COMPLEXITY THEORY: APPLICATIONS TO LANGUAGE POLICY AND PLANNING

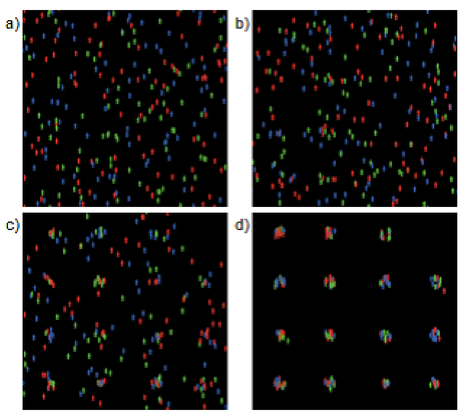
Marco Civico
Observatoire ELF - Économie, Langues, Formation
Faculté de Traduction et Interprétation, Université de Genève, Geneva, Switzerland
marco.civico@unige.ch

THEORY

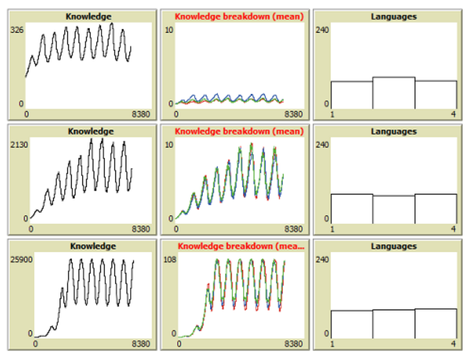
The world is a **much more complex** and **interconnected** place than it used to be. Understanding complexity is central for policy making. To avoid collapsing under an unsustainable level of complexity, effective policy interventions need to be **as complex as** the issue they are tackling. Complexity theory (CT) could be described as a **method of study**, rather than a theory *strictu sensu*. Complexity theory gives up the mechanistic view of the world in favour of a non-linear, holistic approach, whereby the object of study is often characterized by a level of **uncertainty**. My analysis builds on a massive review of the literature concerning complexity theory, which is then applied to issues of **language policy and planning** (LPP).
The overarching goal of my research work is to develop a number of applications to establish that LPP - because it raises complex issues - requires a complex approach, and that CT provides a useful research paradigm in the domain of LPP. My PhD dissertation is intended to contribute to current knowledge on LPP, opening up research perspectives that can be further developed in the future.

APPLICATION 1

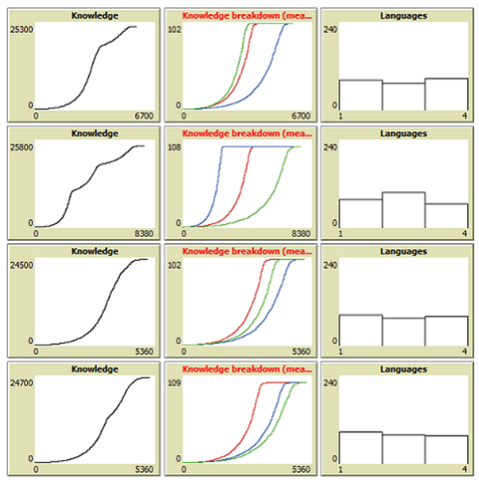
Today, **knowledge** has become with no doubt one of the key assets of a successful firm and a crucial element in the process of value creation.
One of the main characteristics of knowledge is its transferability, especially whith regard to explicit knowledge (that is, knowledge which is codified and can be communicated, as opposed to tacit knowledge, which is not codified and can only be observed through its application or once it has been externalized).
Knowledge transferability is highly dependent on the absorptive capacity of the recipient, which, in turn, depends on a number of criteria, such as language.
Knowledge aggregation is greatly enhanced when knowledge can be expressed in a common language (although it should be noted that his definition of language is not strict and includes, for example, statistics and accounting information).
Likewise, the lack of a common means of communication is often a major barrier to the introduction of integration-intensive manufacturing techniques.
For my first application, I developed an **agent-based model** (ABM) that simulates the process of **knowledge sharing**, knowledge creation and knowledge accumulation within a multilingual working environment.
The simulations display unbalanced knowledge accumulation across different language groups within corporations, depending of different hiring policies.



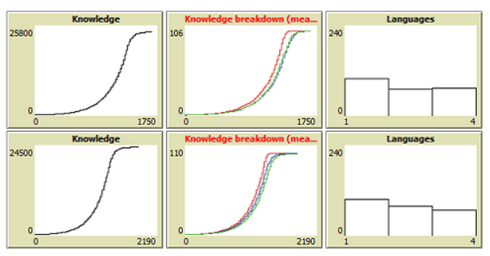
1. Grouping motion of individuals



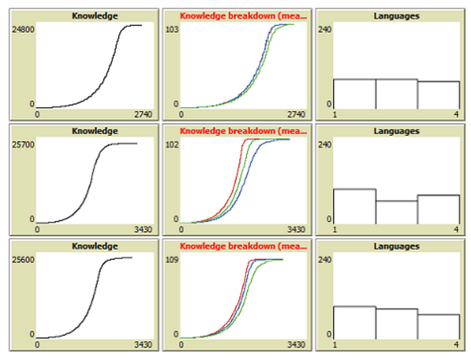
2. Trends of short-term knowledge accumulation, monolingual (first line) and plurilingual employees with different levels of average language skills (second and third line)



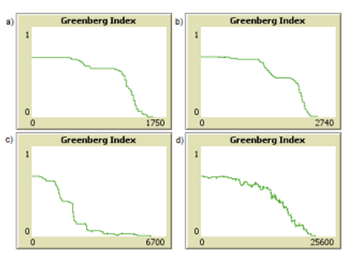
3. Monolingual employees, different simulations of long-term knowledge accumulation



4. Plurilingual employees with average skills, different simulations of long-term knowledge accumulation



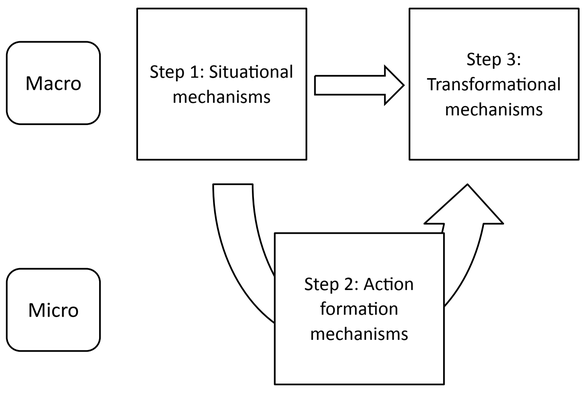
5. Plurilingual employees with low skills, different simulations of long-term knowledge accumulation



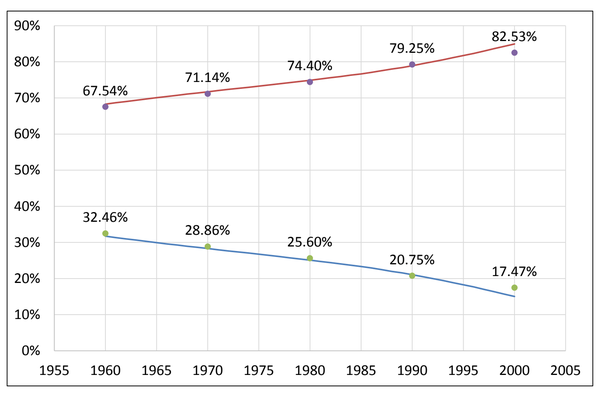
6. Trends of the Greenberg index in different scenarios – metric used to compute the degree of linguistic diversity, equal to the probability of randomly picking two individuals who speak different languages in a community where n languages are spoken.

APPLICATION 2

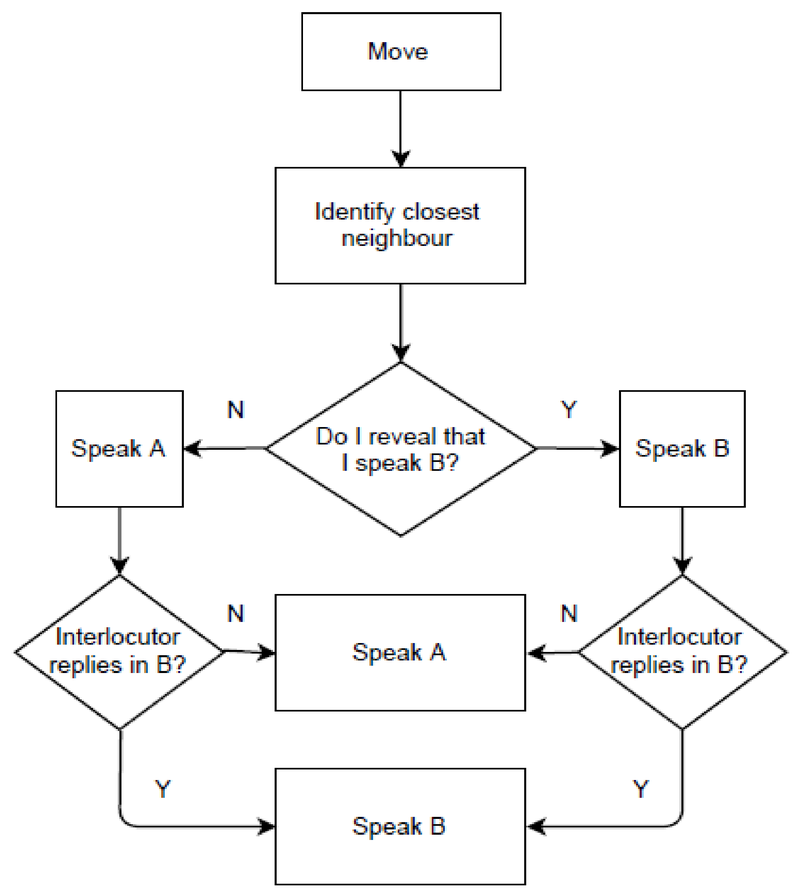
Language scholars speak of **language contact** to refer to all those situations in which speakers of different languages get to interact with one another and, eventually, influence each other's linguistic behavior. The mere juxtaposition of speakers of different languages is indeed not enough to speak of language contact.
Interaction is key to the transfer of linguistic features among speakers. Among the numerous social and linguistic implications of language contact, language shift is one of the most commonly observed phenomena. It can be defined as the process whereby, for a number of reasons, a community shifts to speaking a language different from its own. As a matter of fact, close language contact and perceived lower status are often the cause of **language decline** and, eventually, language extinction. During the last decades, governments have implemented numerous policy interventions attempting to stop or even revert language decline, with varying degrees of effectiveness. Often, the cause of failure has been the presence of non-linguistic variables that were somehow related to the individual linguistic behavior but that were not addressed by the policy intervention and eventually played a major role in the decline process.
In my second application I develop an ABM that describes **language dynamics** as the result of interactions between individuals in a community in which a majority and a minority language are spoken.



1. The macro-micro-macro model



2. Comparison of simulated trends (blue and red curves, respectively for Romansh and German) with actually observed data (green dots for Romansh and purple dots for German)



3. Flowchart of communication behavior of minority language speakers

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MIME Mobility and Inclusion in Multilingual Europe

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