

ГРАМАТИКА

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ON DOMAIN-SPECIFIC FUNCTIONS
OF SUBJUNCTIVE MOOD ACROSS LANGUAGES

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The given research focuses on the investigation of the lexico-grammatical peculiarities of the clausal architecture of Academic English across disciplines and cultural identities. The semantic roles, functions and the ensuing usage frequency of the grammatical category of the subjunctive mood are examined in the texts of natural and social sciences. A comparison is also drawn across the natural and social disciplines in terms of the parameters mentioned. The next stage of the analysis is culturally biased. It is further examined which structures are mostly exploited to fulfill the writers' intents under the influence of their native languages, namely Armenian, Russian and Italian.

Keywords: cross-cultural comparison, interpersonal and ideational metafunctions, quantitative analysis, semantic roles, specialized registers, subjunctive mood.

Гаспарян С., Чубарян А., Карапетян Р. Функціонування умовного способу в текстах природничих і суспільних наук у вірменській, російській, італійській мовах. У даній статті вивчаються певні лексико-граматичні особливості клаузальної будови академічної англійської мови в різних дисциплінах і в світлі національної ідентичності. Розглядаються семантико-функціональні ролі, а також частота вживання граматичної категорії умовного способу в текстах природничих та суспільних наук. Проводиться паралель між даними сферами в плані особливостей вживання вищеназваних параметрів. Наступний етап аналізу має культурологічний напрям. Розгляду підлягають ступінь, частота і закономірності використання даної граматичної категорії для здійснення цілей авторів у залежності від впливу рідної мови, а саме вірменської, російської та італійської.

Ключові слова: інтерперсональних і понятійна метафункції, кількісний аналіз, міжкультурне порівняння, семантичні ролі, спеціальні реєстри, умовний спосіб.

Гаспарян С., Чубарян А., Карапетян Р. Функционирование сослагательного наклонения в текстах естественных и общественных наук в армянском, русском, итальянском языках. В данной статье изучаются определенные лексико-грамматические особенности клаузального строения академического английского языка в разных дисциплинах и в свете национальной идентичности. Рассматриваются семантико-функциональные роли, а также частота употребления грамматической категории сослагательного наклонения в текстах естественных и общественных наук. Проводится параллель между данными сферами в плане особенностей употребления вышеназванных параметров. Следующий этап анализа имеет культурологическое направление. Рассмотрению подлежат степень, частота и закономерности использования данной грамматической категории для осуществления целей авторов в зависимости от влияния родного языка, а именно армянского, русского и итальянского.

Ключевые слова: интерперсональная и понятийная метафункции, количественный анализ, межкультурное сравнение, семантические роли, сослагательное наклонение, специальные регистры.

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The given research focuses on the investigation of the lexico-grammatical peculiarities of the clausal architecture of Academic English across disciplines and cultural identities. The intent of the research is to examine and shed light on the semantic, functional and cultural roles assumed by such grammatical category as the Subjunctive mood in Academic English.

The research develops in two dimensions – first, the examination of the linguistic unit in question in different disciplines and second, the analysis of the latter across cultural identities. Presented below is the brief sketch each of the dimensions separately with special attention to the step-by-step approach undertaken for the sake of reasonable investigation and plausible results consequently.

The first dimension of the analysis comprises three stages. The initial stage involves a qualitative analysis of the grammatical category discussed, specifically the revelation and classification of the particular functions that the Subjunctive mood fulfils in Academic English on the basis of the examination of an approximately equal amount of highly-specialized texts from Natural Sciences, namely Physics and Biology, and Social Sciences. Following is the quantitative analysis of the given category. The aim of this stage is to estimate the numerical prevalence of certain functions over the others, the explanation to which is sought within the principles of Functional Linguistics. And thirdly, we apply the results ensuing from the above-mentioned analysis to draw comparison across the Natural and Social Sciences in terms of the parameters discussed.

The second dimension of the research is more culturally biased. Here the extent to which the Subjunctive mood is exploited to fulfil the scholars' intents under the influence of their native languages, namely Armenian, Russian and Italian, is further examined via the quantitative analysis.

And finally before getting down to the immediate analysis it is worth dwelling upon the sources of the authentic material which served as an empirical basis of the investigation. For the first dimension of our analysis 153 pages of on-line research papers from the field of Sociology and 114 pages of highly specialized papers in Physics and Biology from the academic online data-base

ArXiv have been examined. All the texts are written by English-speaking scholars which is assumed mostly reasonable for the aims pursued in this part of the investigation. The second dimension of the analysis involves examination of the texts from Natural Sciences only, again taken from the academic online data-base *ArXiv*. This choice is justified by the fact that *ArXiv* is a pre-print edition and the papers here are not subject to proofreading by English-speaking specialists. Thus from the cultural viewpoint these papers are likely to provide precise results to the highest degree. Another crucial point to be mentioned with regard to the authentic material is that all the texts under investigation are from the domain of expert-to-expert communication, since the given analysis covers the genre of academic papers from specialist journals. In future similar analysis can be transferred to the sphere of expert-to-layperson communication which will contribute to many theoretical and applied linguistic problems, as well as be quite a useful foundation for Corpus Linguistics.

It should be stipulated that in defining the Subjunctive mood we proceed from the unanimously accepted opposition between the action presented as a fact vs. the action presented as a non-fact, as something imaginary or desired, i.e. the Indicative mood vs. the Subjunctive mood. However, the mentioned meaning of non-factuality, which we will expand on later, is to be in relation with the corresponding forms. In the given research we adhere to the viewpoint of scholars who admit the existence of both analytical (consisting of the mood auxiliaries *would, should, could, might, may + the infinitive of the notional verb*) and synthetical (presented by a special set of inflections) forms of the Subjunctive mood¹. Let us stress once more that in the identification of the Subjunctive mood¹ we adhere to the notional opposition of the actions expressed by verbs in terms of the Indicative and the Subjunctive mood rather than the structural one. And the subdivision of the subjunctives into the corresponding functions is yet another proof of it.

A thorough analysis of the authentic material in terms of the semantic and logical roles that the grammatical category in question acquires in Academic English revealed the following functions:

1. Supposition or assumption, probability
2. Suggestion
3. Conclusion based on logical evidence, facts
4. Wish
5. Condition
6. Purpose
7. Concession
8. Manner, comparison

The appropriate examples are provided below:

The domain of Natural Sciences

1. Supposition or assumption, probability
String theory, at least in the form we know it, is based on perturbations about flat space, and so would break down along with classical general relativity. (arXiv:0710.2029v1 [hep-th] 10 Oct 2007)
2. Suggestion
A form factor $g(k)$ may be defined that modifies the expressions for $F(k)$ in Eqns. (1) and (2). (arXiv:0901.0891v2 [nucl-th] 28 Aug 2009)
3. Conclusion based on logical evidence, facts
Including a longitudinal momentum dependence would make a small reduction in cross section values, about 5% for RHIC and 1% for LHC, as discussed in Appendix B. (arXiv:0901.0891v2 [nucl-th] 28 Aug 2009)
4. Wish
The ultimate aim would be to develop physically realistic quantum field theories on a causal set. (arXiv:0909.0944v1 [hep-th] 4 Sep 2009)
5. Condition
If the proper acceleration were sufficiently large, particles would be produced with mass such that their Schwarzschild radius exceeds their extent. (arXiv:hep-th/0407103v2 15 Jul 2004)
6. Purpose
In order that the Hamiltonian be Hermitian (in terms of the generalized adjoint), that it reduce to the canonical form in Fock space, and that the observer's four-velocity lie on the four-velocity shell ($v^2 = 1$), it is natural to define the Hamiltonian for the scalar quantum field as follows... (arXiv:hep-th/0407103v2 15 Jul 2004)
7. Concession
The bouncing universes, that the no boundary

proposal predicts, might seem at first sight similar to the Ekpyrotic or cyclic universes. However, there is an important difference. (arXiv:0710.2029v1 [hep-th] 10 Oct 2007)

8. Manner, comparison
These responses can have the effect of moving the cells toward or away from each other on average, as if there were some effective force between the cells. (arXiv:q-bio/0611087v1 [q-bio.QM] 27 Nov 2006)

The domain of Social Sciences

1. Supposition or assumption, probability
Indeed, in the final two sections of this chapter, I want to consider why it might be important for social scientists to attend not only to the actual domain but also to the virtual. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
2. Suggestion
Whitehead's attempt to develop a system of metaphysics should thus be seen not as a final statement concerning the nature of things, but rather as part of a larger ongoing historical project. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
3. Conclusion based on logical evidence, facts
For us the red glow of the sunset should be as much a part of nature as are the molecules and electric waves by which men of science would explain the phenomenon. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
4. Wish
This is a crucial point, and I would want to underscore its relation to potentiality, the defining characteristic of which is that it cannot, by definition, be grasped in thought. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
5. Condition
If one were to liken, for example, the qualities of subjectivity and objectivity to (a complex of) eternal objects, then these qualities would be understood to be both inside and outside the experiment, both 'universal' and particular, abstract and concrete. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)

6. Purpose

No examples found

7. Concession

Although Stengers' use of the notion of practices might be likened to Whitehead's emphasis on different modes of becoming (modes of becoming that will shape an entity's mode of achievement in its specificity), she suggests that it is not the sheer number of witnesses that contributes to the reality of an entity such as America, but rather their heterogeneity. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)

8. Manner, comparison

No examples found

With regard to the second stage of the analysis certain principles of the Functional linguistics, in the light of which the further research has been conducted, are to be clarified. Apart from structural peculiarities all the linguistic units serve to fulfil certain functions. Evident is the fact that language is a powerful means of communication between people, of information and experience transmission on any level and in any domain. And the grammar of any language provides the corresponding resources for the realization of these speech functions. Consequently language is supposed to be in harmony with these functions. M.A.K. Halliday formulated this notion as follows: "Language is as such because of the functions it has evolved to serve"². The school of Functional Linguistics distinguishes three general metafunctions that language units are meant to perform, the two of which are the cornerstone of our analysis. These are:

- The **interpersonal** metafunction which is concerned with the social interaction between speaker/writer and addressee(s), i.e. for establishing, changing, and maintaining interpersonal relations. Here we would

like to stress that the functional linguists consider the grammatical system of MOOD to be the major grammatical resource for the realization of the interpersonal metafunction.

- The **ideational** metafunction which is concerned with 'ideation', i.e. the construction of our experience of the world around us and inside us by means of language units. One of its major grammatical systems, according to the functionalists, is TRANSITIVITY.³ (12-13)

Hence these two metafunctions are adjusted to the construction of the natural world via the ideational mode, and the social world via the interpersonal mode, respectively. Now that the functions, revealed as a result of the empirical analysis of the authentic material, are to be classified in this schema with reference to the metafunctions, we propose the following division:

Interpersonal metafunction

- Supposition or assumption, probability
- Suggestion
- Conclusion based on logical evidence, facts
- Wish

Ideational metafunction

- Condition
- Purpose
- Concession
- Manner, comparison

If we come to think over the question which of the metafunctions is mostly used in Academic English, or at least in the genre of research papers for expert-to-expert communication, most of us will undoubtedly be inclined in favour of the ideational metafunction, for this is the natural requirement of presenting objective (in this case scientific) facts of the extralinguistic reality imposed by the genre of scientific research papers. Now let us introduce the results of the quantitative analysis.

Table 1

<i>Functions</i>	Interpersonal (hedging)				Ideational			
	supposition	suggestion	concl. based on logical evidence	wish	condition	purpose	concession	manner comparison
<i>fields</i>								
Natural Sciences 114 pages	101	41	43	7	24	3	7	2
Social Sciences 153 pages	95	32	27	5	24	0	13	0

As is seen from the table the Subjunctive mood, apart from its anticipated role of grammaticalizing the interpersonal metafunction, is also used for realizing the ideational metafunction in Academic English, which is a very rare case. In other words here we have an obvious example of the interdependence of form and function: the characteristic traits of the genre of research papers entail the realization of some functions by certain language units which is quite atypical for the latter. As for the interpersonal metafunction we see that most cases of the Subjunctive mood use are employed to express assumptions, wishes, suggestions. And even for introducing conclusions already verified by some analysis or evidence scholars prefer the Subjunctive mood instead of direct and precise statements. In this way scientists express their attitudes and opinions in a subtle and careful way, maintain the appropriate degree of accuracy and precision, try to sound very cautious in their claims. Hence here we deal with the notion of hedging in up-to-date scientific writing. For this reason we find it reasonable to label all the subfunctions of the interpersonal metafunction under the heading of **hedges**.

So the Subjunctive mood might be claimed to be a linguistic, grammatical category quite widely used for expressing hedging in written scientific communication.

With reference to the third stage of the analysis let us come back to data in table 1. The quantitative results here witness that the observations made above apply almost equally to both domains: the metafunctions with the appropriate subfunctions mentioned above performed by the Subjunctive mood approximately in the same proportions. After the corresponding calculations the following difference between the fields can be stated: the subjunctive mood is used 1.56 times more in the domain of Natural sciences than in Social sciences, whereas the distribution of the subjunctive mood for the realization of the metafunctions is practically equal in the fields, namely 84.2% of cases in Natural sciences and 81.1% of cases in Social sciences realize the interpersonal metafunction and only 15.7% of cases in Natural sciences and 18.8% of cases in Social sciences are used to fulfil the ideational metafunction. The observations are presented schematically in the table below:

Table 2

<i>Metafunctions</i>	Interpersonal	Ideational	Total
<i>Fields</i>			
Natural Sciences	192 (84.2% out of 228)	36 (15.7% out of 228)	228 cases per 114pages
Social Sciences	159 (81.1% out of 196)	37 (18.8% out of 196)	196 cases per 153pages

The next point to be noted is that the subfunctions of purpose and manner or comparison are missing in the texts from the domain of Social sciences. Another important fact is that in the field of Social sciences the use of the Subjunctive mood is very often followed by additional explanatory remarks, both lexical and grammatical. In other words, the meaning and the functions construed by the SM are further unfolded. Presented below are the corresponding examples.

1. *Each time they use their knowledge in order to claim that they know what humans and human societies may or may not achieve, they contribute to give to what exists the power over what could be (Stengers 1999: 204). Stengers is drawing attention here to a distinction between what can be known in and of the world, and what the world could potentially be, a 'could' that can only, or at best, be imagined.* (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
2. *It is precisely Latour's suggestion that moralists should go looking for excluded entities (which implies that something 'exists' that could be 'found').* (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
3. *Perhaps this should come as no surprise, since*

it is, ultimately, a politics of reality to which Latour is referring. (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)

4. *This is not to suggest that it is the cause of that situation however, or that it precedes it as such, or that it should be thought of in terms of an original or model.* (<http://www.gold.ac.uk/media/facts-ethics-event.pdf>)
5. *Making the connections between these domains is the political task of the sociologist, which Mills argues should be exercised in work, in educating, and in life.* (<http://www.gold.ac.uk/media/experience-and-sociology.pdf>)

This phenomenon is almost absent in the field of Natural sciences. Possibly this domain presupposes more rigid background knowledge of the subject and prefers information transmission in an economical and concise way.

And finally the comparative analysis of the languages mentioned has been carried out. For this purpose we considered an equal amount of pages from Natural sciences only. Again it is to be stressed that the texts were taken from the pre-print on-line edition *ArXiv* and hence not subject to proofreading by language carriers. The results of the quantitative analysis are presented in table 3.

Table 3

Functions	Interpersonal (hedging)				Ideational			
	supposition	suggestion	concl. based on logical evidence	wish	condition	purpose	concession	manner comparison
<i>Languages</i>								
English 114pages	101	41	43	7	24	3	7	2
Russian 118pages	10	36	7	0	1	1	3	0
Italian 117pages	19	9	11	9	3	0	3	0
Armenian 112pages	11	24	15	0	11	1	1	0

First of all it is to be noted that the use of the subjunctive mood in the works of native speakers is incommensurably more than in the works of the Italian, Russian and Armenian languages. However the correlation of interpersonal and ideational metafunctions by means of the subjunctive mood is almost equal in all the languages analysed: in English 84.2% vs. 15.7%, in Russian 91.3% vs. 8.6%, in Italian 88.8% vs. 11.1% and in Armenian 79.3% vs. 20.6%. In connection with the realization of the ideational metafunction via the

subjunctive mood it might be assumed that the norms of the genre (for the goal of the specialized research papers in Natural sciences is the objective construction and representation of the natural world which is ascribed to the ideational metafunction) come to rule the choice of language units even with non-native speakers of English, though to a significantly less degree, and this refers to all the three languages in question. The correlation between the SM use and the metafunctions across languages is presented in table 4.

Table 4

<i>Metafunctions</i>	Interpersonal (hedging)	Ideational	Total
<i>Languages</i>			
English	192 (84.2% out of 228)	36 (15.7% out of 228)	228 cases per 114 pages
Russian	53 (91.3% out of 58)	5 (8.6% out of 58)	58 cases per 114 pages
Italian	48 (88.8% out of 54)	6 (11.1% out of 54)	54 cases per 117 pages
Armenian	50 (79.3% out of 63)	13 (20.6% out of 63)	63 cases per 112 pages

The figures in table 4 indicate that the expression of the assumption and conclusions based on logical evidence via the subjunctive mood is evidently predominant in the works of English-speaking scholars. The realization of these two subfunctions by means of the subjunctive mood is a vivid example of hedging and an illustration of how to shift the stress from the personal opinion of the scholar to the fact described. The following example by the native speaker can be of interest:

The reader might object on the grounds that there are many possible measures of *advancement*, but I would respond *by inviting the reader to pick any measure she chooses; the argument that I am about to give should apply to all of them*. The reader might alternatively claim *that there is no sharp minimum time^{min}, but instead we should describe the problem in terms of a function which gives the probability that, for any given pocket universe, a civilization as advanced as we are would develop by time t*. *I believe, however, that the introduction of such a probability distribution would merely complicate the argument,*

without changing the result. So, for simplicity of discussion, I will assume that there is some sharply defined minimum time^{min} required for a civilization as advanced as ours to develop. (arXiv:hep-th/0702178v1 22 Feb 2007)

In this example certain attitudes to the problem discussed, facts and phenomena are opposed, objected, favoured; but all in a very subtle, diplomatic and unobtrusive way. So it can be concluded that the native users of language feel freer to express hedging in this sophisticated way than non-native speakers. Another noteworthy point is that the expression of the subfunction of wish is more common in Italian than in the other languages including English. This can perhaps be due to the specific place of the Subjunctive mood (Congiuntivo) in the Italian language.

And lastly it should be noted that all the points touched upon in the second intercultural dimension of the analysis are mere observations for the time being and require in-depth analysis into the structure of the discussed languages for more plausible results.

Notes:

1. George Curme, *A Grammar of the English Language* (Boston, N.Y., 1977, vol.2), 223-226. John Lyons, *Introduction to Theoretical Linguistics* (Cambridge University Press, 1968), 307. Mark Blokh, *Theoretical English Grammar* (Moscow, 1983), 187-203.
2. M.A.K. Halliday, *An Introduction to Functional Grammar* (London, 1985), 45.
3. Christian Matthiessen and M.A.K. Halliday “Systemic Functional Grammar: A First Step into the Theory”. (1997), http://web.mac.com/cmatthie/iWeb/SMMG_resources/Mendoza_2006_Course_Description_files/SFG_FirstStep_1.pdf.

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