Nicholas Touikan* (ntouikan@stevens.edu), Stevens Institute of Technology, Department of Mathematical Sciences, 1 Castle Point Terrace, Hoboken, NJ 07030, and Inna Bumagin. On the set of homomorphisms to a relatively hyperbolic group. Preliminary report.

There has been a long running program to generalize results about hyperbolic groups to relatively hyperbolic groups by reducing the problem to the peripheral subgroups. In this talk I will present one such result.

If \( \Gamma = (\Gamma; P_1, \ldots, P_r) \) is a relatively hyperbolic group and \( G \) is a finitely generated group, then, provided the parabolic subgroups satisfy certain properties, there exists a Makanin-Razborov diagram encoding the set \( \text{Hom}(G, \Gamma) \) up to a finite set of varieties \( \text{Hom}(T_i, P_{n_i}) \) of homomorphisms to the parabolic subgroups.

Many of the ideas that go into this result came from other authors, specifically Sela, Alibegovic, Groves, Reinfeldt-Weidmann, Jaligot-Sela; so I will focus on one of our main contributions, which is to vary the geometry of certain \( \Gamma \)-spaces in order to control asymptotic cones. (Received July 12, 2016)