1. Introduction: from raw data to complexity processing

We address three basic questions here:
- Can Mutual Intelligibility (MI) be considered as a case of epistemicity?
- How does it differ from phylogenetic and ontogenetic complexity (cf. O’Sullivan, David, 2004) – i.e. diachronic and typological complexity?
- To what extent does MI highlight ethnohistory and historical patterns of interaction in a dialect continuum (cf. Gudschinsky, Sarah C. 1958a, b; Kirk, 1966)?

In other words, how representative of the evolution of communal aggregations can MI (Mutual Intelligibility Networks) be?

To answer these questions, we’ll use visualizing tools such as GraphStream (http://graphstream-project.org/).

2. Data and state of the art: the Mazatec Dialect Network

Mazatec: an Oto-Manguean (Popolocan) language spoken in the North-Eastern fringe of the state of Oaxaca in Southern Mexico

Mazatec makes up a vertical archipelago (Maurus, 1958, Nichols, 2004), with intricate ecological diversity over Highlands (Mills), Midlands (Media) and Lowlands (Azu Mazatecas).

Mazatec command aggregates

3. GraphStream applied to Kirk’s MI matrix

- Everyone more or less understands everyone - Model

Kirk’s matrix of MI, Mazatec (1970)

Mazatec dialects as (All-Map)

Mazatec dialects as (All-Map)

GraphStream results projected on a geodesic map: Maximalist and minimalist models of the Mazatec MIN

4. Conclusion

This visualization technique through GraphStream highlights the intricate structure of Kirk’s MI matrix. It fits well with the Vertical Archipelago Model, showing several circles of MI from split (the Central Highlands and Northwestern Highlands) to isolated (the Midlands and Lowlands). The most phylogenetically more distant dialects split last in this model representation. In other models, phylogenetic and ontogenetic complexity – illustrated as MI networks – tend to converge in some cases.

References: