


# Quality Spaces and the Appearance-Reality Distinction

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- It's useful to individuate mental qualities (MQs) by relative location in a quality space (QS). But there are serious methodological issues about how to construct such QSs.
- I'll argue that the best empirical technique relies on just noticeable differences (JNDs) between perceptible stimulus properties. And I'll also argue that this sustains a robust distinction between the subjective mental appearances and a distinct mental reality that underlies those appearances.
- Two stimuli are JND if, but only if, they are distinguishable—but would not be if they were any closer physically. So to generate a space of JND stimuli one can start with any stimulus and work outward by JNDs.

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➤ That just gives us a space of discriminable stimuli. But to distinguish stimuli, one must be in states that differ qualitatively, each corresponding to one of the stimuli. So we can infer from discriminable stimuli to MQs that enable those discriminations. A space of JND stimuli also fixes the MQs (Rosenthal 1991; 2005, ch. 7; 2010; 2022; forthcoming).

➤ This works for stimuli of color, sound, odor (Young et al, 2014), pain, etc.—and, pace Austen Clark (2000), for the sizes, shapes, and locations sensed by each modality.

➤ We sense size and shape as boundaries of the content properties for each modality, such as color for vision. Size and shape then fix spatial location for each modality.


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➤ Similarly, we sense temporal duration and distance for each modality by changes in the content properties of that modality.



➤ And for metamers in any modality, we can anchor them to the nonmetameric stimuli from which they're indistinguishable.

➤ Using JNDs also affords an informative, non-question-begging way to individuate the sensory modalities themselves: They are distinct if no stimulus accessible by one is JND from a stimulus accessible by the other (Rosenthal, 2015). That individuates the content properties for each modality. The spatial and temporal properties for each modality then follow suit in the way just described.

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➤ MQs don't always correspond to stimuli. In the memory color effect, a gray banana stimulus will elicit a yellow MQ (Bartleson, 1960; Hansen et al, 2006). 

And in simultaneous color contrast (Soranzo, 2016) and assimilation (Gori, 2016) MQ hues interact and are distorted.  

➤ But JND testing factors out such effects, so that discriminable stimuli and elicited MQs match well. And successions of JNDs alone determine the properties of each QS.

➤ Testing JNDs takes forever. So shortcuts are invariably used, e.g., multidimensional scaling—which relies not on JNDs, but on subjective judgments about comparative similarity among several conscious MQs.

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➤ That generates workable QSs that do well for practical and illustrative purposes. But for a theoretical understanding of the nature of MQs and of how to individuate them, such a methodology falls short.

➤ We have no experimental control over subjective similarity—as against similarity of stimuli. So relative similarity judgments among MQs are inevitably impressionistic, and so not replicable or reliable.

➤ It isn't even clear what subjective similarity consists in independently of stimulus JNDs. So any way of tightening things up would likely appeal to JNDs between stimuli. A serious theoretical understanding of MQs will have to rest on JNDs so construed.

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- Using JNDs makes similarity relations derivative, constructing them from distances between successively JND MQs.
- Taking similarity as primary would result in an unwarranted holism. Clark, e.g., uses only “the relations of qualitative similarity among the [MQ] occupants [of a QS], ... mention[ing] no stimuli” (2000, p. 13).  
That individuates each MQ by its similarity relations to every other MQ in the QS.
- Stimulus JNDs also individuate relationally, but the relation is highly local:  
Each MQ is that mental property which enables discriminating some stimulus from its barely discriminable neighbors.  
It’s not relational across the entire QS.


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- All this has significant implications.  
Since a theoretical account of MQs appeals to JNDs between stimuli, our grasp of the nature of MQs will rely on their role in discriminating stimuli.
- That conflicts with prevailing fashion, on which we must understand MQs by “what it’s like”—by subjective first-person access.  
But common sense binds MQs even more tightly to discriminative ability. What would MQs be without that tie to discrimination?
- And we discriminate stimuli unconsciously as well as consciously (bracket whether to call that perception). So understanding MQs by their role in discrimination makes clear theoretical room for unconscious MQs.





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- One who favors understanding MQs by what it's like might contest whether we must construe JNDs in terms of stimuli. JND testing gives us a reliable match of discriminable stimuli and MQs. So why not just construe those JNDs as being between the MQs themselves, without the initial reliance on stimuli (e.g., Goodman, 1951, IX, 2)?
- But JNDs between MQs would be oblique, subject to the unreliability of introspective processing—whereas stimulus JNDs rely on uncomplicated sensory discrimination.
- And striking empirical evidence sustains this worry about introspective processing—and so supports construing JNDs as being between stimuli, and not conscious MQs.

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- Subjects are significantly less accurate, and also slower, when instructed to match color qualities, as such, than when told to match how an object itself looks (Arend & Reeves, 1986; Cornelissen & Brenner, 1995).
- We're better at identifying stimuli than the states that enable us to do so. So how we conceptualize qualities actually affects how well we can identify them. Conceptualizing them as stimulus properties facilitates, whereas conceptualizing by what it's like makes us slower and less accurate.
- And as already noted, we fix JNDs by varying stimuli to see what's discriminable. Since our experimental control is just over the stimuli, they are what's operative.

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- Also, JNDs are more fine grained than what it's like: Color patches consciously seen as identical can nonetheless be distinguishable by matching (in effect, JNDs) (Raffman 2011).
- So JND-based QSs reflect our discrimination of stimuli—not conscious MQs. Experimentally, subjects are like measuring devices—registering responses to stimuli as thermometers register temperature.
- Some hold that we have direct, reliable access to what it's like, perhaps by way of some type of acquaintance.  
But the experimental findings just cited don't bear that out. Nor is it clear what other empirical findings might do so—nor what else might support that view.

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- QSs are inviting because they promise an informative way to individuate MQs and to understand their nature. QSs may indeed seem the only path to such an account.
- And even when QSs rely on subjective similarity among conscious MQs, they are far more informative than a stark, dead-end appeal to what it's like for each MQ.
- But such QSs retain the impressionistic character of appeals to what it's like, relying on input that can't be replicated. And they are more coarse grained than QSs based on stimulus JNDs, and relational in a needlessly holistic way. For a fully accurate account, QSs must be constructed from stimulus JNDs.


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- As noted, a QS based on stimulus JNDs accommodates MQs that aren't conscious, since discrimination need not be conscious.
- So such QSs do require an independent account of what it is for MQs to be conscious. And one might urge that this favors QSs based on subjective similarity.
- But QSs based on subjective similarity simply take consciousness for granted. They say nothing informative about its nature—what it is for MQs to be conscious. So they have no advantage over stimulus JNDs in connection with consciousness. It doesn't help to cast MQs as determinates of consciousness, since that does nothing to explain what consciousness itself is.

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- Discrimination is imperfect—and varies over time. So discriminable stimulus properties are never perfectly precise, but always cover a small region of physical properties. So we'll need something like Andrew Lee's (2021) elegant machinery for regions.
- Lee contrasts his use of regions with QSs that represent MQs by points, which he calls the standard approach. Though Clark (2000) does appeal to points, I never have, having always regarded QSs as using something like the regions Lee develops.
- Lee usefully discusses the way the relative precision of MQs can reflect how fine-grained discrimination is (esp. §4.3), as with the relative imprecision of parafoveal MQs.

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➤ Lee's apparatus nicely enables comparing disparate degrees of precision. But such degrees may not be usefully comparable if fixed subjectively. Stimulus JNDs may help by underwriting clear comparisons.

➤ Consciousness is mental appearance: It is the way our mental lives subjectively appear to us.

➤ But if one holds that we must understand MQs by what it's like, it will then seem that the mental appearances of consciousness wholly exhaust any relevant mental reality. Thus Thomas Nagel:  
"The idea of moving from appearance to reality seems to make no sense" when it comes to conscious experience (1974, p. 444).

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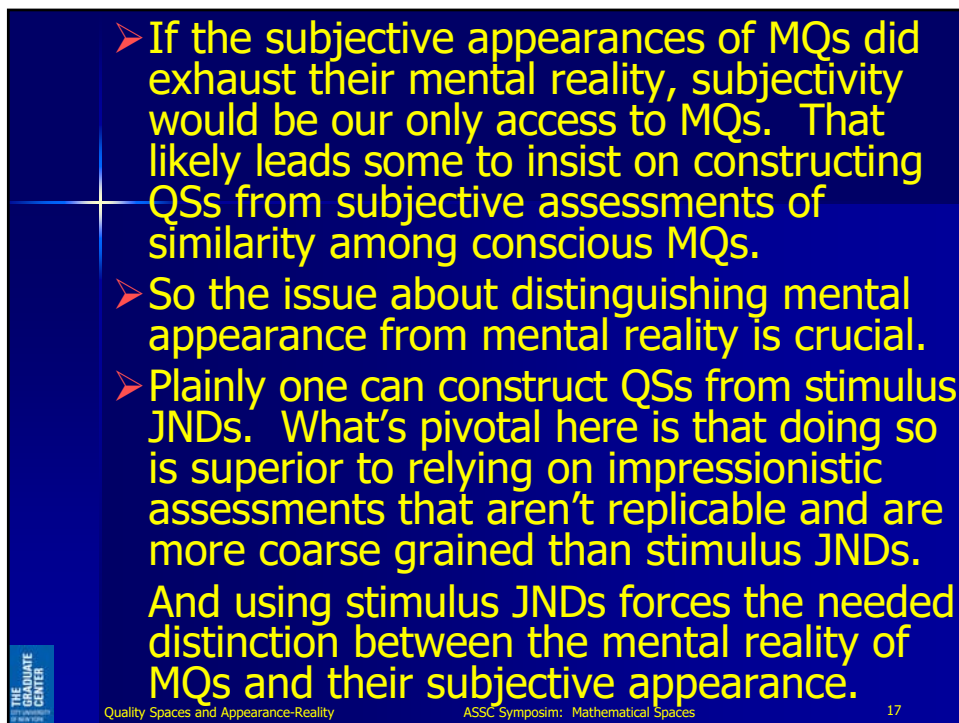
➤ If we knew about mental qualities primarily by the way they're conscious, there would be no relevant mental reality independent of the subjective appearances. Consciousness can't reach past those appearances.

➤ But stimulus JNDs let us fix MQs instead by their role in discrimination.  
And the role of MQs in discrimination is a distinctively mental reality—and it's distinct from the subjective mental appearances that MQs exhibit when they're conscious.

➤ If the properties that enable discrimination were merely subpersonal, the reality they constitute would not be distinctively mental. But MQs would then be psychologically idle—a high price to pay for that construal.

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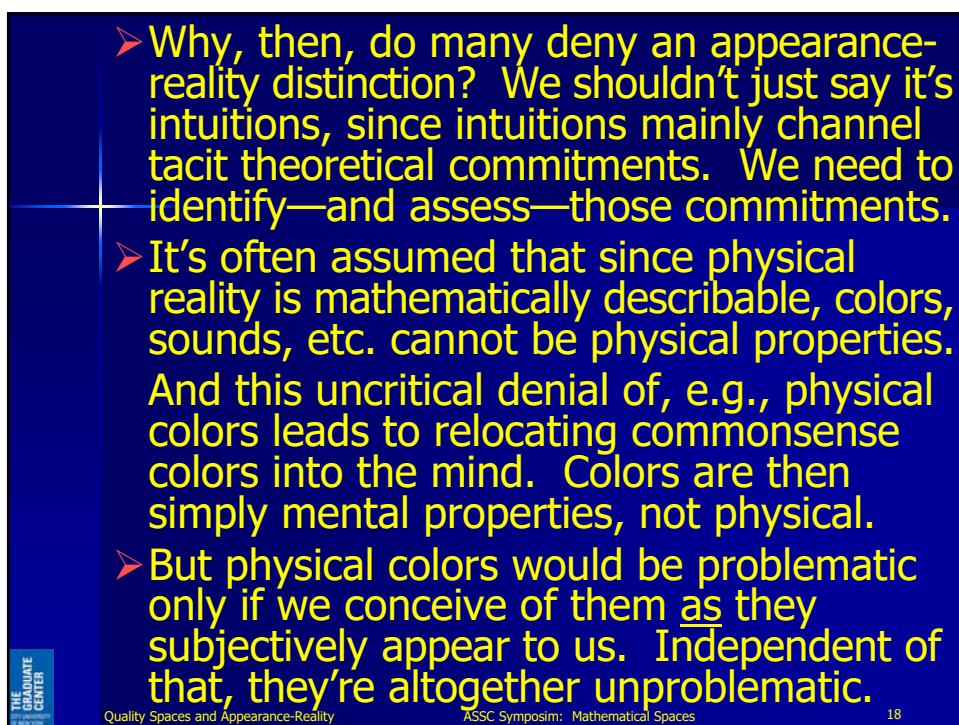




- If the subjective appearances of MQs did exhaust their mental reality, subjectivity would be our only access to MQs. That likely leads some to insist on constructing QSs from subjective assessments of similarity among conscious MQs.
- So the issue about distinguishing mental appearance from mental reality is crucial.
- Plainly one can construct QSs from stimulus JNDs. What's pivotal here is that doing so is superior to relying on impressionistic assessments that aren't replicable and are more coarse grained than stimulus JNDs.


And using stimulus JNDs forces the needed distinction between the mental reality of MQs and their subjective appearance.

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- Why, then, do many deny an appearance-reality distinction? We shouldn't just say it's intuitions, since intuitions mainly channel tacit theoretical commitments. We need to identify—and assess—those commitments.
- It's often assumed that since physical reality is mathematically describable, colors, sounds, etc. cannot be physical properties. And this uncritical denial of, e.g., physical colors leads to relocating commonsense colors into the mind. Colors are then simply mental properties, not physical.
- But physical colors would be problematic only if we conceive of them as they subjectively appear to us. Independent of that, they're altogether unproblematic.

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- And if we relocate physical colors—as they subjectively appear to us—into the mind, we will then automatically also conceive of the relocated mental properties as they appear to us (Rosenthal, 2005, ch. 6; forthcoming).
- The relocation response to the alleged problem with physical colors results in mental appearances exhausting mental reality—and in intrinsically conscious MQs.
- But commonsense physical colors plainly occur unseen. So how they appear cannot be essential to them. There simply is no problem for the relocation move to solve. We should accordingly think of MQs as sometimes conscious, sometimes not—a final step in the Galilean revolution.

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