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Modified analytic trivialization via weighted blowing up

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We consider the classification of real function-germs. It is well-known that there are modulus near non-simple germ for the differentiable equivalence. For topological equivalence it does not cause modulus, but seems to be *too* weak to provide a workable theory. T.-C. Kuo introduced the notion of the modified analytic trivialization (MAT) for a family of function-germs in [**4**], and generalized it naturally [**5**, **6**]. (We give the definition of it in more general form in § 1, and also call it MAT.) The associated equivalence relation preserves computability, but is slightly weaker than bianalyticity and much stronger than homeomorphism. He showed a finite classification theorem for isolated singularities in [**5**, **6**]. The next problem to be considered would be to describe MAT constant strata explicitly or what kind of singularities form a modified analytic equivalence class? Several authors have studied this problem, see e.g. [**4**, **2**, **7**]. In this paper we show a generalization of Kuo's theorem in [**4**], establishing MAT for a class of singularities in $\boldsymbol{R}^n$. As a consequence, we obtain that the Briançon-Speder family, for example, admits a MAT. In [**3**], S. Koike showed that the Briançon-Speder family does not preserve "tangency of arcs." Thus MAT does not preserve "tangency of arcs," as S. Koike conjectured before.

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§ 1. Definition.

Let $\pi: X \to \boldsymbol{R}^n$ be a real-analytic proper modification from a real space X to $\boldsymbol{R}^n$. Assume that there is a complexification of π, that is a complex-analytic proper modification. Let I be an open cube in $\boldsymbol{R}^m$, containing the origin 0, and $f_t(x)=F(x;t)$ a real analytic family of real analytic functions, defined in a neighborhood of $\{0\}\times I$ in $\boldsymbol{R}^n\times I$, with parameters $t\in I$. We say that F admits a *modified analytic trivialization* (*MAT*) *along* I *via* π if there is an analytic family of analytic isomorphisms H_t of neighborhoods of $\pi^{-1}(0)$ in X, which

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