Infallible Knowledge: Contrastivism and the Structure of Propositions

ABSTRACT

Epistemological contrastivism can model how infallible knowledge functions by employing the explanatory resource of structural differences between contrastive propositions, e.g., "P rather than Q", and orthodox propositions, e.g., "P". In doing so we notice that how this difference factors into our conception of infallible knowledge depends on two aspects: one, whether belief acts as a necessary condition for knowledge, and two, whether epistemic justification is construed as consciously internalist or non-consciously externalist. We further leverage the notion of phenomenal resolution, conceived as an outcome of one's discriminative capacities in accessing their evidence, to clarify in what sense it becomes reasonable to say that the truth of P mutually excludes the truth of Q when the latter is contrasted to the former. Importantly then, there is a way of infallibly knowing that P that is indistinguishable from infallibly knowing that P rather than Q, and a way that is not.

Keywords: Contrastivism, Infallible Knowledge, Propositions, Doubt, Belief

1. Introduction

How would one know that P in a way that leaves no room for being mistaken? A reasonably initial approximation could be that P is known for sure once P becomes indubitable. Put as a question, what of P is such that one cannot doubt that P? A subsequent approximation is that P is known for sure once P infallibly refers to whatever is claimed as known. Does it then matter how P specifically refers, besides infallibly so, to whatever is claimed as such? This paper explores viable answers to these questions by way of elucidating a possible structure for P itself, in terms of its semantic content and justificatory character, through an appropriation of the explanatory resources from epistemological contrastivism. As an account of the very *structure* of epistemologically relevant relations, such as knowledge and belief, contrastive explanations for epistemic states can be general enough to accommodate varying accounts of epistemic *justification*. Although a contrastive notion of belief is not the main focus for this paper, what will hopefully become clear is that, due to contrastivist knowledge permitting varying justificatory accounts, how P becomes indubitable and infallibly referential centers both on how P is structured and whether a knowledge account requires a doxastic attitude for its justificatory features.

Sections 2-3 outline the contrastivist account of knowledge before, in **Sections 4-7**, fleshing out some importantly finer ramifications towards accounts of knowledge that either necessitate belief or not. **Section 8** utilizes what has been discussed up until that point to inform different conceptions of the indubitably known proposition. **Section 9** then compares these conceptions in their association to both contrastive and non-contrastive forms of knowledge, evaluating these associations' "fit" as either *ad hoc* or not, before concluding in **Section 10**.

2. General Remarks on Contrastivism

Jonathan Schaffer (2012c) introduces contrastivism succinctly by comparison with the non-contrastivist "orthodox" view:

> The orthodox view is that knowledge is a two-place relation, with one place fit for a subject and another place fit for a proposition. The contrastive view is that knowledge is a three-place relation, with an additional place fit for a contrast proposition, in addition to the place fit for a subject and the place fit for a proposition. In short: instead of the orthodox two-place K*sp* structure ("*s* knows that *p*"), the contrastivist posits the three-place K*spq* structure ("*s* knows that *p* rather than *q*"). (353)[1]

The motivation behind defining knowledge as a "three-place relation" is that, for Schaffer (2012c), it helps explain, more so than orthodoxy, the reasonableness behind claims such as, 'Ann might well know that there is a goldfinch in the garden rather than a raven, but yet fail to know that there is a goldfinch in the garden rather than a canary.' (354) To see why, first note that it is not groundless to distinguish between "goldfinch rather than raven" and "goldfinch rather than canary" in knowledge attributions, as it could be the case that Ann's ability to visually discriminate between goldfinches and ravens is not potent enough to discriminate between goldfinches and canaries, which look more similar to goldfinches than ravens do. As such, according to Schaffer (2012c), Ann's 'abilities and disabilities would then explain why she knows that there is a goldfinch in the garden rather than a raven, yet fails to know that there is a goldfinch in the garden rather than a canary.' (354)[2]

[1] Epistemic contrastivism did not originate with Schaffer. It has had incipient expression in Dretske (1970).

[2] *Cf.*, Schaffer (2012a, 365-6) for a more detailed discussion on the importance of discriminative abilities for contrastive knowledge.

What is important for a contrastivist epistemology, then, is figuring out what best explains claims of the form, "S knows that P rather than Q", and whether such explanations are not only realistic but also not inter-translatable to orthodoxy. Schaffer focuses on discriminatory capacity as an explanatory source, but we can generalise: an explanation of S's knowledge that P rather than Q would have to be relevant to that contrast of P and Q *without* it translating as an explanation for S's non-contrastivist knowledge that P, given that contrastivism and orthodoxy are two distinct epistemic models. In effect, having explanatory crossover between contrastivism and orthodoxy would entail that any epistemic claim accountable by the former would be accountable also by the latter, and vice versa, thereby leaving contrastivism without explanatory advantage over orthodoxy. If, however, there are epistemic claims that are relevant only to contrastive knowledge, then what helps account for them must be similarly relevant as well, otherwise the move from orthodoxy to contrastivism would be unmotivated.[3]

To clarify, the important questions one must ask would be:

1. Do explanations for contrastivist knowledge claims (S knows that P rather than Q) not translate as explanations for orthodox knowledge claims (S knows that P)?
2. Are contrastivist knowledge claims unaccountable by the orthodox view?

Answering both 1 and 2 would answer whether orthodoxy can explain non-contrastivist claims in the same way that contrastivism explains contrastivist claims (Question 1) and whether orthodoxy can explain contrastivist claims *at all* (Question 2). Question 1 effectively deals with whether orthodoxy can appropriate contrastivism's own explanatory resources, such as discriminative capacity, for its own purposes, while Question 2 asks if orthodoxy can apply its own resources to contrastivism's purposes. We first focus on discriminatory capacity as a way of answering Question 1, for insofar as discrimination can be construed as both a conscious and non-conscious function, it can be seen whether it applies to consciously reflective and non-consciously operative accounts of knowledge construed as either contrastivist or orthodox. We later focus on how discrimination may be used to account for some cases of mathematical and logical knowledge

[3] Steven Rieber (1998) agrees as much, in that, for him, what 'counts as an explanation is highly context-dependent. In particular . . . it can depend on an *implied contrast*.' (195) Rieber here is extending the general contrast-sensitivity of explanation to the realm of knowledge.

before answering Question 2 by asking whether contrastivist claims are logically translatable to orthodox ones – i.e., whether "P rather than Q" is just another way of semantically expressing "P". Afterwards, we finally appropriate our answers to Questions 1 and 2 to briefly explore their ramifications towards the sense of *ad hoc*-ness implied in accounts of consciously/non-consciously relevant infallible contrastive or orthodox knowledge.

3. Phenomenal Discrimination of Differing Contrast Classes

To begin, we must first understand what "P rather than Q" precisely means in terms of discriminative capacity, by figuring out what, for example, differentiates "knowledge that there is a goldfinch rather than raven" from "knowledge that there is a goldfinch rather than canary".[4] Intuitively, the former – call it, KT:c-GR, expressing knowledge (KT) of a proposition that contrasts (c) proposition G with R – entails an epistemically salient phenomenal experience that allows one to distinguish goldfinches from ravens, while the latter – call it, KT:c-GC – does the same, except between goldfinches and canaries. We can instructively introduce the term, "phenomenal resolution", to explain that the minimum *resolution* required for KT:c-GR is poorer than that for KT:c-GC; goldfinches and ravens register within one's phenomenal experience as distinguishable for both KT:c-GR and KT:c-GC, while goldfinches and canaries register as distinguishable for KT:c-GC but indistinguishable for KT:c-GR.[5] All this is saying is that there is more to phenomenally differentiate goldfinches from ravens then there is to differentiate goldfinches from canaries, and this relative difference is tracked by the distinction between KT:c-GR and KT:c-GC.

Let us term "goldfinch rather than raven" as a different *contrast class* than "goldfinch rather than canary". This means that, in general, we can characterise any contrast class of two propositions – let us say, P and L – necessitating a relatively low phenomenal resolution for

[4] We will, in Section 8, determine what "P rather than Q" *generally* means – as a logical entity, not merely one that is phenomenally ascertained for contrastive knowledge – in answering Question 2.

[5] There is no imposition here for a subject to know these birds in any level of detail other than what allows the subject to differentiate them *phenomenally* via their sensitive discriminatory capacities. Thus, no assumption is being made that someone possessing KT:c-GC is some expert ornithologist, just that they have a phenomenal capacity necessary for the visual, or otherwise phenomenal differentiation to take place, regardless of whatever background knowledge they may have.

knowledge, as allowing another contrast class – let us say, with P and H – necessitating a relatively high phenomenal resolution for knowledge. If we then classify "knowledge that P rather than L" as KT:c-PL, and "knowledge that P rather than H" as KT:c-PH, both implying knowledge that c-PL (P rather than L) and that c-PH (P rather than H), respectively, we now have a general picture of contrastive knowledge accounting for epistemically relevant events featuring differing capacities of discriminative resolutions. Naturally, KT:c-PH entails at least the possibility of KT:c-PL, since the former's minimum resolution for knowledge includes the latter's minimum resolution by being greater than it.

If we further consider contrast sets of higher minimum resolutions as denoting more comprehensive resolutions – one has to discriminate more extensively for KT:c-PH than for KT:c-PL (*Cf.*, Tweedt, 2018, 222) – we will then be in a better position to understand Schaffer's (2012a) conception of contrast class: knowing that P, as included within more comprehensive contrast classes,

> can be pictured in terms of finding actuality in *widening regions* of logical space, . . . [wherein the] (ideal) limit of [comprehension] would consist in finding [the actuality of P] from amongst all of logical space, which would be a full grasp of truth by evidence [within one's ability to discriminate for]. (364, 365n19)[6]

This is clear especially in the case of discriminative abilities, since the more extensive and precise those abilities are, the greater the resolution of what you are discriminating for becomes; moreover, although Schaffer is commenting on "widening regions of logical space", this notion is still related to "more comprehensive extents of the minimum resolution required for knowledge" if we regard Schaffer's version as the more general logical account that encompasses phenomenal accessibility.[7]

A consequence of this distinction between KT:c-PH and KT:c-PL is that there can be instances in which the latter obtains without the former obtaining. This commonly represents the

[6] For Schaffer (2012a), this widening actuality of P does 'affect truth-values' (369. Italics removed) of knowledge ascriptions of "S knows that P rather than Q" in different contexts that give Q different values entailing varying regions of the logical space for P.

[7] This relation between logical and phenomenal features of contrastivism is further explored in Sections 5 and 7.

contrastivist picture of the skeptical scenario, wherein KT:c-PH expresses knowledge of a skeptical c-PH, such as "I have hands rather than being a BIV", that does not obtain, since we cannot tell for sure, as per how these scenarios typically function, whether we can phenomenally discriminate between BIV and not-BIV scenarios. The purpose of treating skeptical scenarios as such, at least in terms of an explanation for our knowledge that is based on phenomenal discrimination, is that the contrastivist is ensuring that what counts as knowledge of a skeptical c-PH must rely on discriminative capacities that are beyond the human purview. In this way, one could reasonably deny some KT:c-PH dealing with the skeptical contrast class of hands and BIV while at the same time claiming some KT:c-PL of the form, "I know that I have experiences of hands rather than experiences of stumps", as this form would rely on a minimum resolution well within one's discriminative capacities: namely, one that at least distinguishes appearances of hands from appearances of stumps, i.e., deals with the non-skeptical contrast class of hands and stump appearances.

One benefit of this contrastivist reinterpretation of the skeptical scenario is that if the skeptic tries to deny anyone knowledge that, for example, one has hands, the contrastivist can retort by specifying that all one cannot know is that one has hands in the form of c-PH, but one can certainly know that they have hands in the form of c-PL. Pritchard (2008) agrees as much when he explains that, according to contrastivism,

> the sceptic illicitly changes the contrast class to one where one lacks knowledge of the target proposition [P]. That one lacks knowledge of [P] relative to the contrast class cited by the sceptic does not mean, however, that one lacks knowledge of [P] relative to ordinary non-sceptical contrast classes, and it is the latter knowledge that we are most interested in rescuing from the sceptic's grasp. (307)

It is therefore not irrational for S to doubt that she is not a BIV, because her evidence (E) – in this case, what is afforded by her discriminative capacities – would not meet the minimum resolution requirements for KT:c-PH regarding the skeptical hands-BIV contrast class. This E, however, would meet the minimum resolution requirements for KT:c-PL concerning the non-skeptical hands-stumps contrast class, given that E and c-PL necessarily deal with at least the same phenomenal resolution.

4. Contrastivism and Infallible Knowledge

We will say that S could not know that c-PH, as she may be misled when E $\neq_R$ c-PH, but S could know that c-PL, as the referentiality of E $=_R$ c-PL could be epistemically accessed and believed by S.[8] Therefore, a potential skeptical claim, "I doubt that I have hands", can be counteracted by the non-skeptical claim that such doubt can only apply as the lack of knowledge that c-PH, but never as the necessary lack of knowledge that c-PL, which is always within one's phenomenal resolution to discriminate for.[9] This admits of infallibilism, yet it is not out of line with how Schaffer (2012a) explains justification in contrastive knowledge, in that, in terms of P and any true contrast Q such that KT:c-PQ obtains, 'since [P] and [Q] are mutually exclusive, [P's] truth implies [Q's] falsity, . . . which is [attained through] conclusive evidence, evidence that could not possibly obtain without [P] being true.' (378. Italics removed) Q must be at most at the same resolution as P, since here the resolution of Q would already be included in the resolution of P – e.g., the resolution of the goldfinch-raven contrast class is already surpassed by, yet included in the resolution of the goldfinch-canary contrast class – meaning that if P, in its at least higher resolution, obtains, then Q, in any similar or lower resolution, cannot obtain – e.g., if a goldfinch rather than a canary (c-GC) obtains, then necessarily a canary rather than a raven (c-CR) cannot obtain. Otherwise, if Q is at a higher resolution than P, then both P and Q could co-exist, since P only precludes Q's truth at P's resolution or lower.

[8] The use of "$=_R$" in this paper, whenever E $=_R$ "some proposition", is not meant to denote an equality of identity, but one of entailing referentiality so as not to conflate one's evidence with the proposition referring to said evidence. This account is at this stage of the argument intentionally left general enough to encompass both internalist and externalist readings of propositional reference. See Notes 23 and 31 for a more detailed discussion. For the sake of brevity, the sense of entailment being employed here is of a semantically non-amplificatory relationship between evidence and proposition, in that what is meant by the proposition is solely the evidence it refers to. Whether the evidence is just what is phenomenally given when held in one's mind or additionally its logical entailments is discussed in Sections 7 and 8.

[9] The sense of doubt being employed here, and throughout the rest of this paper, resembles an infallibilist reading of Andrew Moon's (2018) 'Doubt2: *S* has some doubt that *P* if and only if *S* believes that not-P is possible, and it's not the case that *S* believes that the possibility that not-P . . . [does not preclude] S's knowing P.' (1845-1846) A more detailed account is given below.

An interesting implication of this resolution overlap between P and Q is that if c-GC does not obtain, then c-CR could obtain *even if* what is actually there is a goldfinch. This occurs because all that c-CR tracks is that there is something phenomenally accessible for which S cannot distinguish between a goldfinch and a canary, but for which S can conclusively distinguish between a goldfinch-or-canary and a raven. S's knowledge would then be applicable to c-CR without S having to worry about whether a goldfinch is actually there, since this fact here may lie outside S's discriminatory capacity. S cannot discriminate at a resolution higher than that which differentiates goldfinches from ravens, so naturally, given that a goldfinch's actuality may transcend its mere phenomenal appearance, S would not have to worry because the lack of said actuality's conclusive accessibility entails that conclusive knowledge thereof does not obtain. Alternatively, since the goldfinch-canary contrast class cannot be distinguished by S, S's knowledge would apply just as truthfully to c-GR (goldfinch rather than a raven) as it does to c-CR (canary rather than a raven). Extending similarly to the skeptical scenario, wherein c-PL is at a lower resolution that is accessible by S than that of c-PH, the exact same results ensue: S's knowledge that c-PL is ensured even if her knowledge that c-PH is not, and *even if* c-PH actually obtains as accessible in whatever way by someone other than S.

To further substantiate the interpretation of knowledge as contrastivist, note that Schaffer's "conclusive evidence" is simply the entailing phenomenal evidence (E) of $E =_R$ c-PQ that certifies Q's falsity. Conclusively proving Q's falsity 'requires certainty, which is the absence of any doubt that [P] is true, . . . [but] the space of possibilities open to doubt is restricted to: {[P]} U {[Q]}.' (Schaffer, 2012a, 378. Italics removed)[10] If {P} U {Q} denotes the propositional elements contained within the sets of P or Q, then it would be consistent with its expression as what is logically denoted by the contrast "P rather than Q", namely, P, Q (without Q exceeding P's resolution), and their logical entailments. We can then further delineate between two types of doubt: irrational and rational. Irrational doubt would be persistent doubt even after mutual

[10] Walter Sinnott-Armstrong (2008) considers this doubt to be resolved once one 'is able to rule out all other [possibilities] but is not able to rule out [P].' (259) Additionally, Adam Morton and Antti Karjalainen (2008) interpret doubt resolution as consisting in 'nearby worlds in which [Q] is true [being] distinguishable by the knower on the basis of evidence available to her from nearby worlds in which [P] is true.' (276) Of course, the evidence from Q-true worlds must not exceed the resolution of evidence in P-true worlds for mutual exclusion between P and Q to occur.

exclusivity between P and Q is established, the latter occurring as establishment in one's mind when the mutual exclusivity of P and Q, as c-PQ, is phenomenally given and believed through epistemic access of the referentiality of E $=_R$ c-PQ. In other words, irrational doubt occurs when all four listed conditions are true:

(i**) there is entailment between S's strength of epistemic position (SEP) and c-PQ, i.e., S's evidence (E) $=_R$ c-PQ,[11]

(ii**) S can epistemically access (i**),[12]

(iii**) S comes to believe that (i**) given awareness of (ii**),[13] and,

(iv**) S comes to believe in the non-entailment between S's SEP and c-PQ.

Rational doubt, on the other hand, occurs when (i**), (ii**), and (iv**) obtain without (iii**) obtaining: this referentiality of E $=_R$ c-PQ, while epistemically accessed but not believed, would not be established *for* S, as this establishment is achieved by her attending to the referentiality's

[11] SEP is borrowed from Reed (2010) and Kim (2016) to indicate S's general justificatory extent, which is broad enough to include both evidence and reasons.

[12] Specification between S's *conscious* epistemic access of (i**) and *non-conscious* epistemic access of (i**) is being left out for now, since the important factor for (iii**) and (iv**), at least at this stage in the argument, is the doxastic component itself and not how it could come about, which can be either *non-conscious* causation or *conscious* motivation by one's epistemic access of (i**). It should be noted that, although there is a general internalist/externalist divide being drawn here across the conscious/non-conscious divide, there are many different conceptions of the internalist/externalist divide, but we are setting aside direct engagement with these alternatives and instead prioritising the conscious/non-conscious divide for our purposes. In any case, internalist infallibilist knowledge concords somewhat with Ned Block's characterisation of consciousness: infallible internalist knowledge deals with P-conscious states – i.e., phenomenal states. Knowledge can also deal with A-conscious states – i.e., states whose contents can be applied as premises in reasoning – but not necessarily, for it is not assumed here that internalist knowledge has to deal with conscious states that are, as Block puts it, 'inferentially promiscuous'. (Block, 1995, 231)

[13] The sense of belief being employed here is internalist, that is, it is an attitudinal feature of some knower, S, granted that S's attitudes are internal, i.e., conscious, at least when S is made aware of them. It is therefore open for S's belief to be directed towards apprehended evidence attaining either internalist and/or externalist features. However, belief as internalist in nature is not the same as *dispositional beliefs* that are non-consciously possessed and thus externalist in nature. *Cf.*, Lee (2018, §2.2) for a relevant discussion. Furthermore, (iii**) does not entail that mere belief is sufficient for a transition from K-ledge to KK-ledge; we are proposing here that when one epistemically accesses something, it becomes possible for one to subsequently believe what has been accessed in an *awareful manner*, which does instantiate KK-ledge. See Note 35 for further discussion on the matter.

phenomenal truth, as given by the entailment between E and c-PQ, and registering it doxastically in belief.

The obtaining of (i**) – (iii**) expresses a doxastic form of knowledge that we will term, KK-ledge, while the obtaining of (i**) – (ii**) expresses a non-doxastic form that we will term, K-ledge.[14] This is not meant to mirror a distinction between knowledge as doxastic and knowledge as doxastic yet more reflective. What is being argued here between KK-ledge and K-ledge is a distinction that does not admit of degrees, but only of the fact that the former requires belief as a necessary condition, while the latter does not. As such this distinction is neutral concerning accounts of knowledge that do admit of degrees of epistemic reflectiveness.[15] Lastly, to summarize, I see an infallible relation between an application of one's discriminative capacities, which provides the evidence and proposition at hand in an entailing relation ($=_R$) to each other, and knowledge (KK or K) of what the capacity is applied to by either not being aware of it (K) or being fully aware of it so as to believe it (KK).[16]

[14] In relation to the discussion in Note 12, KK-ledge involves being fully aware of the P-conscious state one is epistemically accessing, while K-ledge involves conscious access of a P-conscious state without being fully aware that one is doing so. Additionally, this formulation of contrastive KK-ledge concords with that of Jason Rourke (2013), in that S KKs that P rather than Q 'iff (i) [P] is true, (ii) S has conclusive evidence that [P] rather than [Q], and (iii) S is certain that [P] rather than [Q] on the basis of (ii).' (638) Due to differences in wording, a few points of clarification will help: one, the belief condition of (iii**) and that of certainty in (iii) are the same; two, (i) and (ii) both constitute (i**); three, the condition of epistemic access in (ii**) is added for the determination of contrastive knowledge so as to differentiate one merely being in an epistemic position to know from one actually knowing, in terms of either KK-ledge or K-ledge.

[15] A famous account in this regard would be that of Ernest Sosa (2009). See Reed (2012) for a discussion on Sosa's epistemology of KK-ledge. Nilanjan Das and Bernhard Salow (2018) also interpret KK-ledge as a more reflective knowledge – i.e., KK-ing that P is knowing that you know that P. The account of KK-ledge in this paper is quite different: just because S Ks that P does not necessarily put S in a position to KK that P, which is contrary to Das and Salow's account (2018, 18n1). Stated in another way, here KK-ledge does not necessarily equate to K-ledge of K-ledge. Section 6 offers further clarification on the matter.

[16] Additionally, this infallible relation can be construed as in concordance with a similar account in Ranalli (2014), insofar as any transformation from S's discrimination of P which is in possession of some feature, F, to S's KK-ledge or K-ledge that P is F requires F to be represented in S's evidence that P is F.

To continue, in terms of conclusively discriminating P from Q, the phenomenal resolution over which S is required to discriminate to KK that c-PQ is simply what disallows one to rationally doubt that c-PQ. Thus, epistemically accessing and believing the true instantiation of P's mutual exclusion of Q entails the impossibility of *not*-c-PQ, of not "P rather than Q". Equivalently, this is the impossibility of c-QP, of "Q rather than P". For Schaffer (2012a),

> possibility [Q] is eliminated for [S] (at *t*) iff [Q] is inconsistent with [S's] total experience *e* (at *t*). [S] has conclusive evidence that [c-PQ], on this interpretation, iff [Q] is eliminated for S. (Notice that the actuality possibility [of any proposition given by *e* at *t*] cannot be eliminated; thus [P], if true, is ineliminable.) (378n46)

Schaffer can be interpreted here as espousing an infallibilist reading of justification, in line with our infallibilist treating of knowledge here.[17] Again, as stated before, Q must be at most at the same resolution as P. Moreover, S's total experience (*e*) is simply S's phenomenal evidence (E) at the time of KK-ledge formation, since we are dealing with *phenomenal* resolutions at this stage. In conclusion, there is an ease of interpretation of infallible KK-ledge as contrastivist, given that the evidentiary resource for contrastive KK-ledge that c-PQ, what Schaffer terms as "conclusive evidence" and/or "total experience", can be modelled as $E =_R$ c-PQ for infallible KK-ledge.

5. Contrastivist KK-ledge: Some Issues Regarding Propositional Fundamentality

This concludes our initial outline of contrastivist KK-ledge. However, before moving on to a model of contrastivist K-ledge, we must address a fly in the ointment. Schaffer describes the impossibility of rationally doubting that c-PQ as the fact that Q can be rationally doubted – i.e., eliminated – while P cannot. The issue here is that Schaffer does not use c-QP in place of Q, and often just uses P without explicating it as c-PQ. Furthermore, for Q to be eliminated, it must lie at

[17] Schaffer does not just consider the validity of modelling contrastive knowledge as infallible; fallible knowledge is well within the scope of a contrastivist rearticulation. For example, I could fallibly KK that it will rain tomorrow rather than snow, while not fallibly KK-ing that it will rain heavily tomorrow rather than lightly drizzle, based on empirical meteorological models as my E; however, the rain-snow and rain-drizzle contrast propositions *do not* enter into a ($=_R$) relation with my E, for the latter cannot infallibly guarantee either of the propositions' truth. *Cf.*, Baumann (2012a, §2; 2012b, §3) and Schaffer (2012b, §2.1) for a related discussion. However, a detailed analysis of fallible contrastive knowledge is not the main focus for this paper.

most at the same resolution as P, meaning that the eliminated Q is *not* of an indeterminate resolution, but that of the Q precisely involved in c-QP. This would additionally entail the Q of c-QP possessing different resolution requirements than the P of c-PQ: the former Q can be of a lower resolution than the latter P, not *vice versa*, but only insofar as c-PQ is being established as infallibly known (KK).

Of course, if, instead, c-QP is being established as infallibly known (KK), then P, as c-PQ, can be of at most the same resolution as that of Q, as c-QP, but not *vice versa*, if P is to be validly contrasted against Q. All this is saying is that infallibly KK-ing any proposition at a particular resolution requires contrasting that proposition against another one that does not exceed the first proposition's resolution. For example, let us assume these statements to be true, "I KK I have hands rather than being a BIV" and "I KK I have hands rather than appearances of hands," even though "BIV" and "appearances of hands" lie at different resolutions, because both do not exceed the resolution of "hands" used in both statements: the first is at the same resolution while the second is at a lower resolution. I cannot, however, then infallibly KK that "I have appearances of hands rather than actual hands" and have it be true, regardless of whether one can access the resolution of "actual hands" or not, since having handed appearances does not necessarily preclude there being actual hands. This follows from the rule that accessing something from a low resolution does not necessarily preclude something else being at a higher resolution. I also cannot say that I KK that "I have appearances of hands rather than appearances of stumps", because once one KKs that c-PQ, any lower resolution c-QP then cannot obtain or be known (KK). The same reasoning applies even if the "hand appearances" contrast is changed into the "*only* hand appearances" contrast: already infallibly KK-ing that one has actual hands rather than only mere hand appearances precludes there being *only* handed appearances, or more precisely, KK-ledge that there are only hand appearances rather than either actual hands or stump appearances.

In any case, if Schaffer's use of Q is deliberately not that of c-QP, then what is the difference between Q and c-QP, and similarly, between P and c-PQ, if any? Schaffer gives us a hint in his fleshed-out answer to the skeptic, which is a reinterpretation of the fact that KK-ledge that c-PL, the contrast class of an accessibly low resolution, is ensured even if KK-ledge that c-PH, the contrast class of an inaccessibly high resolution, is not, and *even if* c-PH actually obtains. Schaffer (2012a) notes that '[s]ince the existence of possibilities [at resolutions] outside one's

discriminatory range does not imply the absence of any possibilities [at resolutions] inside that range, skeptical doubts do not imply the absence of ordinary knowledge.' (386) This hints at the P of c-PH not being the same as the P of c-PL, as they reside at different resolutions. Indeed, having P be identical across varying contrast classes would be illicit for infallible KK-ledge: I cannot reasonably say with certainty that I KK that I have hands rather than stumps, for "stumps" here ambiguates between stump-experiences and stump-actuality, which lie at different resolutions – specifying the former leads to a true claim, while the latter leads to a false one.[18] This ambiguous KK-ledge claim does not involve entailing evidence, for the claim 'is compatible with multiple queried [contrasts]' directed at realities of differing resolutions. (Schaffer, 2012a, 379)

The fact that P differs between contrast classes is more clearly shown in summarizing Schaffer's discussion of skepticism. Given P1 and L are contrasted at an epistemically accessible phenomenal resolution, and P2 and H are contrasted at an inaccessible one, then,

1) I can KK P1 rather than L (I can have non-skeptical KK-ledge);
2) If P2 then not-H (P2 and H are mutually exclusive);
3) If I do not KK not-H rather than H, then I do not KK P2 rather than H;
4) I do not KK not-H rather than H (I do not have skeptical KK-ledge).

Therefore, I can only say of my lack of KK-ledge that I do not KK P2 rather than H, not that I cannot know P1 rather than L, the latter lack of KK-ledge being what the skeptic asserts, because while I do not possess skeptical KK-ledge, I can attain non-skeptical KK-ledge.[19] Consequently, I cannot equate P1 and P2 together, or substitute some general P for both, for then I would be forced to conclude, given that, if P1 then not-L, "I do not KK not-L rather than H." This statement is false, as H exceeds L's resolution, meaning both are not contrastable together.[20]

[18] *Cf.*, Schaffer (2012a, 381) for a more detailed explanation of this notion of ambiguation.

[19] This is a scenario wherein the skeptic illicitly shuttles a skeptically high SEP standard to the non-skeptical context when closure is not denied for cases of closure violation, thus disallowing us the possibility of KK-ledge that, for example, c-P1L. *Cf.*, Reed (2010, 233ff., 241n35). Moreover, *Cf.*, Schaffer (2012a, 385-7) for his fuller exposition on skepticism.

[20] Morton and Karjalainen (2008) concur, in that, for them, 'deduction can extend contrastive knowledge only when it works within the set of propositions implicit in the [same resolution].' (275)

All this means is that c-PH and c-PL ought to be more accurately represented as c-P2H (P2 rather than H) and c-P1L (P1 rather that L), respectively.[21] However, if we follow this representation, then P2 would be at the same resolution implied by c-P2H, and similarly between P1 and c-P1L. More specifically, since P1 is at the resolution of c-P1L, the instantiation of P1 would already attain the same function as c-P1L's instantiation: the prohibition of L. This is the case wherein, say, being aware of one's handed appearance prohibits the instantiation of stump appearances without the former having to be formulated as, "handed appearance rather than stump appearance."

Differentiating between contrast classes in terms of varying resolutions helps answer Peter Baumann's critique against contrastivism. Baumann (2012a) interprets the contrastivist position to entail that, if S 'knows that [P] rather than [Q], then there is no defeating proposition [R] for [P]', which he calls 'Distinguish-a'. (402) He then applies this entailment to the skeptical scenario, when we are incapable of knowing a skeptical hypothesis, in order to undermine contrastivism:

> There is, however, a huge fly in the ointment: What if [R] is a sceptical hypothesis? By the very nature of a sceptical hypothesis, we can in principle not distinguish between an ordinary scenario [P] and a sceptical one [R]. The contrastivist wants to say that we don't know that [P] rather than [R]. Given [Distinguish-a], we would then have to accept that we don't know that [P] rather than [Q] – for any ordinary propositions [P] and [Q]. This is unacceptable to the contrastivist. (Baumann, 2012a, 403)

Baumann seems to be missing the point entirely, as the only way in which r could defeat knowledge that P rather than Q is if R was at the same resolution of "P rather than Q"; given that the skeptical hypothesis is *not* dealing with the same resolution of the "ordinary propositions P and Q", then the skeptical hypothesis does not act as a defeating proposition. Ultimately, Baumann (2012a) tries to resolve what he sees to be an issue with contrastivism, as brought up by Distinguish-a, by

[21] Schaffer (2012a) at least acknowledges that different contrasts 'determine differences in the proposition expressed', (374) although he may be applying this solely to the contrast proposition, Q, as opposed to the target proposition, P. *Cf.,* Schaffer and Knobe (2012, 687). Sinnott-Armstrong (2008), however, argues against this, in that '[i]t is the reason that is contrastive, not the proposition', but insofar as our 'reason favours one thing and disfavours others', (258) then we have to be precise in what this favored "thing" is, which can be given in different resolutions through different contrasts.

explaining that when 'we say that S knows that [P] rather than [Q], we are excluding any proposition like [R]. . . . However, we are not thereby denying that there are such propositions (like [R]).' (405) Nevertheless, what Baumann misunderstands is that how R gets excluded is by the logical nature of "S knows that P rather than Q" *at a different resolution* to that of R, not by, as Baumann asserts, separately specifying what is allowed as R. (*Cf.*, Baumann, 2012a, §3)

This delineation of P and Q into the different resolutions of (P1 and P2) and (L and H), respectively, also avoids the problems normally associated to contrastive closure. For example, consider Christoph Kelp's (2011, 290) objection that S being deceived into merely believing "P" when Q actually obtains instead can transform S's KK-ledge that "P" rather than "Q" into S's KK-ledge that "P" rather than "S being deceived into merely believing P, when Q actually obtains instead," which is epistemically *immodest*. Kelp's objection fails here because both P and Q in "P" rather than "Q" are of different resolutions than those in "P" rather than "S being deceived into merely believing P, when Q actually obtains instead." Additionally, the criticism of Michael Hughes (2013) also does not pan out. He claims that, given certain conditions. we can attain the epistemically immodest scenario wherein S 'can come to know that (([S has] hands and [is] not a BIV) rather than that [S is] an amputee)' from the epistemically modest scenario wherein S knows that she has hands rather than being an amputee (588). The required condition is derived from Schaffer's (2007, 243) account that, if S KKs that A1 rather than Q, and A1 → A2, then S can deduce from this her KK-ledge that A2 rather than Q. Hughes' criticism is faulty in the case of P's differentiation into P1 and P2 because, unlike the case of A1 → A2, *it is not the case* that P1 → P2, meaning that "S has hands and is not a BIV", as P2, does not follow from "S has hands", as P1, which Hughes simply denies. All in all, contrastivism can begin to sidestep issues with epistemic closure as long as closure at least obtains between propositions of the same resolution, which may be what is being expressed in Kvanvig (2008, 253), Gerken (2013, §3), and Tweedt (2018, 225n16).

However, if we can then describe contrastive KK-ledge that c-P1L (three-part relation between KK-ledge, P1, and L) and orthodox KK-ledge that P1 (two-part relation between KK-ledge and P1) in terms of them both precluding rational doubt that P1 through the prohibition of L at certain resolutions, then is discrimination at phenomenal resolutions not truly applicable to both contrastive and orthodox KK-ledge? From the above analysis, it does seem applicable, meaning

that we have thus answered Question 1 of Section 2; does this, though, apply to *all* cases of orthodox KK-ledge? If yes, then this may imply identity between orthodox and contrastive propositions, such as P1 and c-P1L, respectively; if no, then identity would not obtain. However, due to this analysis being about contrastive KK-ledge, it would behoove us first to see if phenomenal discrimination can apply to infallible *K-ledge* as well.[22]

6. Contrastivism and Infallible K-ledge

To begin, let us first outline that infallible knowledge that P, an orthodox account, manifests in two modes:

a*) KK-ing that P: obtaining of (i*), an entailing SEP-P relation, or equivalently, E $=_R$ P; (ii*), the epistemic access of (i*); and (iii*), the belief of (i*) given awareness of (ii*).

b*) K-ing that P: (iii*) not obtaining, with (i*) and (ii*) obtaining.

For the contrastivist, to recap from Section 4, infallible knowledge that some c-PQ is attained similarly:

a**) KK-ing that c-PQ: obtaining of (i**), an entailing SEP-(c-PQ) relation, or equivalently, E $=_R$ c-PQ; (ii**), the epistemic access of (i**); and (iii**), the belief of (i**) given awareness of (ii**).

b**) K-ing that c-PQ: (iii**) not obtaining, with (i**) and (ii**) obtaining.

In short, a**) and b**) together entail that epistemic access of E $=_R$ c-PQ is not enough for the establishment of the mutual exclusivity between P and Q *for S*, because S could have epistemic access without any attendant doxastic attitude towards E $=_R$ c-PQ. Furthermore, pertinent to this stage in the argument, we can differentiate (ii**) into:

(Cii**) S can *consciously* epistemically access (i**), and,

(NCii**) S can *non-consciously* epistemically access (i**).

Therefore, we have:

[22] The following discussion, unless explicated otherwise, will consider K-ledge as having actually occurred, not merely being possible.

f**) Internalist K-ing that c-PQ: (iii**) not obtaining, with (i**) and (Cii**) obtaining;

g**) Externalist K-ing that c-PQ: (iii**) not obtaining, with (i**) and (NCii**) obtaining.[23]

It is in this sense that we can see how KK-ledge cannot be externalist, since belief is a conscious doxastic state.[24] Lastly, both f**) and g**) are to be construed along causal lines, wherein epistemic access of E $=_R$ c-PQ, of whichever variety, simply causes one's K-ledge that c-PQ without any doxastic necessitation.[25]

[23] This means that, taking a broader scope of the relation, E $=_R$ P, inasmuch as E $=_R$ P is consciously accessed (Cii*), E can only matter as *internalist* evidence. This should not imply that internalist knowledge (KK or K) necessarily disallows the existence of externalist E $=_R$ P, just that any E $=_R$ P that is consciously accessed and/or doxastically reacted to as belief is relevant *only* as internalist E $=_R$ P; thus, what is allowed as relevant is either wholly internalist E $=_R$ P or the internalist aspect(s) of a *mixed internalist/externalist* E $=_R$ P, and what is necessarily disallowed as relevant, but which may still exist, is wholly externalist E $=_R$ P. Conversely, any non-consciously accessed E $=_R$ P is relevant *only* in its externalist capacity, either as a wholly externalist or mixed internalist/externalist phenomenon. This would apply even for belief caused by such non-conscious access, which is an allowed scenario, for one could believe in something without ever being conscious of how that belief was caused, even if the cause was fully non-conscious/externalist in origin.

[24] The incompatibility between KK-ledge, as formulated above, and externalism is reflected somewhat in the stance of Das (2019), although incompatibility may be mitigated through construing KK-ledge under the auspices of a fallible reliabilism (Das and Salow, 2018). On the other hand, one may instead have a conception of belief as non-conscious, excluding the notion of unformed dispositional beliefs that are non-conscious (see Note 13), in that S is in a belief state regarding P without being conscious about being in such a state. However, infallible KK-ledge was introduced to model one's epistemic awareness in a way that infallible K-ledge cannot. If belief, at least in this essay, is to be proper to infallible KK-ledge, then labelling belief as non-conscious would be to focus *solely* on infallible K-ledge, which is not our purpose here.

[25] Regarding KK-ledge, Schaffer (2012c) believes that 'context supplies a value for some sort of covert semantic material, perhaps via the question under discussion'. (355) *Cf.*, Schaffer (2012a, 363). The semantic material here can be the values of P and Q in c-PQ that are implied by the conscious inquiry being undertaken, but if the context can be something other than a conscious assertion, then the context may be able to causally supply a value for P and Q concerning K-ledge that c-PQ. Nonetheless, the account of contrastivism being espoused here may be at odds with Schaffer's stance inasmuch as he takes context to *explicitly* supply the aforementioned value; against this interpretation of Schaffer, I am arguing for a contrastivism wherein context only *implicitly* supplies a value that is explicitly given by inherent features of c-PQ itself. See Note 38 for additional discussion.

Now, concerning whether infallible K-ledge makes use of phenomenal resolution regardless if it is characterized contrastively or orthodoxly, we must analyze this issue also along causal lines. Is discriminative capacity thus still relevant for the causation of K-ledge? Yes, but only insofar as one can be allowed to phenomenally discriminate without one being either conscious about it, or conscious but not doxastically reactive to it, for g**) or f**), respectively. If this can be reasonably allowed, then discriminative capacity, and by consequence, phenomenal resolution, become relevant for mere K-ledge. However, if, given our prior analysis of phenomenal resolution for infallible *KK-ledge*, c-P1L and P1 both reject L for the possible manifestation of KK-ledge, then this analysis should also now apply to K-ledge in terms of causation. In other words, both c-P1L and P1, by virtue of being at the same resolution, should also each cause an instance of K-ledge that P1 *contrasted against L*, since both propositions mutually exclude the truth of L. Indeed, if the only difference between K-ledge and KK-ledge is belief, and if mere belief does not add to nor subtract from the evidentiary content of the epistemically accessed phenomenal resolution,[26] then what is significant for KK-ledge, barring belief, ought to be significant for K-ledge as well. To see this conclusion more clearly, we proceed with examples of knowledge of logic and mathematics.

7. The Relevance of Phenomenal Resolution for Infallible KK/K-ledge[27]

For logic, we can ask how the resolution of a deductive chain is relevant for *both* S's infallible KK-ledge and K-ledge that said chain is true. Let us allow, for both conscious and non-conscious epistemic access, that S has the deductive chain in mind – i.e., she has the entailing evidence for the chain's truth in mind. Let us also allow that she is entirely capable of not paying the required attention for infallible KK-ledge that the deductive chain is true[28] – i.e., paying

[26] It is taken here that mere belief that P, based on evidence/reasons that P, does not elicit any relevant changes to the evidence or proposition that count towards KK-ledge that P. Specifically, the argument is made here in terms of evidence dealing with a phenomenal resolution that is represented by a particular proposition, either of contrastive or orthodox form.

[27] Any time the term "KK/K" is used, it indicates that the consideration being made at the time applies to both KK-ledge and K-ledge.

[28] *Cf.*, Schaffer (2012a, 385n) for a related mention in terms of the difference between competent deduction and being certain that one has competently deduced.

attention to each step in the chain, and how these contribute to its veracity, as the belief in the chain's veracity is formed. We can thus construct varying contrast classes regarding the deductive chain at different phenomenal resolutions: the *mind-dependent* resolution, where reference is made only to the chain as within S's purview of phenomenal, or more generally cognitive, discrimination, and the *mind-independent* resolution, where the chain is made to obtain regardless of how S accesses it. In terms of KK-ledge of the mind-dependent resolution, S can infallibly KK that the chain is true rather than false by the evidence (E) to which one has conscious epistemic access, but only if E is the chain in S's mind *with attention paid* to the contribution of each step to the chain's truth. For the mind-independent resolution however, S cannot infallibly KK that the chain is true rather than *absolutely/mind-independently* false – i.e., true regardless whether the evidence for its veracity is consciously attended to – for this mind-independent contrast class is defined as outside one's discriminatory evidentiary capacities, in that the chain can possibly persist outside one's accessed evidence for it.

Note that such KK-ledge of the mind-dependent contrast class cannot be rationally doubted, while that of the mind-independent one can. This is because, for the mind-dependent class, insofar as S's E, which includes the chain itself, is all that is referenced by P – that the chain is true rather than false in terms of itself being held in S's mind – then all S would be paying attention to is the truth of E, which is already given by E itself as long as the chain is a proper deduction and that S acknowledges how it is properly deduced; moreover, how the chain is properly deduced can be reasonably considered as inherently part of E as well. As such, doubting the truth of E while it is fully attended to within one's mind would be to doubt that E is itself, since E's truth of self-identity is determined by E simply obtaining. This form of doubting entails that S would have the attitude of believing E's non-entailing relation to its own truth – call this attitude A – and as long as this attitude's perceived absurdity ends up leading S to believe E's entailing relation to its own truth – call this attitude B – then any further doubt would be *irrational* due to the manifestation of the two contradictory attitudes of A and B. If, however, we are talking about the mind-independent class, then at least part of the chain, the part belonging strictly to said class, would be out of one's mind, meaning since it is not certain for S that its entirety can be brought to one's awareness, the chain, as mind-independently true, can be rationally doubtable.

In terms of K-ledge, the mind-dependent contrast class would still count towards S's K-ledge of said class, but it would attain for S in such a way that S's KK-ledge and K-ledge of the class would occur through conscious epistemic access of the evidence (E) thereof; E here equates to the mind-dependent contrast class, and which, once epistemically accessed as evidence in one's mind, both causes S's K-ledge and, if believed by paying attention to the self-referentiality of E's truth, forms S's KK-ledge as well.[29] This denotes that the facet of the mind-dependent class that factors into S's K-ledge thereof can be rationally doubted. The mind-independent contrast class, on the other hand, while still rationally doubtable, could cause S's K-ledge of it without S's KK-ledge obtaining. This could work as long as we can create a story wherein the E of the chain, which now is the chain in its mind-independent resolution and not a mind-dependent one, is something of which S's epistemic accessing capacity is receptive;[30] however, inasmuch as this receptivity is directed towards a mind-independent logical entity – i.e., one whose truth is mind-independent – then S's K-ledge of it would be externalist, since mind-independence can be accounted for by non-conscious access, but not conscious access, in terms of mind-independent access.[31] If this is the case, then S's non-conscious infallible K-ledge cannot guarantee S's infallible KK-ledge, the latter relying for its certainty on at least *conscious* awareness of the epistemically accessed evidence. In

[29] A specific consequence of this would be the situation wherein S consciously accesses E $=_R$ "A → B → C". Given that S knows that (A → C) iff S knows that [(A → B) ∧ (B → C)], then there is a case such that S can K that (A → C) while not KK that (A → C) if S consciously accesses E while not forming a belief that (A → B → C) based on E.

[30] Another way of stating this same reasoning appropriates Joshua Schechter's (2013) claim that '[w]hether a thinker has made a competent deduction shouldn't depend on her meta-beliefs about her reasoning.' (437n23) Reed (2010) makes a similar comment in application to epistemic reliabilism, in that '[a] subject does not need to be aware that her faculties are reliable in order to [have knowledge]; all that matters is that her faculties *are* reliable.' (236)

[31] I believe it erroneous to think of mind-independent access as one's epistemic capacities *directly* accessing reality external to one's mind, for this would make that external reality internal once it is directly in one's mind. Nevertheless, it may be more appropriate to picture mind-independent access as *indirect* instead, wherein the E of external reality and the E of what's captured in one's mind are not identical to each other but have their identity determined in a *parallel* fashion, which allows for one's epistemic accessing capacity to be receptive of mind-independent external truths in a non-conscious fashion without those truths being mistaken as consciously accessed mind-dependent truths. In relation to Note 23, we may consider the mind-independent contrast class as constitutive of either wholly externalist evidence or the externalist elements of mixed internalist/externalist evidence. For the mind-dependent contrast class, it would be constitutive of either wholly internalist evidence or the internalist elements of mixed internalist/externalist evidence.

any case, the differences in a deductive chain's resolution impact not just KK-ledge, but K-ledge as well.

We now move on to mathematical KK/K-ledge. If we consider the equation, 1+1=2, as similar to a deductive chain, in that both can be held in S's mind, then the same conclusion would seem to apply: S can infallibly KK that 1+1=2 is true rather than false given the equation as evidence (E) held in one's mind, wherein the equation's truth is granted by E itself. Moreover, depending on the E that one holds in one's mind in infallibly KK-ing that 1+1=2 (particular impressions of things, the deduction from the law of identity, etc.) the *resolution* of that equality also changes. In effect, such KK-ledge of the equation gets qualified depending on the attendant contrast, since "I KK 1+1=2 rather than 1 apple plus 1 apple makes 3 apples" (the resolution is at the level of empirical phenomenon) is different from "I KK 1+1=2 rather than 1+1=3" (the resolution is at the abstract level of the law of identity).[32] Lastly, in terms of infallible K-ledge, S could also infallibly K that 1+1=2 is true rather than absolutely false given a causal story from the equation's (possibly mind-independent) fact to it being epistemically accessed in a non-conscious way. This is because the fact that an equation derives from mind-independently true basic axioms can act as part of an epistemic causal structure for one's non-conscious K-ledge in the same way that mind-independently true deductive chains can.[33]

Since we have shown that phenomenal resolution is significant for both KK-ledge and K-ledge, and that resolution can be described in either orthodox or contrastive terms for KK-ledge, then we have shown that even resolution-based K-ledge can be described as either orthodox or contrastive. Does this entail, though, that P and c-PQ are *absolutely indistinguishable*, notwithstanding their logical function of mutually excluding Q for K-ledge and their doxastic function of precluding rational doubt of P for KK-ledge? Given that P for both types of

[32] This arguably answers Baumann's (2012a, 397) critique of the viability of contrastive mathematical knowledge.

[33] This argument for mathematical K-ledge acts as a critique against Rieber's (1998, 200) lack of conviction that mathematical knowledge functions causally. Indeed, if we presuppose that logical laws are factored *a priori* in every process of thought, (*Cf.*, Boghossian, 2000) and that at least some facets of mathematical truth are intimately connected with logical laws (this connection is stated for the sake of the argument and arguing for or against it is beyond the scope for this essay), then we can say that at least part of the structure of thought itself acts as a causal influencer towards infallible mathematical K-ledge.

propositions is at the same resolution, then the function of "rather than Q" should hold the key for distinguishing P from c-PQ. In other words, there must be a way of infallibly KK/K-ing that P without KK/K-ing that it is contrasted against Q if we are to distinguish epistemic orthodoxy from contrastivism, which is the subject matter for our Question 2 in Section 2.[34]

8. Distinguishing "P" and "c-PQ": Clarifying the Structure of Infallibly Known (KK/K) Propositions

The best way to illustrate this is by visualizing S as having conscious epistemic access to some experience, as experiential evidence (E), and *nothing else*, meaning that there is no other phenomenal experience to detract S's attention away from that experience. For example, what if S has only ever seen her hands, without any experience of not-hand stuff, such as stumps? We may then reasonably say that S has epistemic access to E $=_R$ c-PQ, and consequently Ks that c-PQ, with P being hand-experiences and Q being stump-experiences, for she is clearly not experiencing stumps, and hands are not stumps. However, here is a case where we may also reasonably say that S does not believe, and thus does not KK, that c-PQ, because S has not yet made the inference from P to not-Q due to her lack of Q-experiences; for S, because she does not KK that she is not experiencing Q, S sees her hands without paying the required attention to the fact that she does not see stumps. Consequently, S would be able to KK that P, in the resolution that excludes Q, without KK-ing that c-PQ, for only P is ever consciously attended to, not P *as* not-Q, and not P as contrasted with Q. However, it is important to note that S still epistemically accesses E $=_R$ c-PQ, for any P-experience is still evidence for the lack of Q-experiences, even if S is never *aware* of the evidence as such. Thus, we can model this type of infallible KK/K-ledge as (NCii**)-based *contrastivist* K-

[34] In any case, specifying this way would aid in clarifying René van Woudenberg's (2008) proposal that the contrastive proposition, c-PQ, is equivalent to the orthodox proposition, "if (P v Q), then P". The latter works whether or not P logically excludes Q, given that Q could have just failed to obtain at the moment of P's instantiation; however, for c-PQ, P necessarily excludes Q. In other words, the set of P-Q relations in "if (P v Q), then P" is more extensive than that in c-PQ, meaning that, on one hand, once S consciously accesses E $=_R$ c-PQ, there is *always* the possibility that S can KK (Cii**) that c-PQ and KK (Cii*) that "if (P v Q), then P"; on the other hand, once S consciously accesses E $=_R$ "if (P v Q), then P", there is *not always* the possibility that S can KK (Cii**) that c-PQ and KK (Cii*) that "if (P v Q), then P".

ledge that c-PQ, with non-conscious access of E $=_R$ c-PQ, and as (Cii*)-based *orthodox* KK-ledge that P, with conscious access only of E $=_R$ P.[35]

To conclude, P differs from c-PQ in that KK-ledge of the former makes no conscious reference to the contrasts that are overt to one who KKs the latter. Nonetheless, the resolutions of both propositions are the same, although P is implicit in what its resolution excludes, namely Q, while c-PQ explicitly expresses its exclusion of Q. Lastly, c-PQ itself is not c-(P/not-P), which contrasts P with every possible not-P, for c-PQ does not lie at the maximum resolution, which contains a *fully resolved* P, while c-(P/not-P) does. With all this said, then, it is clear that the differences between P, c-PQ, and c-(P/not-P) serve to illustrate that we cannot hold every single possible contrast to P in our minds, connoting that some contrasts are irrelevant, some are implicit, and some are explicitly appropriated. Those explicit contrasts are proper to c-PQ, in that they are only what Q expresses when brought to bear in one's mind. Irrelevant contrasts do not act to differentiate between P and Q – i.e., such contrasts are of a higher resolution than P or Q.[36] Implicit contrasts are the domain of orthodox P, such that I can KK something in an orthodox fashion without being aware of the implicit contrast structure informing my contrastivist K-ledge of that

[35] Could S ever have (Cii**)-based contrastivist K-ledge that c-PQ along with (Cii*)-based orthodox KK-ledge that P? Yes. This would be the case wherein S has conscious access to E $=_R$ c-PQ without having that access be from what S forms her belief, i.e., S believes that P based on conscious access of E $=_R$ P while consciously accessing, but not believing, that E $=_R$ c-PQ. For example, S could be experiencing a stump along with a hand within the same conscious perceptual field without S ever paying specific attention to the stump experience for S's formulation of her belief that she has hand experiences, which is different from her inexistent belief that she has hand experiences *rather than stump experiences*. This characterization of belief, wherein one could be conscious of something without being fully aware enough to instantiate a belief state is meant to express that epistemically accessing evidence allows for one to be fully aware of its truth in a way that one cannot help but be in a belief state regarding that evidence. Without entering substantively into a debate on the issue, we will simply note that this stance resembles those taken by Hieronymi (2009), Peels (2015), and Casey (2020), with a somewhat more antagonistic position being espoused by Setiya (2008).

[36] At the extreme end, we can reasonably reject KK-ledge of skeptical contrasts at epistemically inaccessible resolutions. This is a charge against Pritchard's (2008) view that contrastivism safeguards our everyday knowledge against the skeptic by 'groundlessly ignoring sceptical contrasts.' (316) In terms of KK-ledge, Pritchard errs in his assessment, because we *are* grounded in ignoring the skeptical contrast, as we are unable to infallibly KK at such high resolutions. Nonetheless, in terms of K-ledge, rejection of said contrast *is* groundless, ala Pritchard, for just because we assuredly lack skeptical KK-ledge does not necessitate the lack of skeptical *K-ledge*. See Note 45 for further discussion.

something.[37] This contrastivist K-ledge is, again, causally determined in that whatever contrast class is being epistemically accessed – non-consciously or consciously yet not doxastically – includes the features of reality that play a role in the causal history of one's K-ledge.[38]

Contrastive knowledge can then be distinguished from orthodox knowledge easily in terms of KK-ledge and consciously-accessed K-ledge – either (Cii*) or (Cii**)-based: what is consciously accessed by S can either be P with *nothing else* being acknowledged, or P as acknowledgedly excluding/contrasted against some Q. However, (NCii**)-based contrastive K-ledge cannot be distinguished from (NCii*)-based orthodox K-ledge, since E $=_R$ P and E $=_R$ c-PQ,

[37] Implicit contrasts can also be the domain of contrastivist c-PQ if we acknowledge that there are contrasts to P of a lower resolution than Q, as implied from Section 4. (Let us refer to these other contrasts collectively as some X.) To explain, any member of X is automatically excluded from S's infallible KK-ledge that c-PQ by the instantiation of c-PQ, given that, if E $=_R$ c-PQ is already being accessed and doxastically reacted to, then any KK-ledge that c-XP would obtain *only* if one were to groundlessly reject KK-ledge that c-PQ by irrationally doubting c-PQ's truth, which is absurd. However, this does not mean that S all of a sudden infallibly KKs that c-PX even if she does not KK that c-XP, which is dissimilar to the c-PQ case, as S KKs that c-PQ even if she does not KK that c-QP. Thus, we can call X the collective term for the implicit contrasts to P. For example, KK-ing that one experiences hands rather than stumps is not to say that one automatically KKs that they experience hands rather than vague visual approximations to stumps. Furthermore, if we are instead dealing with contrasts to P of the *same* resolution to the Q in c-PQ, then the same conclusion holds; for example, KK-ing that one is having experiences of five fingers rather than no fingers is not to say that they necessarily KK that they are experiencing five fingers rather than having some ($0 < n < 5$)-experience of n fingers.

[38] This specification concerning the set of contrasts applicable to P when applied to contrastive and/or orthodox KK/K-ledge entails that contrasts relevant for contrastive KK/K-ledge that c-PQ are set by the resolution of one's infallible evidence for c-PQ *and not* by S's pragmatic/contextual concerns. The appeal of this account is specific to contrastive KK/K-ledge as infallible KK/K-ledge of a target proposition that changes in concert with what contrasts become relevant to it. This consideration helps avoid many of the issues that have befallen the usual contextualist question-oriented process of setting contrast saliency. These issues include, among others, the process' lack of uniqueness to contrastivism (Neta, 2008) and its tendency to imprecisely set contrast propositions (Rourke, 2013). On the account of contrastive KK/K-ledge set out in this paper, the inherent capacity of c-PQ to already allocate its explicitly relevant contrasts is unique to contrastivism in that orthodox KK/K-ledge employs orthodox propositions that only factor in implicit contrasts. Furthermore, the precision with which c-PQ sets its contrast propositions is entirely dependent upon the resolution at hand, regardless of whatever non-propositionally driven event instantiates that can bring to light different possible contrasts for S. Therefore, at best, S's non-propositional, i.e., pragmatic/contextual, concerns may just act to clarify how S has failed at attaining infallible KK-ledge that c-PQ.

albeit separately accessible in a conscious way, are both accessed together as the same E in a non-conscious way: P and c-PQ both logically function to exclude the truth of Q, due to both propositions being at the same resolution, and infallible K-ledge that P, and c-PQ for that matter, manifests only when Q is excluded by one's evidence (E). E $=_R$ P and E $=_R$ c-PQ are indistinguishable because they both logically function identically, but as their logical functions hinge upon their phenomenal natures being at the same resolution,[39] then their phenomenal natures are identical as well, insofar as functional differences are tracked by phenomenal variations. Morever, since our account of infallible knowledge deals with *phenomenal* discrimination, then E $=_R$ P and E $=_R$ c-PQ are *identical* between (NCii**)-based and (NCii*)-based K-ledge.[40] The only reason, then, why KK-ledge can distinguish between E $=_R$ P and E $=_R$ c-PQ is because their otherwise identical phenomenal natures are consciously acknowledged differently regarding their logical entailments: S's KK-ledge that c-PQ admits of its exclusionary logical function, while S's KK-ledge that P is silent on the matter, and the exclusionary function is merely implied. The same applies to (Cii*)-based and (Cii**)-based K-ledge, for even without doxastic acknowledgement, E could still be consciously accessed by S differently as either P or c-PQ.[41]

[39] "Phenomenal" used broadly here to indicate both sensory phenomena and the phenomena of our thoughts.

[40] This is a reasonable assumption given that our use of phenomenal discrimination here ought to be sufficiently broad to encompass logical functional change, at least of the type of change that relevantly factors into differences we can discriminate in our consciously accessed evidence. This naturally expresses a distinction between our evidence's logical and phenomenal character, which nonetheless relate in a fashion analogous to that between logically objective and psychologically objective reasons in argumentation. *Cf.*, Novaes (2018, 514n3) for a discussion.

[41] See Note 35 for clarification, but just replace (Cii*)-based KK-ledge with (Cii*)-based K-ledge and take out any mention of belief. Notwithstanding, one may criticize that the discussion so far has left it open for (NCii*)-based and (NCii**)-based K-ledge to garner logical omniscience regarding the potentially infinitely varied contrasts to which a specifically resolved P can apply, given especially that a mind-independent E $=_R$ P or c-PQ logically contrasts with *every* contrast at P's resolution or lower. My response would be that even if this was indeed the case, it is precisely why the account of KK-ledge given here is required so that *knowledge in general* does not have to admit of this type of contrastivist logical omniscience. One may further include the account of (Cii*)-based and (Cii**)-based K-ledge as functioning similarly to KK-ledge in terms of revoking this omniscience, as it is reasonable to assume that human consciousness cannot hold the potentially infinite applicable contrasts to some proposition at any one time.

9. Infallibilism and *ad hoc* Accounts from Contrastivist Eyes

When S KKs that c-PQ, the lack of S's rational doubt that c-PQ allows for the instantiation of c-PQ, when epistemically accessed and believed, to positively determine KK-ledge that c-PQ, since infallible KK-ledge and doubt mutually oppose each other. When given in terms of logical functionality of excluding Q's truth, S's lack of rational doubt becomes explainable as S's conscious acknowledgement – i.e., belief – that c-PQ logically excludes the truth of Q in such a way that KK-ledge that c-PQ is seen as dealing *solely* with P in the resolution that excludes Q, as in, dealing non-*ad hoc*-ly with P through its logical exclusion of Q. Additionally, *orthodox* (Cii*)-based KK-ledge can be considered non-*ad hoc*, but only inasmuch as it deals with E $=_R$ P, because the belief that is central to orthodox KK-ledge consists only in its acknowledgement of P's truth as entailed by the epistemic access of E $=_R$ P, not the truth of P *as* contrasted against Q, given the lack of *acknowledged* access of E $=_R$ c-PQ. This means that orthodox KK-ledge is acknowledgedly non-*ad hoc* in its dealings with E $=_R$ P, but acknowledgedly *ad hoc* in its dealings with E $=_R$ c-PQ.[42]

Now, since infallible (NCii*)-based K-ledge that P functions identically to (NCii**)-based K-ledge that c-PQ, in terms of excluding Q's truth, then these types of infallible contrastive *and* orthodox K-ledge are non-*ad hoc* when both deal either with E $=_R$ P or E $=_R$ c-PQ, but only insofar as the resolution of P that excludes Q is epistemically accessed;[43] otherwise, this K-ledge would be fallible in its lack of access of E $=_R$ c-PQ, and any proposition that is not infallibly referenced to evidence cannot have its truth guaranteed by the evidence. As such, this lack of guarantee entails that fallible (NCii*)-based and (NCii**)-based K-ledge deals with some not-c-PQ consideration,

[42] Any knower, S, would be able to acknowledge the non-*ad hoc*-ness of her KK-ledge that P, if her experiential evidence is only of P. However, S would not be able to acknowledge the *ad hoc*-ness of her KK-ledge that c-PQ, because for S, there would not be any not-Q to acknowledge since she would not have had any Q-experiences. The acknowledgement of S's contrastivist KK-ledge's *ad hoc*-ness could only be feasible by *another* knower, besides S, who infallibly KKs that S has only acknowledged her access of E $=_R$ P, not E $=_R$ c-PQ. Consider this a contrastivist application of a contextualist regard for, as Williamson (2005) would say, 'differences in the situation of the *speaker* who applies the word "know"'. (217)

[43] The same applies to (NCii*)-based and (NCii**)-based infallible KK-ledge due to the existence of non-conscious epistemic access. The same will also apply to (Cii*)-based and (Cii**)-based K-ledge below.

thereby rescinding its non-*ad hoc* status.[44] Consequently, for (NCii*)-based and (NCii**)-based K-ledge, they are non-*ad hoc* when the known proposition is either P or c-PQ, as non-conscious access of E $=_R$ P is already defined as simultaneous access of E $=_R$ c-PQ. For orthodox (Cii*)-based K-ledge, it is non-*ad hoc* when the known proposition is expressed as P *only*, for just because S consciously accesses E $=_R$ P does not necessarily mean that she has had the required Q-experiences to be conscious of the fact that E $=_R$ P can be consciously accessed *as* E $=_R$ c-PQ due to P logically entailing not-Q. For contrastivist (Cii**)-based K-ledge, it is non-*ad hoc* regardless of whether the known proposition is expressed in terms of P or c-PQ, since the conscious access of E $=_R$ c-PQ already entails having had evidential P-experiences, expressed as E $=_R$ P, but not necessarily *vice versa*.

In summary, for epistemic infallibilism in general, we have these conclusions. Contrastivist (Cii**)-based KK/K-ledge that c-PQ is non-*ad hoc* for both P and c-PQ because what this KK/K-ledge consciously captures that is necessarily about P is the resolution of P as well as its explicit contrast against Q, hence the explication of c-PQ as the infallibly known (KK/K) proposition that is also infallibly known (KK/K) as P. Orthodox (Cii*)-based KK/K-ledge that P is non-*ad hoc* only for P because what is necessarily consciously captured about P is the resolution of P that is implicitly contrasted against Q, hence the explication merely of P as the explicitly infallibly known (KK/K) proposition, not c-PQ. Lastly, contrastivist/orthodox (NCii**)-based and (NCii*)-based KK/K-ledge that c-PQ *or* P, respectively, is non-*ad hoc* for both c-PQ and P, since what is necessarily captured about P is its objective, logical function of infallibly excluding Q's truth; the contrast of Q, here, becomes relevant whether implicated in P or explicated in c-PQ, as implication/explication is only significant when it comes to *conscious* epistemic access – i.e., non-conscious access is able to transcend this implication/explication dichotomy.[45]

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[44] This also means that, as long as K-ledge is made to deal only with the access of E $=_R$ c-PQ, then any K-ledge that deals with, say, an epistemically *inaccessible* E $=_R$ c-(P/not-P) would necessarily be *ad hoc* and fallible.

[45] If c-PQ is defined as the non-skeptical c-P1L, then nothing changes: non-conscious access of E $=_R$ P1 is possible and identical to non-conscious access of E $=_R$ c-P1L, with conscious access of E $=_R$ c-P1L being possible and entailing access of E $=_R$ P1, but not *vice versa*. If, instead, skeptical c-P2H is introduced, there are significant changes: non-conscious access of E $=_R$ P2 is indeed still possible and identical to non-conscious access of E $=_R$ c-P2H. This is the common answer to the skeptic that secures knowledge of even skeptical propositions: the knowledge must be externalist, (NCii**)-based or (NCii*)-based K-ledge (See Note 24). *Cf.*, Sinnott-Armstrong (2008, 267) and Pritchard

This conclusion also applies even if the maximum resolution of c-(P/not-P) is epistemically accessed – i.e. the resolution at which no higher skeptical resolution can be afforded – for just because one has access to the most absolute reality of P does not guarantee that one has ever had access to what could have been otherwise – i.e., some absolute not-P. In terms of KK-ledge, therefore, while contrastive KK-ledge that c-(P/not-P) is non-*ad hoc* regardless of whether the known proposition is expressed in terms of P or c-(P/not-P), orthodox KK-ledge that P is non-*ad hoc* only when the known proposition is expressed as P, not c-(P/not-P). This is because, while accessing E $=_R$ c-(P/not-P) already entails the access of E $=_R$ P, the latter by itself does not necessarily entail E $=_R$ c-(P/not-P) as epistemically accessed.[46]

10. Conclusion

Throughout the discussion, we have been exploring ways in which we could begin arguing for indubitable and infallible knowledge. In terms of K-ledge, where justification functions non-doxastically, we can model how P logically excludes some not-P, let us call it Q, by showing how such exclusion occurs within a context of phenomenal resolutions. Here, different P-resolutions logically exclude Q *only at those and lower resolutions*. In this case, contrastivism acts as a conceptual tool facilitating the specification of to what extent and at which resolution P excludes varying Qs, such that any legitimate claim of infallibly K-ing that "P rather than Q" is a non-*ad hoc*-claim of K-ledge *at the specified resolution* of c-PQ. This important act of resolution specification attenuates the risk of *ad hoc*-ly claiming infallibly K-ledge that P at resolutions higher than what one's evidentiary capacities infallibly reference. A similar conclusion applies to infallible KK-ledge, the only difference being that, for KK-ledge claims, they are justified in how they propositionally refer to evinced phenomenal resolutions by virtue of S's conscious awareness of the self-referentiality between the proposition and resolution at hand – my KK-ledge that c-PQ

(2008, 309-314) for similarly related discussions. However, *conscious* access of either E $=_R$ c-P2H and/or E $=_R$ P2 is impossible, as P2 and P1, along with their relevant contrasts, are consciously indistinguishable: P2 can only be consciously acknowledgeable within the resolution of P1, given that P2 → P1, and that P2's skeptical resolution is necessarily a *non-conscious* one. As such, we can have non-conscious skeptical K-ledge without having conscious skeptical KK/K-ledge, which is crucial, according to Pritchard (2008), to avoid the risk of confusing 'the conditions under which it is appropriate to claim knowledge with the conditions under which one knows.' (319)

[46] This may be one way to oppose the view that contrastivist and orthodox knowledge are reconciled in the maximal case of P = c-(P/not-P). *Cf.*, Gijsbers (2018, §6) for an adumbration of this view in terms of general explanation.

is also my awareness that c-PQ only at the moment of its non-ampliative referral to the evidence subsisting within the proper resolution of c-PQ required for P to logically exclude Q. For K-ledge claims on the other hand, justification can be garnered via either non-conscious epistemic access as some externalist causal modality, or conscious epistemic access as some internalist causal modality, the latter denoting the case wherein what becomes phenomenally evinced factors into my consciousness without me being *fully* conscious of it.

Lastly, the detailing of resolutions at which some P is validly contrasted against some Q can also work to clarify how the two structures of P and c-PQ relate to contrastivist and orthodox KK/K-ledge. For instance, c-PQ is proper to infallible accounts of contrastive KK/K-ledge that c-PQ. The main difference then between KK-ledge and K-ledge, besides the presence of belief, is whether implicit or explicit propositional references made to the contrasts of some P inform KK-ledge or K-ledge. For example, in the case of the low resolution of, say, the canary-raven contrast class, one can infallibly KK that there is a canary at the resolution required to exclude the possibility of a raven being at that resolution. This occurs *without* necessarily KK-ing the fact that this canary-resolution mutually excludes the possibility of *any other thing* besides this contrasted raven-phenomenon at resolutions similar to or lower than the accessed canary-resolution. This is in effect the distinction between infallibly KK-ing and K-ing that there is a canary rather than a raven: I can KK/K the canary-raven contrast class while also K, *but not* KK, the relevant canary-(every-other-thing) contrast class, because what I am doxastically reacting to is the explicit contrast of canary and raven at a resolution that does validly exclude both from being true at the time that (E $=_R$ "canary rather than raven") is being consciously accessed. I am not therefore being made aware of the contrasts involved in the canary-(every-other-thing) class that are only *implied* in my conscious access of E $=_R$ "canary rather than raven" for my (Cii**)-based KK/K-ledge that there is a canary rather than a raven. These contrasts are instead accounted for by my non-conscious epistemic access instantiating my (NCii**)-based K-ledge that there is a canary rather than a raven.

We can finally extend this distinction between explicit and implicit contrasts to inform the distinction between infallible orthodox KK/K-ledge and contrastivist KK/K-ledge: the explicit contrasts involved in the contrastive proposition, "canary rather than raven", are those given by "raven", while for the orthodox proposition, "canary", *all* contrasts are implicit, none are explicit.

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