THE GROUP CONFIGURATION – after E. Hrushovski

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We present here some results of E. Hrushovski which give, in the context of stable theories, an "abstract" or geometrical (in terms of dependence relations), characterization of the presence of some group acting definably on a weight one type.

Preliminaries

We will use freely definitions and basic facts concerning local weight (i.e. p–weight, for p a given regular type), as introduced in [Hr1]; these can also be found in [Hr2] or [Po].

We just introduce the following definition:

Definition: Let p be a fixed regular type (over $\varnothing$) and let $\bar{a}$,$\bar{b}$ be such that $t(\bar{a}/A)$ and $t(\bar{b}/A)$ are p–simple. We say that $\bar{a}$ and $\bar{b}$ are <u>p–independent</u> over A (denoted $\bar{a} \perp_p \bar{b}$) if $w_p(\bar{a}\bar{b}/A = w_p(\bar{a}/A) + w_p(\bar{b}/A)$.

We need to recall briefly what is meant by the canonical basis of a non stationary type.

We begin with the following definitions and theorems which can be found in [Ls., Chapt. 3–2] or in [Pi., Chapt. 4].

Definition:

Let T be a stable theory, $p \in S(A)$. A definition of p is a map d, which takes each formula $\varphi(\bar{v},\bar{y})$ to a formula $d_\varphi(\bar{y})$ such that:

i) for all $\bar{a} \in A$, $p \vdash \varphi(\bar{v},\bar{a})$ iff $\models d_\varphi(\bar{a})$