Here is the lowdown on tropes:

I. Motivating Tropes
   A. There would appear to be good reasons against anti-realism about properties.
      1. Nominalism: according to this view, all that really matters is predicates, not properties; however, what explains the differential applicability of predicates to objects if not something intrinsic to those objects, viz., properties?
      2. Class Reductivism: according to this view, properties are simply classes of objects; this, however, is both too promiscuous and too limiting at the same time.
   B. Realism about properties looks pretty good by comparison. But what sort of realism do we embrace?
      1. The transcendent realism of Plato and Russell? That seems to require an ontological leap into the abyss.
      2. Wouldn't it be much better to start with what we are pretty sure about, viz., property instances? We experience them, but we don't experience transcendental properties (aka universals). Further, these property instances seem to be able to do all that we want universals to do, and this makes them even more attractive, given the ontological sway of Occam's Razor.

II. Defining Tropes
   A. Tropes can be thought of as tuples containing a property sortal, a temporal index, and a spatial index: \(<p, t, s>\). These are best seen as applying at spatiotemporal points, although that must be revised to account for properties that require spatiotemporal distribution (e.g., being solid).
   B. For defenders of the faith, such as Donald Williams and Keith Campbell, these are the ontological primitives out of which all other things are built.
      1. Concrete particulars are constructed out of tropes through spatiotemporal
concurrence.

2. Universals are constructed out of tropes as equivalence classes of exactly similar tropes, differing only in spatiotemporal location.

C. On this view, resemblance must be regarded as a primitive. The following axioms of resemblance hold, but the trope theorist is obligated to view them as "brute necessities", unanalyzable in themselves:

1. Symmetry: if $a$ resembles $b$ to degree $D$, then $b$ resembles $a$ to degree $D$.

2. Transitivity: if $a$ exactly resembles $b$ and $b$ exactly resembles $c$, then $a$ exactly resembles $c$. (Transitivity only holds in the limit--it fails in all other cases.)

3. Substitution: if $a$ resembles $b$ to degree $D$ and $b$ exactly resembles $c$, then $a$ resembles $c$ to degree $D$.

III. Defending Tropes

A. When it comes to "high metaphysics" of the sort we are doing, you will be hard-pressed to find empirical arguments for claims; rather, you must search for theoretical virtue, where this includes internal coherence, simplicity, parsimony, etc.

B. Arguments for Tropes:

1. Trope theory makes sense out of the logical relations between the distinctions abstract/concrete and universal/particular.

2. Trope theory is ontologically parsimonious by comparison to standard ontological theory, since TT can get the metaphysical job done with only one fundamental type of thing.

3. Trope theory solves the Problem of Concrete Individuals through bundling of concurrent tropes.

4. Trope theory solves the Problem of Universals, module concerns about resemblance.

5. Trope theory comports well with modern physics.

IV. Criticizing Tropes

A. Relation of Trope to Spatiotemporal Location

1. Here is an argument against tropes that concern their internal character:

   P1. If tropes exist, then either the spatiotemporal coordinates are part of
the trope along with the property sortal or they are not.

P2. If they are, then the tropes are complex and relational, not simple and fundamental.

P3. Tropes are fundamental.

4. The coordinates are not a part of the trope.

P5. If not, then we will be unable to individuate them without further instantiation tropes, and this opens the door to a vicious regress.

6. Thus, it is not the case that the coordinates are not a part of the trope.

7. Therefore, tropes do not exist. (4, 6, 1, modus tollens)

2. Perhaps the tuple-model reflects a way of thinking about them that must be understood only as an analytical model?

B. Combining Tropes Into Objects

1. Do tropes stand in the same relation to trope concurrences as more obvious parts of physical objects stand in to physical objects?

2. One of the advantages enjoyed by TT, according to Campbell, is that while the traditional Substance/Universal Metaphysic requires the mysterious relation of instantiation, TT does not. However, if we do not include spatiotemporal constituents in the trope, then it will require an instantiation trope as well.

C. Combining Tropes Into Universals

1. The Trope Theory is open to a regress argument involving resemblance here.

2. Consider three things, a, b, and c, each of which is alike in being the identical shade of red. According to TT, they each have a red trope. But they also exactly resemble each other, and so therefore there is an exactly-resembles-in-color trope obtaining between a and b, b and c, and a and c. Call these tropes R₁, R₂, and R₃. But given that these relate three items that exactly resemble each other in color, these tropes also exactly resemble each other, and so there is an exact-resemblance-between-two-exactly-resembling-in-color trope between R₁ and R₂, R₂ and R₃, and R₁ and R₃. Call these R₄, R₅, and R₆. Thus, the regress begins, and the account in terms of tropes is rendered incomplete because there will always be resemblances that are unaccounted for.
3. This regress leads to the following argument:

   P1. If we are to account for universals using tropes, then trope theory must give a complete account of all members of this category.

   P2. If we attempt to capture resemblance using only tropes, we get a vicious regress.

   P3. Don't want that.

4. Thus, we must not attempt to capture it using only tropes. (2, 3, modus tollens)

   P5. The alternatives are two: either introduce resemblance as an unanalyzable primitive or admit it as a universal.

   P6. Admitting resemblance as an unanalyzable primitive is bad.

   7. Don't introduce it as an unanalyzable primitive.

   8. Thus, we must admit it as a universal that cannot be accounted for using tropes. (7, 6, disjunctive syllogism)

   9. Therefore, we must be unable to account for universals using tropes. (1, 8, modus tollens)

4. Is there a response?