

Hedging As a Pragmatic Strategy: Variations across Disciplines and Cultures

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Abstract

This study attempted to capitalize on hedges in English academic abstracts written by three groups of researchers, namely native speakers of English, native speakers of Persian and native speakers of other languages. To this end, a corpus of 552 thesis and dissertation abstracts from nine disciplines was selected and their hedges were computed. The recorded hedges were then classified according to the established models, and the preferred hedging types in each rhetorical section were determined. Results of the analysis demonstrated that conventional hedges, hedges by passive voice and hedges by putting oneself at a distance from the data were the predominant types of hedges employed in the abstracts. The analysis could hardly show disciplinary and group variations in terms of the incorporation of hedging devices. The study suggests sufficient attention be paid to descriptions of linguistic and rhetorical devices in English if non-native speakers wish to publish their academic writings in scholarly journals.

Keywords: abstract, hedging, academic writing, rhetorical analysis, contrastive rhetoric.

1. Introduction

For many years, scholars in corpus linguistics have been studying hedging as a particular feature of academic writing (House and Kasper, 1981; Myers, 1989; Salager-Meyer, 1994; Hyland, 1998; Wishnoff, 2000). According to Webster's

Encyclopedic Unabridged Dictionary of the English Language (1996: 885), to hedge means “to avoid rigid commitment by qualifying or modifying a position so as to permit withdrawal.” House and Kasper (1981) considered hedges among mitigating devices as down-toners, under-staters, or play-downs. In academic writing, Hyland describes hedging as absence of commitment to the truth value of a proposition or a tendency to avoid expressing that commitment categorically (Hyland, 1998). Myers (1989) and Hyland (1998) have also illustrated that making claims in academic writing requires a lot of mitigation.

This study aimed at investigating hedging practices in English thesis and dissertation abstracts written by three groups of researchers, namely, native speakers of English (NSE), native speakers of Persian (NSP) and native speakers of other languages (NSO), in different academic disciplines. To this goal, it made use of models suggested by discourse analysts.

The study focused on the genre of abstracts partly because of its manageability, length and compact presentation of argument, that according to Kaplan et al. (1994) an abstract is heavily rhetorical because it is a descriptive recapitulation of a long paper, and as Hyland (2000) pointed out, mainly because it is a high stakes genre where writers must foreground both the claims of the study and their importance.

2. Review of Literature

A number of studies in contrastive rhetoric have underscored the differences in the discourses of non-native communities and English-based communities (Taylor and Chen, 1991; Canagarajah, 2000; Martin, 2003; Petric, 2005; Hyland and Tse, 2005). These studies have targeted different areas of surface structure such as the development of thesis statement, study of evaluative *that*, coherence, cohesion, topic development and hedging in scientific research articles. Contrastive rhetoric treats the features of each community as motivated by their typical linguistic and cultural traditions that cannot be generalized over other communities. Salager-Meyer (1994) analyzed a corpus of fifteen articles from five leading medical journals and identified

the hedges and their frequencies in different rhetorical sections of the articles by means of contextual analysis. His research results confirmed high frequency of occurrence of hedges such as shields, approximators, and compound hedges in the sample. Salager-Meyer concluded that the choice of expressions of tentativeness and flexibility is dictated by the general structure of the discourse, by its communicative purpose, by the claim the writer intends to make, and by the authors' pretension to universality and generalization.

Hyland (1995) examined the importance of hedging in cell and molecular biology research articles and characterized the extent and major forms of its realization in this genre. The study was based on a corpus of 75,000 words taken from 26 research articles in the six leading journals, identified by expert informants and the Journal Citation Reports, discussing the importance, frequency, and realization of hedges in science research articles. His research also considered why students find hedging so difficult to master and raised implications thereof.

Clemen (1996) investigated the presence and frequency of occurrence of hedges in the British Weekly business magazine, *The Economist*. He selected thirteen copies of the journal covering three months and chose two regular columns, each arranged in three columns with an average of 148 lines. The significant point in his study was the distinction he made between writer's hedging on one side and attribution to higher authority on the side.

In a comparative rhetorical analysis of the Spanish and English abstracts, Martin (2003) found that in the results unit on some occasion, English writers opted to present the main findings tentatively as a way of protecting themselves from criticism from other specialists. Similarly, in the conclusion unit, Martin found English writers using hedging devices 63.3% of cases (mainly verbs such as *suggest*, *seem*, *lend* and modal verbs such as *may*, *can*, *could*) as a way of reporting the conclusions whereas the Spanish writers used only 17.2%. Martin's explanation for this linguistic variation concerned the context of publication and the relation between the writer and the discourse

community. As abstracts for international publication have wider audience, writers tend to generalize claims for knowledge by using greater numbers of hedging devices to diminish discursal argumentative strength and protect themselves against criticism. A further explanation was that the practice of using non-hedged style has been institutionalized by most Spanish academics as part of a long-established writing style (Martin, 2003).

In addition to exploring the characteristics of scientific articles, Hyland (1998) also sought to relate the features of texts and communities to the needs of the students in classrooms. Therefore, in order to perform his research, he selected a corpus pertinent to second language learners. Hyland provided a critique of some approaches to hedging that “fail to identify the importance of hedging as a resource in distinguishing a proposition and the writer’s commitment to it” (Hyland, 1998: 223). He provided hands-on suggestions for teaching SLA students. Hyland suggested completing sentence frames and attempting various types of paraphrases. Salager-Meyer (1994) presented pedagogical implications of his research in terms of sensitization, translation, and rewriting exercises in ESP courses. Hyland (1998) suggested explanations for hedging and providing students with more authentic tasks currently done in most ESP textbooks. In her study of second language learners’ acquisition of pragmatic devices in academic writing, Wishnoff (2000) argues that mastering hedging can prove elusive for non-native speakers especially at the graduate level. In fact, hedges as essential elements of academic arguments that support and advance claims, should be given particular considerations in research writing classes.

Hyland (1998) argues that mastery of linguistic and rhetorical devices in English is requisite if researchers wish to publish their work in international journals. Having research published in reputed journals guarantees widest possible audience for research. Through publication one can unify millions of people. The trends found in previous studies suggest the need to

investigate more fully and formally the application of hedging devices in academic writing.

3. Methodology

This study comprised a descriptive study of the scholarly thesis and dissertation abstracts written by NSP, NSE and NSO. To this end, it incorporated models proposed by Meyer (1984), Salager-Meyer (1994), Henry and Roseberry (1997) and Hyland (1998). In fact, the research pursued the following goals:

To analyze the abstracts in terms of the above models, To examine inter- and intra-group variations in native and non-native speaker abstracts, To examine inter-disciplinary variations in the structure of the abstracts.

3.1 The Corpus

In order to explore the features of the scholarly abstracts of theses and dissertations, three broad areas of hard sciences, human sciences and applied sciences including nine disciplines of physics, computer, history, literature, social sciences, linguistics, nursing and midwifery, applied linguistics and geology were studied. The rationale for these disciplines was three fold:

- 1) They represent a wide area of academic endeavor around the world.
- 2) They include a large number of research writers from different L1 backgrounds around the globe. Previous studies in contrastive rhetoric have mainly relied on two groups of native and non-native English research writers. Including a third (miscellaneous non-native) group in the sample of the present study allowed the researcher to be in a better position to judge native language effect. It was believed that if a tendency could be found in the abstracts of NSE, NSP, and NSO, it would be a disciplinary property abided by all the members disregarding their national proclivities. However, if a tendency could be found in the abstracts of NSE and NSO, but not NSP, the deviation might result from their unfamiliarity in relation to the use of hedges. Also, if the three groups acted differently in

applying a particular hedge, the diversity would imply greater probability of native language effect.

3) At the time of the research there were few studies on hedging in the disciplines of physics, history, geology and nursing. Including well-studied disciplines like applied linguistics, linguistics or literature in relation to hedging would prepare grounds for comparison.

A total number of 552 English abstracts were gathered. The representative abstracts were classified into three groups, namely, NSP, NSE and NSO. The rationale for the selection of the abstracts was their availability to the researcher.

The abstracts of the Persian group were selected from the local universities—Shahid Chamran University of Ahvaz, University of Isfahan, Jondi Shapour University of Ahvaz and Allame Tabatabaee University of Tehran. Initially, 309 abstracts by Persian researchers were selected. Of this number, seven were brushed aside due to the fact that they were structurally incomprehensible leaving 302 for final analysis.

The abstracts for the other two groups were selected randomly from internet cites: *Linguist List*; *Dissertation Abstracts/Middle East and Islam*; *UMD PerG PhD Dissertation: Bao*; *MESTRADO 3: MAGMASTIMO ALCALINO DES. ANTONIO BARRA*; *MA Dissertation Abstracts*. Overall, 400 abstracts were randomly chosen of which 250 abstracts were selected as representative of NSO and NSE groups: 164 NSO and 86 NSE.

In majority of the abstracts, the author's nationality could be located. However, where this information had not been included, the researcher received advice from two experts in every sub-discipline and agreement was reached as to the category the abstracts belonged.

3.2 Procedures

Preliminary analysis was made on twenty abstracts in applied linguistics. Then coding reliability analysis (applying the above models for the analysis of hedges) was conducted to demonstrate that at least two other researchers in the field of

Applied Linguistics also agreed on the same method of analysis. Then the abstracts were carefully read and the hedges in each abstract were highlighted and classified according to the taxonomy of hedges.

More particularly, the researcher analyzed the abstracts in terms of the following classification: Conventional hedge (A), compound hedge (B), imprecision markers or approximators (C), concessive conjuncts (D), conditional clauses (E), hedging by particles (F), verb voice (G), value-judgment (H), truth-judgment (I), modifiers (J), framing statements (K), hedging by putting yourself at a distance from the data (L) and hedging by referring to other authors (M).

4. Data Analysis

In this phase of the study, the abstracts were analyzed on the use of hedging devices as a pragmatic strategy to mitigate the claim being made and fell into the linguistic taxonomy delineated by Meyer (1989), Salager-Meyer (1994), Henry and Roseberry (1997) and Hyland (1998): A total number of 5691 hedges were counted in all the abstracts of the study. That means 2728 hedges by NSP, 2198 by NSO, and 765 by NSE. In other words, the average number of hedges used by the groups was 9.03 hedges per abstract for NSP, 13.4 hedges per abstract for NSO and 8.89 hedges per abstract for NSE. Tables 1, 2 and 3 below delineate the percentage of hedges as utilized by the three groups of the study.

Table 1: Number & percentage of hedges in the disciplines by NSP

	No. of abstracts	No. of hedges	Average No.
Social. S.	29	235	8.1
Hist.	21	120	5.7
Lit.	57	440	7.7
Ling.	12	154	12.8
Ap. Ling.	56	720	12.85
Nurs.	20	229	11.45
Geo.	31	255	8.2
Comp.	36	284	7.8
Phys.	40	291	7.2

Table 2: Number & percentage of hedges in the disciplines by NSO

	No. of abstracts	No. of hedges	Average No.
Social S.	12	93	7.75
Hist.	13	90	6.9
Lit.	11	102	9.2
Ling.	18	274	15.2
Ap. Ling.	45	785	18.6
Nurs.	12	127	10.5
Geo.	27	363	13.4
Comp.	22	307	13.95
Phys.	4	57	14.25

Table 3: Number & percentage of hedges in the disciplines by NSE

	No. of abstracts	No. of hedges	Average No.
Social S.	6	63	10.5
Hist.	29	149	5.1
Lit.	4	34	8.5
Ling.	12	157	13
Ap. Ling.	11	69	6.2
Nurs.	8	92	11.6
Geo.	5	71	14.2
Comp.	6	64	10.6
Phys.	5	66	13.2

As can be understood from the above tables, NSP and NSE employed fewer hedges than NSO. History researchers in all three groups employed the least number of hedges. Applied linguistic researchers employed the greatest number of hedges among NSO and NSP groups, while applied linguistic members of NSE were the second lowest in the use of hedging. English researchers in geology, on the other hand, made greater use of mitigating devices. Similarly, for all the three groups, linguistics researchers applied a greater number of mitigating devices. Furthermore, a lot of similarity was observed between the researchers in literature in using hedges.

Within NSP, relative proximity was observed in the degree of hedging devices between the hard sciences, social sciences, history and literature but not linguistics. Linguistics members acted more like the applied sciences researchers perhaps because they were concerned to introduce this discipline along the lines laid down by the applied sciences. This proximity could also be traced among the NSO researchers. Hard sciences and applied sciences researchers acted more like one another and not to mention linguistics researchers. However, contrary to one's expectations, NSE researchers acted a little more diversely. For example, one interesting difference was the gap between the abstracts in applied linguistics and linguistics. Another area of diversity was the human sciences in which the groups relatively performed heterogeneously. Moreover, while the nursing and midwifery researchers in the three groups were closer in terms of the use of hedges, applied linguistics researchers on the English group were far from them and used much fewer tempering elements.

Of the eleven types of down toners considered in the present study, NSP predominantly employed [A], [G] and [L]. Use of passive verbs as a mitigating device had the highest frequency of occurrence among all the members of the nine disciplines by NSP. The high frequency of passive

verbs turned the researchers' phrases with a view to making them acceptable. Consider the following examples:

E1. ... and finally the best rehabilitation and remediation methods were selected for each zone of the project. [Geology]

E2. Recently, this model has been approved in the Research and Development Committee of Iranian SWIFT User Group... (Social Sciences)

E3. The behavioral responses were measured in duration and 5 minutes after the procedure and subjective responses were measured 5 minutes

....

[Nursing and midwifery]

E4. ... an experimental research was conducted to investigate the role ... [Applied linguistics]

The second highest type of hedge was [L] through which the researchers put themselves at a distance from the data by showing that it is soft. Some examples from the studied abstracts are presented just below:

E5. A pair of canulla ... were implanted in hippocampus ... and the animals were trained for spatial active avoidance ... [Nursing and midwifery]

E6. Also the hydrodynamic equations for a narrow slab when the state nematic is deformed slightly by a magnetic field are solved. [Physics]

E7. For this purpose first protocol and ... have been studied, then with introducing a primary logical structure the problems ... have been investigated. [Computer]

Conventional hedges (A) including mitigating or epistemic verbs, when knowledge derives from some personal opinion, such as *seem*, *appear*, *think*, *tend*, *etc.* and adverbs including *likely*, *presumably*, *possibly*, *etc.* were the third highest among the NSP:

E8. It seems that some nonce-formations are odd.
[Linguistics]

E9. It is likely that his dynasty has been the seventh dynasty. [History]

E10. ... slump and turbidite currents suggested a homoclinal ramp... [Geology]

E11. We assumed two different services, one for ... [Computer]

E12. The results of this study show that insulin affects ... [Nursing and midwifery]

Moreover, some disciplines like history, linguistics, nursing and midwifery and computer made use of hedging devices that are realized by imprecision markers such as approximators and rounders: *about, around, no more than, mostly, apparently, some, a number of, mainly, etc.* Some examples are as follows:

E13. ... and often with the help of the political parties, continued to discuss their women's suffrage ... [History]

E14. ... and finally, 'vallah' mostly occurs with adjacency pairs of question/answer ... [Linguistics]

E15. A number of them are the normal flora of human respiratory ... [Nursing and midwifery]

E16. ... we are far from ideal system. [Computer]

Table 4 below demonstrates the percentage of hedging devices by NSP.

Table 4: Percentage of hedging devices by NSP

	Social S.	Hist.	Lit.	Ling.	Ap. Ling.	Nurs.	Geo.	Comp.	Phys.	Num.
A	7.2	18.3	4.5	7.8	11	1	3.5	14.7	6.8	244
B	-	1.6	0.22	1.3	1.6	0.43	-	1.4	1.37	26
C	0.4	8.3	3.4	3.9	0.8	4.8	1.17	4.2	2	70
D	-	2.5	-	0.64	0.13	0.87	-	0.35	0.34	9
E	0.4	0.8	-	0.64	1.5	0.43	-	0.35	-	16
F	0.4	-	-	-	-	-	0.39	1	0.68	7
G	64.6	55.8	72.7	63	58	71	78	60	75.25	1809
H	-	-	-	-	-	-	-	-	-	-
I	0.4	1.6	0.45	0.64	-	-	-	-	-	6
J	1.7	0.8	0.22	-	-	-	0.39	1.76	0.68	14
K	0.4	-	0.22	0.64	0.8	-	-	-	-	9
L	24.2	9	18	20.7	24.8	12.2	16.4	15	12.7	506
M	-	0.8	0.22	0.64	1.25	-	-	-	-	12

A. *conventional hedging value judgment*

B. *compound hedging truth judgment*

C. *hedging by imprecision markers*

D. *hedging by concession conjunct statements*

E. *hedging by conditional clauses a distance*

F. *hedging by particles authors*

G. *hedging by passive voice*

H. *hedging by commenting on*

I. *hedging by commenting on*

J. *hedging by modifiers*

K. *hedging by framing*

L. *hedging by putting oneself at*

M. *hedging by relying on other*

The NSO researchers, in general, also assigned the same order of importance to the hedges. Geology researchers utilized the greatest number of passive voice or agentless constructions while they were ranked the last in employing [L]. Researchers in social sciences acted conversely since they used the fewest passive structures and the highest number of [L] in their abstracts. The same correlation was also discerned but to a less degree among the NSP group.

Contrary to the NSP, the NSO group put [C] in low profile except for the computer and social sciences researchers. Instead, the literature researchers, for example, incorporated [B] and [E] in composing their abstracts:

E17. The study argues that Brown and Levinson's politeness theory can be fruitfully applied to Disney Comics translated from English into Arabic, provided we can demonstrate that ...

The second part is devoted to building up a model ... based on four dichotomies: (a) whether communication takes place ... (b) whether communication is intentional ... (c) whether communication is achieved through verbal ...

Furthermore, physics researchers brought into their account hedges of the type [D] and [J] as the following examples delineate:

E18. These have been used extensively for image classification ... [J]

E19. Although this dry band arcing does not harm porcelain or ... [D]

Moreover, interestingly enough, the nursing and midwifery researchers' abstracts were characterized by incorporating hedges of the type [E] and [M]:

E20. Critics also argue that courts do not have the resources ... [M]

E21. McCann's theory acknowledges the limitations ... [M]

E22. The purpose of this study is to evaluate whether the version used ... [E]

E23. The questionnaire asked respondents if they had visited ... [E]

Table 5 demonstrates the percentage of hedging devices by NSO.

Table 5: Percentage of hedging devices by NSO

	Social sci	Hist.	Lit.	Ling.	AP. ling.	Nurs.	Geo.	Comp.	Phys.	Num.
A	5.3	21	4.9	3.6	9.3	21.25	5	12	3.5	171
B	1	3.3	4.9	0.36	2.9	-	-	-	1.75	24
C	4.3	-	1	1	1.7	1.5	1.6	7.8	-	49
D	1	-	1	1	0.19	0.78	0.27	1	3.5	13
E	-	1.1	5	0.72	1.7	5.5	0.27	.32	-	26
F	1	-	-	-	0.39	-	0.55	0.65	-	7
G	35.4	48.8	53	54.7	57.3	39.3	79	41.3	65	1075
H	-	-	-	-	0.19	-	-	0.32	-	2
I	-	-	-	-	-	-	-	-	-	-
J	-	-	-	1	-	1.5	0.27	1.6	3.5	13
K	-	-	-	0.36	-	-	-	1	1.75	5
L	50.5	25.5	3.31	3	25.8	26	13	33.8	21	529
M	1	-	1	0.72	0.19	4	-	-	-	10

Surprisingly, the same order of priority was also assigned to the different types of hedges by NSE, that is, [G], [L] and [A] (See Table 6). Geology researchers employed the greatest number of passive voice structures and the least number of [L] types of hedge, but unlike the NSO and NSP, the reverse was not true. Additionally, geology researchers who used the greatest number of passive structures employed the least number of [A] types of hedging devices and applied linguistics researchers who used the greatest number of [A] type of hedge employed the least number of passive constructions. Consider the following examples:

E24. This dissertation examines ancient faience, a material that *is not greatly understood*. It focuses on the relationship between ... It investigates how faience has been treated in the field of conservation. An overview of what faience is and how it is made is given ... The three glazing methods of ... are described, and the research on

... is presented. The relationship ... is examined ... Although it is shown that ... Lastly, to learn how faience has been understood in the field of ..., the results sent to conservators ... are discussed and compared to the conservations made in the published research. In general, numerous types of deterioration have been found ... [Geology]

E25. Current linguistic reappraisal has led to an ... Such insights have, however, on the whole, failed to bring about a significant improvement in the amount or type of vocabulary taught In the case of EAP... the pedagogical response ... seems particularly inadequate. Despite evidence of ... foreign students are all too often expected to teach themselves the word they need. Lexis, however, is shown to be ... Focusing on EAP pre-sessional, suggestions are made as to how these needs can be more directly and effectively addressed ... as conceived by Lewis (1993). Having identified ... suggestions are made ... and course design might maximally benefit overseas students. Such an approach would achieve the combined aims ... With its emphasis on skills ... EAP is shown to offer ... Suggestions are made as to how ... might achieve its main aims. ... [Applied linguistics]

Table 6 shows the percentage of hedging devices by the NSE researchers.

Table 6: Percentage of hedging devices by NSE

	Soial S.	Hist.	Lit.	Ling.	Ap. Ling.	Nurs.	Geo.	Comp.	Phys.	Num.
A	3	6	5.8	3	29	9.7	2.8	18.75	10.6	68
B	-	-	-	1.3	7.2	-	-	-	3	9
C	6.3	3.3	8.8	0.6	1.4	163	2.8	6.25	4.5	38
D	-	-	3	1.3	-	-	5.6	-	4.5	10
E	-	-	-	-	1.4	3.2	1.4	-	-	5
F	3	-	-	-	-	-	1.4	-	1.5	4
G	62	45.6	41	65	39	43.4	74.6	4.8	41	400
H	-	-	-	-	-	-	-	-	-	-
I	-	-	-	-	-	-	-	-	-	-
J	-	0.6	-	-	-	1	-	-	-	2
K	-	-	-	0.6	1.	-	-	-	-	2
L	25.3	44	41	28.6	20	26	11.2	26.5	34.8	227
M	-	-	-	-	-	-	-	1.5	-	1

A number of correlations could also be found across the three groups of NSO, NSE and NSP. For example, NSE and NSO researchers in social sciences included hedging by imprecision markers, [C]. 6.3 and 4.3 percent respectively, while scant attention was devoted to this hedge by NSP:

E26. ... nearly 22 million Canadians donated approximately 35 billion [NSE]

E27. ... his thought on Ethics and Politics had been the object of a large number studies.

Furthermore, history researchers in NSP outnumbered the other groups in using the hedging type [C]. Moreover, NSO researchers characteristically employed [B] and [E] while such hedges were condoned by the other NSP and NSE groups.

Comparing applied linguistics researchers across the three groups also shed some light on the differences since the English researchers used the hedging device of the type [B]

by 72 percent whereas the NSO and NSP researchers slighted this mitigating device:

E28. The experimental study presented here seeks to investigate ...

E29. ... The 166 sentences with errors in Spanish which make it appear as if spoken by English ...

Greater differences were observed among the nursing and midwifery researchers. One difference was that NSE and NSP researchers utilized [C], whereas NSO researchers gave miniscule attention to this device, but employed [E] and [M] characteristically, 5.5 and 4 percent:

E30. ... the higher contamination carp was probably due to ... (NSP)

E31. The other mycoplasmas ... are most frequently isolated from ... (NSP)

E32. ... those with a psychiatric diagnosis ... were likely to have more ... (NSE)

E33. ... veterans with dementia were less likely to have primary care. (NSE)

In the present study, use of first person plural subject 'we' for 'I' as a hedging strategy to reduce the personal influence on the results obtained was also taken into account. An unexpected outcome was 212 occurrences of plural 'we' or 'our' cited in 56 abstracts of the study. Of this number, 112 occurrences belonged to the physics abstracts- 78, 26 and 8 occurrences in 21, 4 and 1 abstracts by NSP, NSE and NSO members respectively. Majority of the cases occurred in introduction, method and results sections of the abstracts. Similarly, 88 occurrences of 'we' for 'I' were found within the computer abstracts i.e. 22, 6 and 60 occurrences in 8, 1 and 12 abstracts by the NSP, NSE and NSO members respectively. The plural subject in computer groups was distributed across the solution, suggestion, lay-out and to a less degree introduction, method, results and conclusion sections. Twelve more cases occurred in nursing, literature, linguistics, history, social sciences and applied linguistics. However, our data

showed that the use of plural subject characterized NSP and NSE abstracts in physics and NSP and NSO abstracts in computer sciences contrary to our expectations. A few examples demonstrate the manner that researchers have employed the above strategy:

E34. We can draw this conclusion ... [Social sciences]

E35. We highlighted some honorable and humble verbs [Literature]

E36. We attempted to investigate the relationship between syntactic ... [Linguistics]

E37. The results of our study suggest a clinically important beneficial effect of intraumbilical normal saline injection ...

E38. We induced a metric such that this metric reflected ... [Physics]

E39. In this research we designed and manufactured metal-dielectric induced transmission filters in visible region. [Physics]

E40. We assumed two different services, one for checking account holders to issue checks, and ...

E41. We could achieve high compression ratio without losing minimum image quality.

Part by part analysis of the abstracts in human sciences indicated that hedges of the type [G] and [L] characterize the different sections of the abstracts by the three groups. [G] was the only type of hedge used in the method section of the abstracts. [G] and [L] had a high degree of occurrence in the introduction, result and conclusion sections of the abstracts as well as in the lay-out and topic description sections.

In applied sciences, [G] and [L] were also the predominant types of hedges. [G] was the only type of hedge used in the method section by the NSE and NSP with the exception of applied linguistics members in the NSP who used [L] too. The NSO members also used [G] and [L] in the method section. Hedges of the type [A] were also an

option in introduction, result and conclusion sections of applied linguistics members. Native English researchers in nursing also employed [C] in the results sections of their abstracts.

Similarly, in hard sciences, the three groups opted for [G] and [L] types of hedges in the different parts of their abstracts. Native English physicists also made use of [C] in the introduction of their abstracts.

Data in the present study enabled us to conclude that academic abstracts are generally characterized by hedges of the type [G] and [L]. Tables 7 through 15 in the appendix demonstrate the preferred hedges in the different sections of the abstracts.

5. Discussion

Analysis of the corpus of hedges by the three groups of the study indicated that hedges of the type [G], [L] and [A] were the predominant types of hedges employed in the genre of abstracts under study. Next in rank was [C]. Thesis writers showed little tendency to employ other types of hedges. This analysis represented the borderline of the genre of abstracts as distinct from other genres. However, present data could hardly distinguish disciplinary differences or group differences in terms of the incorporation of hedging devices. However as argued by Hyland (1998), it is acknowledged that due to the “pragmatic indeterminacy of the devices employed” (214) and due to the recent contribution of applied linguistics and discourse analysis no classification can withstand the test of accuracy and precision.

Results of the present study are partially compatible with Martin’s conclusion (2003) that Spanish writers used far fewer mitigating devices of the conventional type (type A) than native speakers of English. Data in the present study showed that native speakers of English used greater number of hedges in hard sciences and applied linguistics, but in the other disciplines of the study such as history,

social sciences, linguistics and geology they were outnumbered by the NSP and NSO writers in the use of hedges. Therefore, Martin's results may not be generalizable to English abstracts written by non-native speakers of English and in fact contrary to his claims, non-native speakers may also equally generalize claims by using hedging devices even when they know that their writing might not find space for publication.

Results also confirm Salager-Meyer's conclusion (1994) that scientists resort to approximators and tentative expressions. However, results also showed that scientists are far more concerned about putting themselves at a distance from the data hence the greater use of other mitigating devices of the type A, G, and L.

Drawing on the landmark work of Tarone et al (1981) on the use of passive constructions, Hyland recognizes that "reality, knowledge and facts are language constructs generated for the time being by ... communities and used to maintain community coherence" (1998: 82). Hedging is thus identified as a valuable resource in distinguishing propositions and the writer's commitment to those propositions. In the words of Hyland hedges are essential building blocks of academic argument (Hyland, 1998) and help design the research paper. Writers are attempting to foster their backing of or repudiate a theory or hypothesis and in so doing, hedges allow writers "to express a perspective on their statements" or the statements of others, "to present unproven claims with caution and to center a dialogue with their audience (Hyland, 1998: 6).

The data in this study supports the claim that mastering this scientific genre can prove elusive. The biased distribution of hedges across the abstracts- the over application of passive structures by NSP and the exaggerated treatment of some hedges by the NSO- for example hedges of the type [L] in social sciences abstracts- as resulted in displaying a slightly distorted image of the

hedging strategies which makes non-native speakers' writing distinct from the native speaker standards.

The use of first person plural subject 'we' in NSP and NSO abstracts in computer and NSP and NSE in physics took place contrary to the researcher's expectations. Obviously, plural subject inclusion is a strategy that is favored by some researchers in order to put themselves at a distance from the data. It is a strategy for reducing subjectivity by showing linguistically that more than one person has been involved in forming the decisions arrived at. The incorporation of this strategy by NSP may arise from several reasons.

First, it may be that novice Iranian researchers lack adequate knowledge of the academic community and the genre of abstracts in order to write effectively and to represent a genuine model of abstract writing for the community they belong to.

Second, Persian novice researchers, once they are through with their theses, are expected to write two abstracts- one in Persian and one in English- as a partial fulfillment of their degree. Since majority of the Persian novice researchers in this discipline lack adequate knowledge of English, initially they write the abstract in Persian and only then they transliterate it into English resulting in inevitable transfer from Persian into English. One of the thesis writers in physics was telling this author that they are required by their department to translate their Persian abstracts into English word for word to vouchsafe the sameness of information they offer in both samples.

Third, since many thesis writers begin to introduce themselves as members to an academic community through their theses, due to lack of proficiency in handling this genre, they may allow transfer of training or transfer from other areas to happen. For instance, they may listen to a lecturer using the plural subject in describing his/her research, so they think the same can also hold true in their abstract writing. Fourth, the inclusion of plural subject may

be a generic characteristic of the discipline of hard sciences in as much as this characteristic was observed by NSO and NSE as well. It may be that in hard sciences, there is the tendency to reduce third person objectivity and increase first person subjectivity in order to approximate their research outcomes to natural situations. On the contrary, being over-concerned to introduce their disciplines within the domain of scientific inquiry, researchers in human sciences try to observe all those criteria that make their writing appear scientific.

The under-valuing or overemphasizing of these strategies requires instructors to provide appropriate descriptions of linguistic and rhetorical devices in English or edit for appropriate degrees of qualifications (Dudley-Evans, 1991). Mastering hedging in English, as Hyland maintains, is a necessity if non-native speakers wish to publish their scientific works in English journals and to have the widest possible audience for research (Hyland, 1998).

6. Conclusion

Bardovi-Harlig and Hartford (1993) locate the use of downtoners within their proposed framework of status congruence. They argue that using mitigators is a status preserving strategy aimed at making an incongruent speech act more congruent with the speaker's status in the situation. In research paper writing, though, the writer's status vis-à-vis the reader is not predetermined. While considering their readers, writers are most concerned that the claims they are making "meet both adequacy and establishing conditions" (Hyland, 1994: 94).

Second language pragmatic acquisition is enhanced when learners are made to focus on certain aspects of the language. Therefore, this study suggests that noticing may be necessary to build meta-linguistic knowledge and develop pragmatic proficiency.

Analysis of the abstracts in terms of the pragmatic feature, hedging, demonstrated disciplinary and group variations across the nine disciplines of the study. Data showed that in hard sciences, Persian researchers employed half as many of the hedges by the native speakers of other languages. Alternatively, the NSO members in applied linguistics used three times as many hedges as used by the NSE members.

The analysis also showed variations in terms of the priority given to various types of hedges. These variations, for example the overgeneralization of passive voice by Persian researchers and excessive use of [L] in social sciences, have skewed the non-native speakers' abstracts and made them marked in relation to the native speaker standards. The incorporation of the plural subject 'we' also overemphasized in some disciplines amounts to such variations.

The results of the present study have both theoretical and practical implications. Practical or pedagogical implications may contribute to such areas as designing syllabi, materials development, ESP and EAP instruction and raising student scientists' awareness of the rhetorical features. On the other hand, theoretical implications can be useful in modifying existing models for abstract description.

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Appendix

7. Preferred hedges in the abstract sections by NSE

	Applied linguistics	Geology	Nursing
I	G L A	G L	G L
M	G	G	G
R	G L A	G L	G C L
C	G A L	G A	G

8. Preferred hedges in the abstract sections by NSP

	Applied linguistics	Geology	Nursing
I	G L A	G	G
M	G L	G	G
R	G L	G L	G L
C	G A L	G L	A L G

9. Preferred hedges in the abstract sections by NSO

	Applied linguistics	Geology	Nursing
I	G L A	G L A	G L
M	G L	G	G L
R	G L A	G L	L G
C	G L A	G	G L

10. Preferred hedges in the abstract sections by NSE

	Social sciences	Linguistics	History	Literature
I	L G	G L	G L	G L
M	G	G	G	
R	G L	G L	G L	
C	G L	G L	G L	G L
LO		G L	L G	G L
TD	G L			

11. Preferred hedges in the abstract sections by NSP

	Social sciences	Linguistics	History	Literature
I	G L	G L A	G L	G L
M	G	G		
R	G L	G L A		
C	G L	G		
LO				G L
TD			G A L	G

12. Preferred hedges in the abstract sections by NSO

	Social sciences	Linguistics	History	Literature
I	L G	G L	L G	L G
M		G	G	G
R	L G	G L		G
C	G L	G L		G
LO	L	G L	G	G

13. Preferred hedges in the abstract sections by NSE

	Compute	Physics
I	G	G L C
M		G L
R	G	L
C	A L	L G
P	G L	
S	L G	
Su	G	
LO		L

14. Preferred hedges in the abstract sections by NSP

	Computer	Physics
I	G A C	G L
M	G L	G L
R	L	G L
C	G L	A G
P		G
S	G	G
Su	G	
LO		G
TD		G

15. Preferred hedges in the abstract sections by NSO

	Computer	Physics
I	L G C A	L G
M	G	G
R	L G	
C	L	
P	G L	
S	G L	G L
Su	G L	G L
LO	L G	
TD		G