Measurement-Theoretic Resemblance Nominalism

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The *problem of particulars and universals* is one of the most essential problems in the *philosophy of language*. This problem consists in a crossroads of *ontology* and *semantics*. When we translate a natural language into a first-order (modal) language, (though it is a problem which formal language we should adopt in translation), the semantic problem as to which entity we should choose as the semantic value of a symbol in the *model* of first-order modal logic depends crucially on the ontological problem as to which ontology we should adopt. According to Rodriguez-Pereyra [5], there are at least two kinds of Nominalism, one that maintains that there are no universals and one that maintains that there are no abstract objects. On the other hand, Realism about universals is the doctrine that there are universals, and Platonism is the doctrine that there are abstract objects. The doctrines about universals and the doctrines about abstract objects are *independent*. According to Rodriguez-Pereyra [5], Nominalisms about universals can be classified into at least eight types: (1) Trope Theory, (2) Predicate Nominalism, (3) Concept Nominalism, (4) Ostrich Nominalism, (5) Mereological Nominalism, (6) Class Nominalism, (7) Resemblance Nominalism, and (8) Causal Nominalism. Resemblance Nominalism in general is confronted with at least six problems: (1) Imperfect Community Problem, (2) Companionship Problem, (3) Mere Intersections Problem, (4) Contingent Coextension Problem, (5) Necessary Coextension Problem, and (6) Infinite Regress Problem. According to Rodriguez-Pereyra (2015), *the Resemblance Nominalism does not reify resemblance*. In this abstract, because of limitations of space, we focus on Companionship Problem in the above six problems. Goodman [2] poses the following problem that is anticipated by Carnap [1]:

Problem 1（Companionship） When the class of particulars instantiating F_1 is a proper subclass of the class of particulars instantiating F_2, F_2 is said to be a *companion to* F_1. Even if every particular instantiating F_2 resembles all particulars instantiating F_1, not all of them instantiate F_1. So merely resembling all particulars instantiating F_1 does not guarantee that a particular instantiates F_1. If so, how can particulars instantiating F_1 be F_1 in terms of resemblance?

Rodriguez-Pereyra [4]'s Resemblance Nominalism is based on the motivation that *particulars* $a_1, a_2, \ldots, a_n$ resemble each other (in the property-realist terms, share a property) only if *sets* containing them as urelements resemble each other. All of the imperfect community, companionship, mere intersections, contingent coextension, necessary coextension, and infinite regress problems can be solved by Rodriguez-Pereyra's Resemblance Nominalism. Paseau [3] provides Resemblance Nominalism based on a *comparative resemblance relation* that relies on the following two ideas: The first is to allow the resemblance to hold between sets of arbitrary size, not only n-th rank pair sets as in Rodriguez-Pereyra's theory. The second is to take resemblance as a comparative relation: $\mathscr{R}^+(x_1, x_2, x_3, x_4)$ which means that x_1 resembles x_2 more than x_3 resembles x_4. In property-realist terms, it means that the number of properties shared by x_1 and x_2 is greater than the number of properties shared by x_3 and x_4. In both Rodriguez-Pereyra's theory and Paseau's theory, the *degree of resemblance n* is defined:

Definition 1（Degree of Resemblance） The particulars resemble to the degree n iff they shares n properties.

Paseau himself points out the problem about the degree of resemblance:

Problem 2（Degree of Resemblance） Suppose, for example, that a and b share their F-determinate, but that their G, H, and J determinates are toward the opposite ends of the scale, and that c and d have determinates of these four determinables that are extremely close on the scale, but do not exactly share any. Clearly, c resembles d more than a resembles b, yet $\mathscr{R}^+(a, b, c, d)$ holds.

In both Rodriguez-Pereyra's theory and Paseau's theory, the resemblance between particulars is related to the resemblance between the sets of them in order to solve the above-mentioned problems. But Paseau himself points out the problem about this relation:

Problem 3（Set/Members Resemblance） Sets have different abundant properties from their members, so the number of properties shared by sets is not a guide to how many properties their members share. For example, $\{a, b\}$ and $\{c, d\}$ resemble simply in virtue of being sets, whether or not a and b and c and d share any properties.

The *aim of this talk* is to propose, in terms of *measurement theory*, an *absolute-difference-structured new model of first-order modal resemblance logic (*MRL*)* that can furnish solutions to all of the imperfect community, *companionship*, mere intersections, contingent coextension, necessary coextension, infinite regress, *degree of resemblance*, and *set/members* problems. （使用言語：日本語）

参考文献

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[4] G. Rodriguez-Pereyra. *Resemblance Nominalism*. Clarendon Press, Oxford, 2002.

[5] G. Rodriguez-Pereyra. Nominalism in metaphysics, 2015. Stanford Encyclopedia of Philosophy.