SYNOPSIS

Economics as a discipline has epistemologically two roles in the present and upcoming decades, i.e. of probing and answering questions of economic affairs, and second, and more abstractly, as a mode of tools and analysis to better understand a broader set of ideas across disciplines. The latter means it is flexible enough to absorb elements from other sciences and social sciences, which has already become apparent in the fields of Evolutionary Biology, Artificial Intelligence and Machine Learning, and the focus of dissertation, Information Theory and Linguistics (including Philosophy of Language). This intermingling of disciplines makes both fields better off, where linguists can take advantage of strategic interaction, optimality and efficiency results while we can incorporate theories of communication and language from them. It is my personal opinion that the world is offered to us as it is, the fields are artificially constructed and in their rigidity, we miss out on some potentially important discoveries. It is with optimistic observation of seeing the walls among disciplines break, that has inspired me to work on a dissertation across disciplines.

Language is the mechanism through which humans communicate. Without some form of Language, no interaction at the present scale of economic affairs would have been conceivable. Not only do we communicate in language, but we also think and learn in terms of language (Whorf – 1956; Wittgenstein – 1921). Economics despite its affirmation as the 'Queen of Social Sciences' has neglected delving into linguistic effects on economic behavior. The Present treatment of communication has also been fairly recent, with Spence's theory of costly signaling, and game theoretic models of costless signaling, after the seminal work of Crawford and Sobel (1982) and follow up literature dubbed as Cheap Talk games. The framework of these games have their roots in Lewis' Sender-Receiver games (1969) where the sender observes a state, sends a message, the receiver takes the action conditional on the message which affects both their payoffs. Many leading economists as well as from the outside have voiced concerns of treating communication among humans in a model of 'Animal Communication' (Lipman – 2009; Rubinstein – 2000) the primary argument of which is that such games are mostly concerned with the strategies associated with a message rather than the content of the message which under a linguistic signal can have varying effects apart from what the papers suggest.

With the aforementioned motivations in mind, my dissertation would be a compilation of essays on classic problems of Microeconomic theory with language as the mode of analysis. Since Language and Linguistics are as broad a field as Economics and deals with subject matters relating to Speech Patterns, Etymology, Sociolinguistics, it is to be made clear at the outset that before such an analysis, a theory needs to be established to make concepts from such theories amenable to economic analysis. This means two things: -

1. Language as studied in 'Language and Economics' domain under cultural and social economics, a survey for which is given by Grin (2009) deals with sociolinguistic aspects of language in economic life, for example differential wages of Francophones and Anglophones. However, the treatment of language in my dissertation would be a complete abstraction of language, drawn from linguistic philosophy to conceive of a language which can refer to a natural language, an artificial language, or even a non existent language abstraction, as the analysis deems fit.

2. Though my proposed dissertation is closer in spirit to Marshack (1965) and Rubinstein (2000), who have tried to analyze aspects of Language efficiency and analysis through economic methods, it is not what my dissertation proposes to study. The work which is closest to my objectives is "Is Language vague" (Lipman,

The first essay proposes to analyze such markets where I assume that all market participants (buyers, sellers, intermediaries) are distributed spatially according to their proficiency in that market's language. So if L is the market language, the market participants are identified on the basis of their endowment of L in the static game. The experts are assumed to be 'trained with certification' and the only way agents can learn the language is by experience. The spatial distribution makes this model one with vertical differentiation, but since the consumers cannot distinguish the seller's type (given that all sellers speak better than the consumers) or do so probabilistically, this makes this model one of a horizontal distribution in terms of the consumers. The equilibrium of the model will be determined with the hypothesis that less sophisticated consumers are matched with poor experts. In the dynamic model, the language rules are no longer fixed, with mutations on words and grammar, in an evolutionary model. The hypothesis then is whether over time, a specialized language is meant as a barrier for consumers to counter the experts' incentives for fraud. The model can be extended from a single dimension of language proficiency to a bilingual environment, making this a two-dimensional problem with added complexity. The roles of intermediaries as those consumers with a 'working knowledge' of the language through experience would be pivotal in search efficiency.

CAN NO KNOWLEDGE BE BETTER THAN SOME KNOWLEDGE (IN THE MARKET)?

> Before I started the practice, a mountain was a mountain and a river was a river. When I was deep into the practice, the mountain was no longer a mountain and river was no longer a river. Now that I have mastered the practice, a mountain is a mountain, and a river is a river.
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> -Buddhist Zen Koan

This paper applies the classic Whorfian hypothesis of the causal relationship between language and thought which was earlier stated by Wittgenstein aphoristically as "The Limits of my language means the limits of my world" (Wittgenstein – 1922:5.6). This builds on the idea that language doesn't just express thought, rather constitutes it. This paper formalizes de Saussure's (1916) conception of the syntagm and the paradigm, and concords it with Shannon's (1948) theory of valence. The intuition is that what differentiates a formal language and a natural language, where the former is projected in terms of the latter is that it is more 'precise' in its vocabulary and grammar rules, that is the number of referents a word has is reduced and is usually one. Such a formal language becomes binding on the combinatorial possibilities of words to form sentences, and parallel conception in the ontological space means a 'narrow outlook' of the world. This is of course not true for all the experts of that formal language, but for the beginners. For example, a layman is not constrained in his speculations of his observations say in light of the economic crisis (whether he is right or wrong), but for an economics undergraduate who has training in basic economics (colloquially termed Economics 101), would not only try to fit the crisis in the mold of his training, but would rather be confident about it. But for a veteran economic theorist can invent new rules to explain the crisis, guided by experience and knowledge. The formalization of this hypothesis is the object of the second paper.

The formalization of this idea can be applied in varied ways, one of which relates to the previous paper on market for expert services. The mechanisms of this is that the naïve consumer[2] matching with automatically the busiest expert while the slightly more informed trusts his judgment which in a 'lemons market' scenario can prove disastrous. The second mechanism is that in the interaction process with the expert, given that the expert gets the signal to put more effort in forming the interpretable linguistic message but for the

[2] I prefer to use the term 'rationally ignorant' or 'rationally submissive'

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