LOGICAL CONNECTIVES, PHRASAL VERBS AND TIPS TO WRITE AN ABSTRACT

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How to write a scientific abstract:

- **Introduction**
- **State the problem you tackle**
- **Summarize why nobody else has adequately answered the research question yet**
- **Explain how you tackled the research question**

USEFUL SENTENCES:

- **IT IS WORTH NOTING THAT…**
- **WE AIM AT APPLYING…**
- **IN ORDER TO DESCRIBE OUR MODEL/INTRODUCE OUR THESIS/PROVE OUR THEOREM/WE INTRODUCE THE FOLLOWING NOTATION/PROOF….**
- **WE OBSERVE THAT…**
- **THUS, THE FUNCTION IS…**
- **WE ASSUME THAT…**
- **IN THE FOLLOWING, WE WILL REFORMULATE THE BILEVEL PROBLEM AS A SINGLE LEVEL PROBLEM. SUCH A REFORMULATION WILL BE OBTAINED IN TWO STEPS. IN THE FIRST ONE, WE PROVE THEOREM a THAT EXPRESSES THE EQUIVALENCE BETWEEN LOWER-LEVEL PROBLEM…THE SECOND STEP CONSISTS IN PROVING THEOREM b…**
- **LET US CONSIDER THE PRIMAL PROBLEM…**
- **SUBSEQUENTLY, WE SHOW THAT *ASSUMPTION S* IS VERIFIED…**
- **REASONING AS ABOVE, WE DEDUCE THAT…**
- **TAKING INTO ACCOUNT a AND b IN THEOREM X, THE PROBLEM CAN BE ALSO FORMULATED AS FOLLOW…**
- **FINALLY, WE PROVIDE A NUMERICAL EXAMPLE TO SHOW THE FEASIBILITY OF OUR APPROACH…**

*Dynamic Electric Power Supply Chains and Transportation Networks: An Evolutionary Variational Inequality Formulation**

ABSTRACT:

In this paper, we develop a static electric power supply chain network equilibrium model with known demands and establish the equivalence between the model and a transportation network equilibrium model with fixed demands over an appropriately constructed supernetwork.

This equivalence yields a new interpretation of electric power supply chain network equilibria in path flows. We then exploit this equivalence to propose a dynamic electric power supply chain network model in which the demand varies over time using an evolutionary variational inequality formulation. Finally, we demonstrate how numerical dynamic electric power supply chain network problems can be solved by using recently obtained theoretical results in the unification of evolutionary variational inequalities and projected dynamical systems.

***See also P.Daniele in AA.VV., *Dynamic Electric Power Supply Chains and Transportation Networks: An Evolutionary Variational Inequality Formulation,* October 2005; revised February 2006; *Transportation Research E* 43 (2007) pp. 624-646.**

KEYWORDS:

Electric power; Supply chain networks; Dynamic transportation network equilibrium;Evolutionary variational inequalities.

SUMMARY AND CONCLUSIONS:

In this paper, we have focused on critical infrastructure networks in the form of electric power supply chains and we have demonstrated that in the case of known demands such problems can be reformulated as transportation network equilibrium problems with fixed demands.

We then used the supernetwork equivalence to formulate a dynamic electric power supply chain network model as an evolutionary variational inequality problem in order to model the dynamics as the demands vary over time.

*Cooperation in pollution control problems viaevolutionary variational inequalities**

Abstract:

This paper presents a new approach to study bilevel programming problems in infinite dimensional spaces, using infinite dimensional duality and evolutionary variational inequalities.

The result is applied to the evolutionary emission price problem. In our model, the government chooses the optimal price of pollution emissions with consideration to firms' response to the price; whereas firms choose the optimal quantities of production to maximize their profits, given the price of pollution emission.

*See also Laura Scrimali· Cristina Mirabella - Received: 15 February 2017/Accepted: 16 October 2017, Springer Science+Business Media, LLC 2017

Keywords:
Evolutionary bilevel programming; variational inequalities; Infinite dimensional duality; Pollution emission price problem

Conclusions:

In this paper, we presented a new approach to study bilevel programming problems in infinite dimensional spaces, based on duality and variational inequality theory. In particular, we reduced the bilevel dynamic problem to a single level problem using the so-called *Assumption S* as the suitable constraint qualification condition. We then applied our result to the evolutionary pollution emission price problem. We also suggested a direct method to compute solutions. This problem will be taken into consideration in a forthcoming paper.

LIST OF LOGICAL CONNECTIVES:

ADDITION	***also, too, similarly, in addition, even, indeed, let alone***	***and, as, like***
OPPOSITION	***however, nevertheless, on the other hand, in contrast, though, alternatively, anyway, yet, in fact, even so***	***but, or, (al)though, whereas, while***
REINFORCING	***besides, anyway, after all***	
EXPLAINING	***for example, for instance, in other words, that is to say, i.e., e.g.***	***in that***
LISTING	***first(ly) ... second(ly), first of all, finally, lastly, for one thing ... for another, in the first place, to begin with, next, in sum, to conclude, in a nutshell***	***and***
INDICATING RESULT	***therefore, consequently, as a result, so, then***	***because, since, as, for, if, unless, now (that), so (that), in case, provided (that), whether ... or ...***
INDICATING TIME	***then, meanwhile, later, afterwards, before (that), since (then), meanwhile***	***when, before, after, since, until, till, while, as, once, whenever***

SENTENCE CONNECTORS

if ... then = se... allora
since = poiché
therefore = quindi (in un'implicazione)
hence / thus = quindi / perciò (in un normale discorso)
that is/i.e. = ovvero
of course = ovviamente
for all = per ogni
less than, more than = minore di, maggiore di

Phrasal Verbs

"GET"

- **GET ON**: salire, andare d'accordo con (***We don't get on***)
- **GET OFF**: scendere, cavarsela, farla franca (***I'm getting off at the next station***)
- **GET TO**: arrivare (***What page have you got to?***)
- **GET IN**: entrare, salire (***Get in!***)
- **GET BACK**: ritornare, rientrare, recuperare qualcosa (***It's difficult to get them back***)
- **GET AWAY**: fuggire (***Two of the prisoners got away***)
- **GET UP**: alzarsi, organizzare (***We're getting up a party for his birthday***)
- **GET OVER**: riprendersi, superare (***To get over a wall***)
- **GET BY**: passare, tirare avanti, farcela (***If you don't move, we can't get by***)
- **GET ABOUT**: muoversi, andare in giro, diffondersi, circolare (***The gossip soon got about***)

"TAKE"

- **TAKE OFF: toglier(si), decollare (*Why don't you take off your shoes?*)**
- **TAKE OUT: tirar fuori, togliere, estirpare (*How can I take out these green stains from my jacket?*)**
- **TAKE UP: dedicarsi a, intraprendere (*To take up photography*)**
- **TAKE AFTER: assomigliare a (*I take after my father*)**
- **TAKE IN: imbrogliare, ingannare (*Don't let yourself be taken in by these politicians*)**
- **TAKE BACK : ritirare, ritrattare (*I take back what I said*)**
- **TAKE DOWN: prendere nota, trascrivere (*The reporters took down the speech*)**
- **TAKE DOWN: smontare (*To take down a car*)**
- **TAKE UP: occupare (*The table takes up too much room*)**
- **TAKE IN: capire (*We need more time to take in the situation*)**
- **TAKE ON: assumere, impiegare (*To take on twenty more workers*)**
- **TAKE TO: prendere in simpatia, affezionarsi a (*I take you to*)**
- **TAKE ON: sfidare, affrontare (*To be ready to take on all players*)**

"PUT"

- **PUT ON:** mettersi (*I put one's coat on*)
- **PUT ON:** assumere (*He put on an air of innocence*)
- **PUT OUT:** spegnere (*I put out the lights*)
- **PUT OUT:** confondere, mettere in difficoltà (*The least thing puts him out*)
- **PUT OFF:** rimandare (*I must put off the meeting*)
- **PUT DOWN:** reprimere (*They put down the rebellion*)
- **PUT UP:** ospitare, dare alloggio (*We can put you up for the week end*)
- **PUT UP WITH:** sopportare (*I don't put up with you*)
- **PUT IN:** presentare (denuncia) (*They put in a claim for damages*)
- **PUT IN:** fare, compiere (*I put in an hour's work before breakfast*)
- **PUT AWAY:** segregare, rinchiudere (*He had to be put away*)

"BRING"

- **BRING ABOUT:** causare, far accadere (*Hitler brought about the war*)
- **BRING BACK:** restituire, riportare (*Please bring the book back tomorrow*)
- **BRING DOWN:** uccidere, abbattere (*The tyrant was brought down*)
- **BRING IN:** rendere (capitali, investimenti) (*This investiment brings me in 8 per cent*)
- **BRING IN:** introdurre (*You bring in a new fashion*)
- **BRING OFF:** riuscire a compiere (*It was difficult task but we brought it off*)
- **BRING ON:** causare, far venire, procurare (*He was out all day in the rain and this brought on a bad cold*)
- **BRING OUT:** spiegare, chiarire (*The teacher brought out the meaning of the passage*)
- **BRING OVER:** convincere (qualcuno) a cambiare parere, opinione (*I brought him over*)
- **BRING TO:** far rinvenire (qualcuno) (*He's bringin to him*)

PHRASAL VERBS