context.
79 AK Bh 232.25–27 ad AK 4.56: darśanāmārgavyutthitasyāśeṣaśdarśanāprahātavāyaprahaṇāntaḥ prayagāśrayaparivṛttiśuddhā satātār varṣate | arhatphalavyutthasyāśeṣaḥbha国安āprahātavāyaprahaṇāntaḥ prayagāśrayaparivṛttiśuddhā saṁtaiti varṣate |
(cittasamttati or cittasamtmāna). That they speak about the complete eradication of klesās, which are classified as concomitants of the mind (caitta), clearly supports the reading that the transformation of the basis concerns first of all the mind.80 However, based on the bodily connotation the term āśraya took on in certain contexts in the AK(Bh), scholars such as Yamabe (2018, 2020) suggested that there might also be an intrinsic change happening to the body in the course of becoming an ārya. Yamabe, as well as other scholars, pointed out that in the early Yogācāra literature the transformation of the basis (with āśraya referring to the ālayavijñāna) coincides with certain bodily changes. More specifically, it was noted that the transformation of the basis brings about a joyful ease (praśrabdhi) or ‘workable state’ (karmanvatā) of the body and the mind. However, no bodily changes are indicated in the passages discussing the transformation of the āśraya in the AKBh.81 Both passages leave the possibility open that, if there is any bodily aspect relevant to this transformation at all, it merely consists in the body’s losing its ability to engage in inauspicious actions as an incidental consequence of the purification of the mind initiating such (bodily and verbal) actions. Moreover, in a remarkable passage discussing the practice of taking refuge, Vasubandhu warns that one should take refuge in the Buddha-qualities, since the rūpakāya or physical body of the Buddha did not change when he achieved Buddhahood. As Yasomitra mentions, achieving Buddhahood can be described as a form of āśrayaparivṛtti.82 This passage seems to contradict the interpretation that, according to the AK(Bh), any intrinsic bodily change happens during āśrayaparivṛtti.

Acknowledgements I am grateful to Jan Westerhoff and the anonymous reviewer for making valuable comments on earlier drafts of this paper. I would also like to thank the Arts and Humanities Research Council, St John’s College in Oxford, and the Khyentse Foundation for their financial support.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this

80 Although commenting on the second passage on āśrayaparivṛtti Yasomitra glosses āśraya as śarīra, in the commentary on the first passage, responding to Samghabhadra, he emphasises that bija is neither different from, nor identical with the mind (citta), suggesting that the bija terminology here is connected to the mind rather than the body. As I mentioned in footnotes 69 and 76, Yasomitra considers bija to be synonymous with vāsanā, which also makes it synonymous with dhātu. In the definition of citta, as we have seen, Vasubandhu noted that it is accumulated (cita) with auspicious and inauspicious dhātu, which again underlines the mental dimension of these terms. On Samghabhadra’s criticisms and Yasomitra’s explanations, see Jaini (1959, pp. 243–244).

81 It is only mentioned in meditative context, see AKBh ad AKK 8.9b.

82 AKBh 216.18–21 ad AKK 4.32: yo buddhāḥ sāranāṃ gacchatā aṣaiksāṃ asau buddhakarākān dharmāḥ charāṇāṃ gacchatā [...] rūpakāyasya pūram pāṣcāc cāviśeṣāḥ | AKVy 1096.16: anāsravya-dharmasambhārasūrotāno dharmakāyāḥ | āśrayaparivṛttri vā |
article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

Primary Sources

AKBh = Pradhan, Prahlad (ed.). 1975. Abhidharmakośabhāṣyam of Vasubandhu. Patna: K.P. Jayaswal Research Center.

AKBhS = Shastri, Swami Dwarikadas (ed.). 1998. The Abhidharmakośa and Bhāṣya of Ācārya Vasubandhu with Sphutārthā Commentary of Ācārya Yasomitra. 2 vols. 2nd ed. Varanasi: Baudhā Bharati.

AKVy = Shastri, Swami Dwarikadas (ed.). 1998. The Abhidharmakośa and Bhāṣya of Ācārya Vasubandhu with Sphutārthā Commentary of Ācārya Yasomitra. 2 vols. 2nd ed. Varanasi: Baudhā Bharati.

PSKV = Kramer, Jowita (ed.). 2013. Sthiramati’s Pañcaskandhakāvibhāṣā. 2 Vols. Beijing: China Tibetology Publishing House; Vienna: Austrian Academy of Sciences Press.

Trimśikā and Tr Bh = Buescher, Hartmut (ed.). 2007. Sthiramati’s Triṃśikāvijñaptibhāṣya: Critical Editions of the Sanskrit Text and its Tibetan Translation. Wien: Verlag der Österreichischen Akademie der Wissenschaften.

Secondary Sources

Brunnhözl, K. (2012). Mining for wisdom within delusion. Maitreya’s distinction between phenomena and the nature of phenomena and its Indian and Tibetan commentaries. Snow Lion.

Buescher, H. (2008). The inception of Yogācāra-Vijñānavāda. Verlag der Österreichischen Akademie der Wissenschaften.

Cox, C. (1995). Disputed dharmas: Early Buddhist theories on existence. An annotated translation of the section on factors dissociated from thought from Sanghabhadra’s Nyāyānusāra. The International Institute for Buddhist Studies.

Dhammajoti, K. L. (2015). Sarvāstivāda Abhidharma. The Buddha-Dharma Centre of Hong Kong.

Dowling, T. L. (1976). Vasubandhu on the avijñaptirūpa: A study in fifth-century Abhidharma Buddhism. Columbia University (unpublished dissertation).

Duerlinger, J. (2003). Indian Buddhist theories of persons: Vasubandhu’s “Refutation of the Theory of a Self.” Routledge.

Franco, E. (2020). On the determination of causation by Dharmakīrti. In Kellner, B., McAllister, P., Lasie, H., McClintock, S. L. (eds.), Reverberations of Dharmakīrti’s philosophy: Proceedings of the fifth international Dharmakīrti conference Heidelberg, August 26 to 30, 2014. Austrian Academy of Sciences Press.

Ganeri, J. (2012). The self: Naturalism, consciousness, and the first-person stance. Oxford University Press.

Gold, J. C. (2021). Vasubandhu. In Zalta, E. N. (ed.), The Stanford encyclopedia of philosophy. https://plato.stanford.edu/archives/spr2021/entries/vasubandhu/.

Goodman, C. (2004). The treasury of metaphysics and the physical world. Philosophical Quarterly, 54 (216), 389–401.

Goodman, C. (2005). Vaibhāṣika metaphoricalism. Philosophy East and West, 55(3), 377–393.

Jaini, P. S. (1959). The Sautrāntika theory of “bijā.” Bulletin of the School of Oriental and African Studies, 22(1/3), 236–249.
Kim, J. (2005). Supervenience, emergence, realization, reduction. In M. J. Loux & D. W. Zimmerman (Eds.), The Oxford handbook of metaphysics (pp. 556–586). Oxford University Press.

King, R. (1998). Vijnaptimātratā and the Abhidhama context of early Yogācāra. Asian Philosophy, 8(1), 5–17.

Kritzer, R. (2003). Sautrāntika in the Abhidharmakośabhāṣya. Journal of the International Association of Buddhist Studies, 26(2), 331–384.

Ney, A. (2014). Metaphysics: An introduction. Routledge.

Sangpo, G. L. (2012). Abhidharmakośa-bhāṣya of Vasubandhu: The Treasury of the Abhidharma and its (auto) Commentary (Vol. 4). Motilal Banarsidass Publishers.

Schmithausen, L. (1987). Ālayavijñāna: On the origin and the early development of a central concept of Yogācāra philosophy. (Vol. 2). Studia Philologica Buddhica Monograph Series. International Institute for Buddhist Studies.

Siderits, M. (2003). Personal identity and Buddhist philosophy: Empty persons. Ashgate.

Siderits, M. (2004). Causation and emptiness in early Madhyamaka. Journal of Indian Philosophy, 32(4), 393–419.

Tahko, T. E., & Lowe, E. J. (2020). Ontological dependence. In Zalta, E. N. (ed.), The Stanford encyclopedia of philosophy. https://plato.stanford.edu/archives/fall2020/entries/dependence-ontological/.

Waldron, W. S. (2003). The Buddhist unconscious. The Ālaya-vijñāna in the context of Indian Buddhist thought. RoutledgeCurzon.

Westerhoff, J. (2018). The golden age of Indian Buddhist philosophy. Oxford University Press.

Yamabe, N. (2018). Ālayavijñāna from a practical point of view. Journal of Indian Philosophy, 46(2), 283–319.

Yamabe, N. (2020). Ālayavijñāna in a meditative context. In C. Pecchia & V. Eltschinger (Eds.), Mārga: Paths to liberation in South Asian Buddhist traditions (pp. 249–276). Austrian Academy of Sciences Press.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.