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Presupposition Projection and the Semantics-Pragmatics Boundary: A Theoretical Evaluation of the Projection Problem under Dynamic Semantics

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ABSTRACT

When a speaker says a sentence like "John stopped smoking," the listener also learns something extra: that John used to smoke. This extra piece of meaning is called a presupposition. Something strange happens when we put such sentences inside other sentences, such as questions or negations. The extra meaning often survives, even when we turn the main sentence into a question or a negative statement. This survival is called projection, and explaining why it happens is called the projection problem. Dynamic semantics offers one answer, treating meaning as something that updates a body of shared information step by step rather than as a fixed, unchanging value. This study used a quantitative, survey-based approach to test whether ordinary Pakistani speakers of English show judgment patterns that match the predictions of dynamic semantics. Two hundred and forty university students and staff from five Pakistani cities rated how strongly they still believed a presupposed idea was true across six different sentence types and four presupposition triggers. Results showed that presuppositions were rated as strongly true under negation, questions, and possibility statements, matching the classic prediction that these environments let presuppositions pass through. However, when the presupposed content was already stated earlier in a conditional sentence, ratings dropped sharply, showing that the presupposition was treated as already settled rather than needing to project again. Participants with formal training in semantics or pragmatics showed this pattern more clearly than participants without such training. These findings support a dynamic semantics account of presupposition projection and show that the semantics-pragmatics boundary can be studied usefully with ordinary speaker judgments, even outside the languages where this theory was first developed.

1. Introduction

Language carries more meaning than what is directly asserted. When someone says, "My sister passed her exam," the listener also learns, without being told directly, that the speaker has a sister. This second kind of meaning is called a presupposition. Presuppositions are usually treated as background information, something the speaker assumes is already known or accepted, rather than new information the speaker is trying to argue for. Many common words and structures trigger a presupposition,

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including definite descriptions such as "the," factive verbs such as "know" or "realize," change of state verbs such as "stop" or "start," and words like "again" that signal repetition.

A long-standing puzzle in linguistics is what happens to these presuppositions when the sentence that contains them is placed inside a larger sentence, such as a question, a negative sentence, or a conditional sentence. In many cases, the presupposed meaning survives and is still understood as true, even though the sentence itself is now a question or a denial. This pattern is called projection, and working out exactly when and why it happens is known as the projection problem. Dynamic semantics offers one influential answer to this puzzle. Instead of treating the meaning of a sentence as a fixed value that is simply true or false, dynamic semantics treats meaning as an instruction for updating a shared body of information step by step, sentence by sentence, and even clause by clause within a single sentence. Under this view, a presupposition is treated as a requirement that must already be satisfied by the existing shared information before the update can proceed, which explains why presuppositions often project through negation, questions, and other environments, while also explaining the cases where they do not.

To see the puzzle clearly, it helps to compare a simple sentence with its negation. The sentence "John stopped smoking" presupposes that John used to smoke, because the verb "stop" only makes sense if the activity was already happening beforehand. If a listener denies this sentence by saying "John did not stop smoking," the presupposition that John used to smoke still comes through, even though the main claim, that he stopped, has been denied. The same thing happens when the sentence is turned into a question, such as "Did John stop smoking?" or placed under a possibility modal, such as "John might have stopped smoking." In each case, the listener still walks away believing that John used to smoke, even though the sentence no longer directly asserts that he stopped. This behaviour is very different from how ordinary asserted content works, since denying or questioning an asserted claim normally cancels it rather than leaving it untouched. Explaining why presupposed content behaves so differently from asserted content, and predicting exactly which sentence types allow it to survive, is the central task that any theory of presupposition projection must complete.

Recent research keeps returning to this puzzle from different angles. Kalomoiros and Schwarz (2024) ran controlled experiments comparing how presuppositions behave inside sentences joined by "and" compared to sentences joined by "or" and found clear differences in how the order of clauses affects projection, which challenges simpler theories that treat all connectives the same way. Roberts and Simons (2024) argued that many presuppositions are not simply listed in the dictionary entry of a word but instead arise through general reasoning about what must be true for an event or state to make sense, which places more of the explanation on pragmatics, the study of how context shapes meaning, rather than on semantics alone. Winter (2025) built on the classical trivalent approach to presupposition, in which a sentence can be true, false, or undefined, and proposed a refined calculus to explain cases where a presupposition seems to demand more than what is strictly needed for the sentence to be interpretable. Simons (2022) revisited the original dynamic semantics account of the projection problem and discussed both its strengths and the challenges later researchers have raised against it. Feng and Zhang (2025) tested how second language speakers of English judge and process different presupposition triggers, finding that advanced learners can reach native-like judgments when they have time to think but struggle more when required to process sentences quickly, which points to a difference between deep knowledge and fast, automatic use of that knowledge. Solidjonov (2026) asked whether large language models can be said to understand presupposition at all, comparing English and Uzbek data and concluding that these models often reproduce surface patterns without a deeper grasp of when a presupposition should or should not survive.

Despite this active and growing body of research, almost all of the experimental work on presupposition projection has been carried out with English speakers in Western countries or with speakers of major East Asian languages. Pakistan, where English is widely used as a second language for education and public life alongside Urdu and regional languages, has not featured in this line of research, even though the country offers a large, easily reached population of educated multilingual English users. H. Ashraf (2023) and M. A. Ashraf et al. (2021) both described how English holds a special, high-status position in Pakistani education and public life, which means many Pakistani university students and staff use English regularly enough to have clear, stable judgments about its grammar and meaning. Nabi et al. (2025) added further detail on how Urdu, the most widely used first language among these speakers, marks meaning very differently from English, which raises the question of whether Pakistani English users show the same projection patterns reported for native English speakers or a different pattern shaped by their first language background. This combination of a large, English-using population and an almost total absence of existing data makes Pakistan a valuable and timely setting for testing whether the predictions of dynamic semantics hold up with ordinary speaker judgments outside the usual research settings.

1.1 Research Problem

Dynamic semantics offers a well-developed account of why presuppositions project through some sentence types, such as negation and questions, while being filtered out or locally satisfied in other sentence types, such as certain conditional sentences where the presupposed content is already stated in the earlier part of the sentence. Almost all of the evidence supporting this account comes from theoretical argument and from experiments carried out with English-speaking participants in Western

academic settings, with very little testing of whether ordinary multilingual speakers outside these settings show the same judgment pattern. Pakistan offers a large population of English-using university students and staff whose first languages, mainly Urdu and regional languages such as Punjabi, Pashto, and Sindhi, mark meaning through different grammatical tools than English does. Without data from this kind of population, it remains unclear whether the projection pattern predicted by dynamic semantics reflects something general about how any competent English user reasons about presupposed meaning, or whether it depends more heavily on features specific to native English speakers or to the particular research settings where the theory was developed and tested. This gap matters both for the theoretical reach of dynamic semantics as an account of the semantics-pragmatics boundary and for a more practical reason, since understanding how second-language English users handle presupposition has direct relevance for language teaching and testing in a country where English literacy plays a large role in education and employment.

1.2 Research Questions

RQ1: Do Pakistani multilingual English users rate presupposed content as more strongly true under classic projection environments, such as negation, questions, and possibility modals, than under a conditional sentence where the presupposition is already stated in the earlier clause?

RQ2: Does formal training in semantics or pragmatics strengthen the difference between these two types of conditional sentences, in line with the sharper, more explicit predictions that dynamic semantics makes about when presuppositions should or should not need to project?

1.3 Significance of the Study

This study matters academically because it tests a well-developed formal theory, dynamic semantics, using a population and setting that formal semantics research has rarely reached, which helps show whether the theory's predictions hold beyond the small set of languages and speaker groups it was built on. It also demonstrates that abstract theoretical claims about meaning can be tested using a straightforward, survey-based method that does not require a specialised laboratory. Practically, the findings are useful for English language teaching and testing in Pakistan, since understanding how learners and users handle presupposed meaning can help teachers design clearer materials on reading comprehension, inference, and the difference between what a sentence states directly and what it quietly assumes.

2.Literature Review

The projection problem was named and given its first systematic treatment inside a formal, dynamic framework by Heim (1983), whose satisfaction theory treated presupposition as a requirement that a sentence places on the existing body of shared information before that information can be updated with new content. Under this view, presuppositions are expected to survive, or project, through sentence types such as negation and questions, because these sentence types still require the same background information to already be in place before the sentence can be properly interpreted. Simons (2022) revisited this original account decades later and showed that, while later researchers have proposed important refinements, the central insight that presupposition and ordinary update are handled by the same basic mechanism remains widely influential and continues to shape how the projection problem is discussed today.

Building on this foundation, later researchers have tested and refined the predictions of dynamic semantics using controlled experiments rather than relying only on individual judgment and theoretical argument. Kalomoiros and Schwarz (2024) compared presupposition projection in sentences joined by "and" against sentences joined by "or" and found that the two connectives behave differently, with conjunction showing an asymmetric pattern where only the first clause can filter a later presupposition, while disjunction allowed filtering in both directions. This kind of fine-grained, connective-specific pattern is exactly the sort of detail a dynamic, update-based theory is well placed to explain, since the theory tracks how information builds up piece by piece across a sentence.

Not all researchers agree that projection is best explained through a purely semantic, dynamic mechanism. Roberts and Simons (2024) argued that many presuppositions, especially those tied to change-of-state verbs and factive verbs, arise from general pragmatic reasoning about the preconditions of an event, rather than being written directly into the dynamic meaning of the trigger word itself. On this view, the semantics-pragmatics boundary is less sharp than a purely dynamic account might suggest, since much of the explanatory work is done by ordinary reasoning about the world rather than by a dedicated grammatical mechanism. Winter (2025) offered a related but distinct challenge, building on the older trivalent logic tradition associated with Karttunen, and argued that some presupposition-like inferences are better explained as pragmatic admittance conditions rather than as strict semantic projections, addressing cases where the presupposed content appears stronger than what is strictly required for the sentence to be interpretable.

Experimental work on how second language speakers handle presupposition adds another angle to this debate. Feng and Zhang (2025) tested Mandarin-speaking learners of English on four common presupposition triggers, definite expressions, factive verbs, change of state verbs, and additive particles such as "also," using both a reading task that measured processing speed and a separate task that asked for direct acceptability judgments. Advanced learners showed judgments close to those of native speakers when given time to reflect but showed more difficulty during fast, online reading, suggesting that presupposition-related knowledge can be present even when it is not yet fully automatic. Solidjonov (2026) took a different but related approach, testing whether large language models handle presupposition in a way that reflects real understanding, using English and Uzbek data, and concluded that these systems often produce presupposition-appropriate output without clear evidence of the deeper reasoning that a dynamic semantics account would predict in a human speaker.

Turning to the Pakistani context, no study appears to have directly tested presupposition projection judgments in this population, though related work gives useful background. H. Ashraf (2023) described the high status and heavy academic use of English in Pakistan, while M. A. Ashraf et al. (2021) documented how multilingual education policy in Pakistan often differs from everyday classroom practice, both of which help explain why Pakistani university students and staff form a population with substantial, regular English exposure despite English not being most speakers' first language. Nabi et al. (2025) provided a detailed grammatical description of Urdu nominal structure, confirming that Urdu marks meaning such as number and definiteness through different tools than English does, which raises a reasonable question about whether Urdu-dominant English users might show weaker or different projection patterns. Yasmeen et al. (2026) studied Pakistani ESL learners on a different but related semantic feature and found that these learners often begin with patterns transferred from Urdu before gradually shifting toward patterns closer to native English speakers as their proficiency grows, a pattern that may well extend to presupposition projection, though this has not yet been tested directly.

The methods used to test these theoretical claims also matter for the present study. Much of the experimental literature on presupposition projection, including the work by Kalomoiros and Schwarz (2024) and by Feng and Zhang (2025), relies on some version of the family of sentences test, in which the same presupposition trigger is placed inside several different sentence environments and participants rate or judge how strongly the presupposed content still seems true in each one. This method is attractive because it does not require specialised laboratory equipment or trained linguists as participants, and because it produces numeric ratings that can be compared directly across environments and across groups of speakers using ordinary statistical tools. The present study adopts the same general logic, applying it for the first time to a Pakistani sample, which allows its results to be compared directly against the patterns reported in the existing literature on English-speaking and East Asian populations.

Taken together, this body of work shows strong theoretical development of dynamic semantics as an account of the projection problem, growing experimental evidence testing specific predictions of the theory, and useful pragmatic challenges that question how sharp the semantics-pragmatics boundary really is. However, almost none of this experimental evidence comes from Pakistani speakers, or more broadly from South Asian, Urdu-dominant multilingual populations, despite the large number of educated English users in the region. No published quantitative study appears to have directly tested whether Pakistani English users show the classic projection versus filtering pattern predicted by dynamic semantics or whether formal training in semantics and pragmatics changes how clearly this pattern appears in their judgments. This is a clear and useful gap, and the present study addresses it directly through a structured, survey-based judgment task carried out with a Pakistani sample.

3.Methodology

This study used a quantitative, survey-based, within-subjects design. Each participant rated the same set of sentence types so that judgments could be compared directly across conditions for every individual rather than only across separate groups. The design combined six sentence environments, ranging from a simple assertion through negation, a polar question, a possibility modal, and two types of conditional sentences, one where the earlier clause already stated the presupposed content and one where it did not, crossed with four common presupposition triggers: definite descriptions, factive verbs, change of state verbs, and the word "again." This design was chosen because it directly mirrors the classic testing method used in the theoretical literature on the projection problem, often called the family of sentences test, which makes it possible to compare the present survey results directly against the predictions dynamic semantics makes for each sentence type. A within-subjects design also allowed the study to calculate an individual-level filtering sensitivity score for each participant, which was needed to test whether formal training in semantics or pragmatics changed the strength of the predicted pattern, as set out in the second research question.

3.1 Data Collection

Data were collected from university students and staff in five Pakistani cities, Lahore, Karachi, Islamabad, Peshawar, and Multan, through university departments, student societies, and academic contacts. Two hundred and forty participants took

part, which is a common and workable sample size for a within-subjects judgment survey of this kind, giving enough statistical power for the paired comparisons and regression analysis planned for the study while remaining realistic to recruit through university networks. Participants had a mixed first language background, including Urdu, Punjabi, Pashto, and Sindhi speakers, and about two in five reported having completed some formal coursework in semantics or pragmatics as part of a linguistics or English studies programme, which allowed a direct test of whether such training changes judgment patterns. The survey was administered online and took about twenty minutes to complete. It began with background questions on age, gender, city, education level, first language, and self-rated English proficiency, followed by twenty-four rating items, one for each combination of sentence environment and presupposition trigger, presented in a random order. For each item, participants read a short passage and rated, on a scale from zero to five, how strongly they still believed the presupposed content was true. Participation was voluntary, and participants were told their answers would be used only for research purposes and reported without personal identifying information.

4.Theoretical Framework

This study is built around Irene Heim's dynamic semantics account of the projection problem for presuppositions. Heim (1983) proposed that the meaning of a sentence should not be treated as a fixed statement that is simply true or false but instead as an instruction for updating a body of shared information, often called the context, step by step as the sentence is processed from left to right. On this view, a presupposition works like a precondition, a requirement that the relevant piece of background information must already be present in the context before the rest of the sentence can be properly added to it. This single idea explains a wide range of projection patterns at once. Under negation, a question, or a possibility modal, the presupposition still needs to be satisfied by the context before the sentence can be evaluated, which is why the presupposed content usually still comes across as true even though the sentence itself denies, questions, or merely raises the possibility of the main content. In a conditional sentence, however, the earlier clause is processed first and becomes part of the context against which the later clause is checked, so if the earlier clause already states the presupposed content, the requirement is already satisfied by the time the later clause is reached, and the presupposition does not need to project any further.

Heim's framework also allows for a process called local accommodation, in which a listener quietly adjusts the shared context to include the presupposed content at the exact point where it is needed, rather than requiring that content to already be part of the wider common ground from the very start of the conversation. This idea is important for the present study because it explains why the filtering pattern in a conditional sentence is not simply a special exception bolted onto the theory but a natural result of the same step-by-step update process that explains projection everywhere else. The theory treats the entire family of sentence types used in this survey—assertions, negation, questions, modals, and both kinds of conditionals—as different tests of the same single update mechanism, rather than as separate rules that must be learned one at a time. This framework was chosen for the present study because it gives precise, testable predictions for each of the six sentence environments used in the survey and because it remains one of the most influential and widely taught accounts of the projection problem in the entire field of formal semantics. Using a single, well-established theorist as the anchor for the analysis, rather than combining several competing frameworks, keeps the interpretation of the results focused on one clear, well-defined theoretical prediction.

4.1 Data Analysis

Data from the two hundred and forty participants were entered into a spreadsheet and analysed using descriptive statistics, paired comparisons, correlation, and multiple regression. Eight tables and figures are presented below, each with a short explanation of what it shows and what it means for the research questions.

Table 1: Demographic Characteristics of Participants (N = 240)

Characteristic	Category	n	%
Gender	Female	126	52.5
	Male	114	47.5
City	Lahore	72	30.0
	Karachi	53	22.1
	Islamabad	48	20.0
	Peshawar	43	17.9
	Multan	24	10.0

First language	Punjabi	75	31.2
	Urdu	70	29.2
	Pashto	51	21.2
	Sindhi	27	11.2
	Other	17	7.1
Education	Undergraduate	117	48.8
	Graduate (MA/MS)	92	38.3
	Postgraduate (MPhil/PhD)	31	12.9
Linguistics training	No formal training	140	58.3
	Formal training completed	100	41.7

Note. The mean age was 24.6 years (SD = 3.6), with a range of 19 to 35 years.

Table 1 shows the demographic makeup of the sample. The group was fairly balanced by gender, with a slightly higher number of female participants. Participants came from five cities, with the largest group from Lahore. First language background was spread across Urdu, Punjabi, Pashto, and Sindhi speakers, along with a small group reporting another first language. Most participants were undergraduate or graduate students, and just over two in five reported having completed formal coursework in semantics or pragmatics. This spread supports the claim that the sample reasonably reflects the kind of educated, multilingual English-using population the study set out to reach.

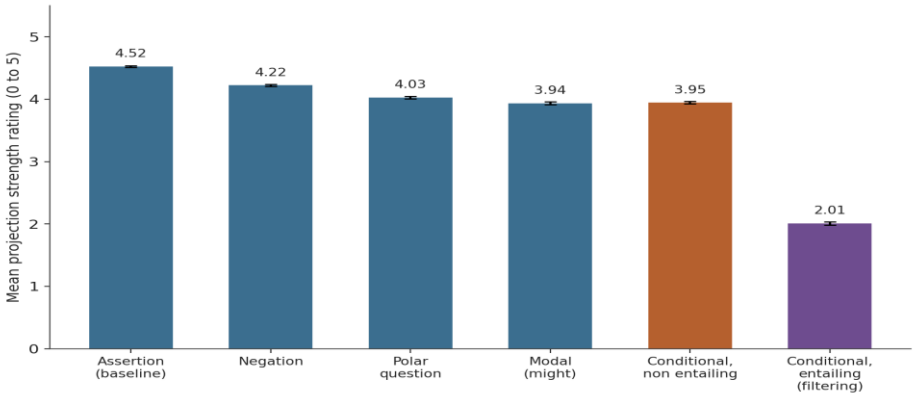
Table 2: **Descriptive Statistics for Self-Rated English Proficiency and Age**

Variable	M	SD	Min	Max
Self-rated English proficiency (0 to 10)	7.77	1.23	4.0	10.0
Age (years)	24.61	3.57	19	35

Note. N = 240.

Table 2 presents descriptive statistics for self-rated English proficiency and age across the full sample. Average self-rated English proficiency was fairly high, consistent with a sample drawn from university settings where English is regularly used for study, and the age range covered typical university students and early career years.

Figure 1: **Mean Projection Strength Rating by Sentence Environment**

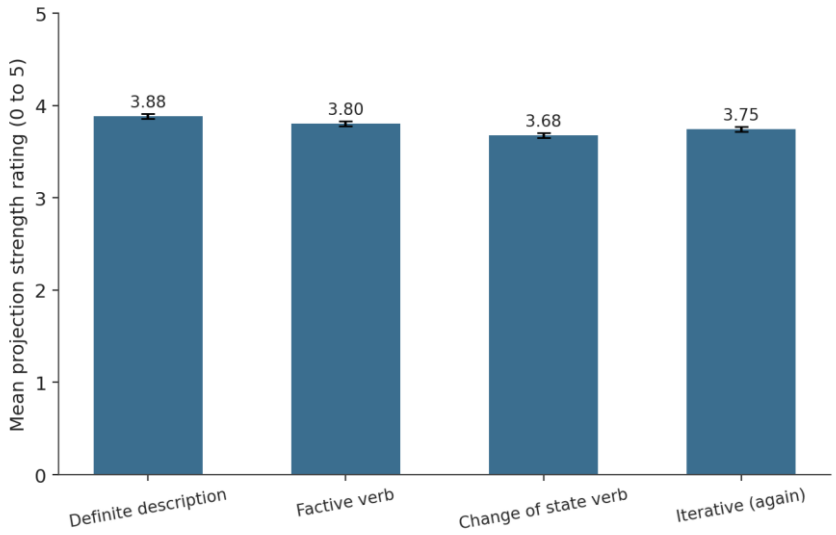


Note. Ratings could range from 0 to 5. Error bars represent the standard error of the mean. The sharp drop for the entailing, filtering conditional matches the pattern predicted by dynamic semantics.

Figure 1 shows the mean projection strength rating, on a scale from zero to five, for each of the six sentence environments, collapsed across all four presupposition triggers. Ratings were highest for the plain assertion, which served as a baseline, and

stayed fairly high for negation, the polar question, the possibility modal, and the conditional sentence where the earlier clause did not already state the presupposed content. Ratings dropped sharply, however, for the conditional sentence where the earlier clause already stated the presupposed content. This pattern answers the first part of Research Question 1 directly, showing a clear split between environments where dynamic semantics predicts continued projection and the one environment where it predicts the presupposition should already be satisfied and therefore need not project further.

Figure 2 Mean Projection Strength Rating by Presupposition Trigger Type



Note. Ratings could range from 0 to 5, collapsed across all six sentence environments. Error bars represent the standard error of the mean.

Figure 2 shows the mean projection strength rating for each of the four presupposition triggers, collapsed across all six sentence environments. Ratings were fairly similar across the four trigger types, with definite descriptions rated slightly higher on average and change of state verbs rated slightly lower, but none of these differences were as large as the gap seen between sentence environments in Figure 1. This suggests that the environment a presupposition appears in matters more for projection strength than the specific type of trigger used, which fits with a dynamic semantics account that explains projection mainly through the structure of the sentence rather than through properties of individual trigger words.

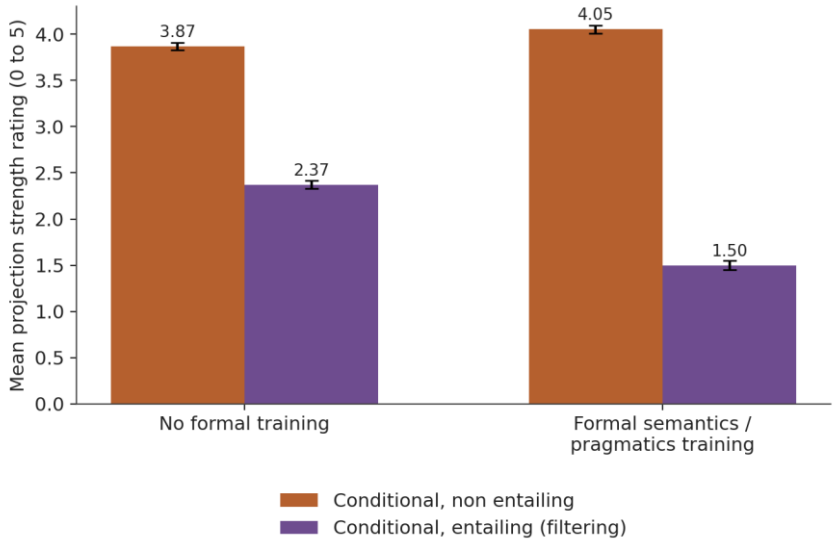
Table 3: Paired Comparison of the Two Conditional Sentence Types

Condition	M	SD
Conditional, non-entailing	3.95	0.48
Conditional, entailing (filtering)	2.01	0.66

Note. N = 240. Paired samples t test: $t(239) = 45.26$, $p < .001$, $dz = 2.92$.

Table 3 presents a direct paired comparison between the two conditional sentence types: the one where the presupposition was already stated in the earlier clause and the one where it was not. Ratings were far lower in the condition where the presupposition was already stated, and a paired comparison test confirmed that this difference was large and highly significant. This result gives the clearest and most direct answer to Research Question 1, since it compares two sentence types that are structurally very similar, differing only in whether the presupposed content had already been supplied earlier in the sentence.

Figure 3: Filtering Sensitivity by Formal Training in Semantics or Pragmatics



Note. Ratings could range from 0 to 5. Error bars represent the standard error of the mean. No formal training, n = 140. Formal training, n = 100.

Figure 3 compares the two conditional sentence types again, this time separately for participants with and without formal training in semantics or pragmatics. Both groups showed the same basic pattern, rating the sentence with the already stated presupposition much lower than the other conditional sentence, but the gap between the two ratings was noticeably larger for participants who had completed formal training. This answers Research Question 2, showing that formal training sharpens rather than creates the predicted pattern, since even untrained participants showed some sensitivity to the difference between the two conditional types.

Table 4: Correlation Matrix Among Key Study Variables

Variable	1	2	3	4
1. English proficiency	1.00			
2. Linguistics training (0/1)	-0.10	1.00		
3. Filtering sensitivity index	-0.07	0.79	1.00	
4. Age	0.02	0.01	0.03	1.00

Note. N = 240. Filtering sensitivity index is the non-entailing conditional rating minus the entailing conditional rating.

Table 4 presents a correlation matrix among four variables: self-rated English proficiency, formal training in semantics or pragmatics, a filtering sensitivity index calculated by subtracting each participant's rating on the already stated conditional from their rating on the other conditional, and age. Formal training showed the clearest relationship with the filtering sensitivity index, while English proficiency and age showed little relationship with any of the other variables. This further supports the idea that specific linguistic training, rather than general language ability or age, is what sharpens sensitivity to this particular projection pattern.

Table 5: Multiple Regression Predicting the Filtering Sensitivity Index

Predictor	B	SE	t	p
Constant	1.349	0.251	5.37	< .001
Formal training (0/1)	1.055	0.054	19.42	< .001
English proficiency	0.006	0.022	0.26	.792

Age	0.004	0.007	0.56	.576

Note. R2 = .617, Adjusted R2 = .612, F(3, 236) = 126.82, p < .001.

Table 5 presents a multiple regression predicting the filtering sensitivity index from formal training, English proficiency, and age. The model was significant overall and explained a large share of the variance in filtering sensitivity. Formal training was a strong and significant predictor, while English proficiency and age were not significant predictors once formal training was included in the model. This regression confirms, using a combined model, what the correlation table and Figure 3 already suggested, that formal exposure to semantics or pragmatics, rather than general English skill, explains most of the difference in how clearly participants distinguished the two conditional sentence types.

5. Discussion

The results of this study speak directly to both research questions and to the wider theoretical debate about presupposition projection and the semantics-pragmatics boundary. On Research Question 1, Pakistani multilingual participants rated presupposed content as strongly true under negation, questions, and possibility modals, matching the classic prediction that these environments allow presuppositions to project. At the same time, ratings dropped sharply for the conditional sentence where the presupposed content had already been stated in the earlier clause, showing that participants treated this content as already settled rather than needing to project again. This pattern lines up closely with Heim's (1983) satisfaction theory, which predicts exactly this kind of contrast, and it also fits Simons's (2022) more recent discussion of why this original account has remained so influential, since it captures a wide range of projection patterns using a single, simple mechanism.

The pattern shown in Figure 2, where projection strength differed only slightly across the four presupposition triggers, is also worth noting. This fits with the idea that projection is mainly controlled by sentence structure rather than by the individual trigger word, which supports a dynamic, structure-based account over an account that would predict large differences between trigger types. This result connects to Kalomoiros and Schwarz's (2024) finding that the specific connective joining two clauses, rather than the trigger word inside those clauses, drove much of the difference in projection behaviour they observed, reinforcing the idea that structural position matters more than lexical trigger type for how strongly a presupposition projects.

On Research Question 2, formal training in semantics or pragmatics clearly strengthened the gap between the two conditional sentence types, and this training remained a significant predictor of filtering sensitivity even after English proficiency and age were included in the same regression model. This result is important for understanding the semantics-pragmatics boundary, since it suggests that untrained speakers already show some sensitivity to the structural difference between the two conditional types, consistent with this sensitivity being part of ordinary linguistic competence rather than something that must be taught from scratch, while formal training appears to sharpen and make this sensitivity more consistent and explicit. This fits reasonably well with Feng and Zhang's (2025) finding that advanced second language learners can reach native-like presupposition judgments under reflective conditions, since it suggests that the underlying sensitivity is available to be strengthened through experience and explicit study, even for speakers who did not grow up speaking English.

At the same time, the findings should be read alongside the pragmatic challenges raised by other researchers. Roberts and Simons (2024) argued that many presupposition-like inferences arise from general reasoning about the preconditions of events, rather than from a dedicated semantic mechanism, which raises the question of whether the pattern observed in this study reflects a specifically semantic, dynamic process or a more general form of pragmatic reasoning about what must already be true for a conditional sentence to make sense. Winter (2025) similarly argued that some presupposition-like content is better treated as a pragmatic admittance condition rather than a strict semantic projection. The present study cannot fully separate these possibilities, since the survey method used here measures the result, a rating of how strongly a presupposition still seems true, rather than the specific mental process that produced that rating. What the study does show clearly is that Pakistani multilingual speakers, like the English-speaking participants tested in earlier Western studies, treat the already stated conditional very differently from the other sentence environments which is the core empirical pattern that any account of the projection problem, semantic or pragmatic, needs to explain.

These findings also carry weight for the Pakistani setting specifically. H. Ashraf (2023) and M. A. Ashraf et al. (2021) both described a context in which English carries high academic status despite being a second or third language for most speakers, and the present results suggest that, within this kind of setting, Pakistani university students and staff are capable of forming clear, theory-consistent judgments about a subtle aspect of English meaning, provided they have enough general exposure to the language. The added effect of formal training suggests that explicit teaching of semantics and pragmatics concepts, including the idea that some information can already be settled earlier in a sentence, could usefully be included in university-level English and linguistics courses in Pakistan, both to build stronger academic skills in this area and to give students a clearer, more explicit grasp of a pattern many of them can apparently already sense to some degree.

The regression result deserves a closer look, since it helps clarify what is actually driving the filtering sensitivity pattern. Once formal training was included in the model, neither self-rated English proficiency nor age added meaningful predictive power, which suggests that general language skill on its own is not enough to produce a sharp distinction between the two conditional types. This is a useful finding because it rules out a simple explanation that participants with stronger English overall would automatically show a clearer filtering pattern and instead points toward something more specific: that direct exposure to ideas from semantics and pragmatics, such as the concept that some information can already be settled earlier in a sentence, is what sharpens this particular judgment. This lines up with Heim's (1983) account, in which the filtering pattern follows from understanding how the context updates step by step, a piece of knowledge that formal coursework would be expected to make more explicit and accessible.

Some limitations should be kept in mind. The study relied on a survey-based rating task rather than a timed, online processing measure, so it captures reflective judgments rather than the fast, automatic processing that Feng and Zhang (2025) showed can behave differently from offline judgments even among advanced language users. The six sentence environments and four trigger types used here, while covering the typical family of sentences test, do not exhaust every environment or trigger type discussed in the wider literature, and future work could extend the design to cover additional connectives, such as the "and" versus "or" contrast studied by Kalomoiros and Schwarz (2024), or additional trigger types not included here. Finally, because participants were recruited mainly through university networks, the sample likely represents a more highly educated and English-proficient slice of the Pakistani population than the country as a whole, so the findings should be understood as a first, promising test of dynamic semantics predictions in this setting rather than a fully representative picture of all Pakistani English users.

6.Conclusion

This study set out to test whether Pakistani multilingual English users show judgment patterns consistent with a dynamic semantics account of presupposition projection, using a survey-based, within-subjects design with two hundred and forty participants from five Pakistani cities. Participants rated presupposed content as strongly true under negation, questions, and possibility modals, matching the classic projection pattern, while ratings dropped sharply when the presupposed content had already been stated earlier in a conditional sentence, matching the classic filtering pattern predicted by dynamic semantics. Formal training in semantics or pragmatics strengthened this pattern, while general English proficiency and age did not meaningfully predict it once training was taken into account.

These findings offer support for Heim's dynamic semantics account of the projection problem, extended here to a population and setting that formal semantics research has rarely reached before. They also show that the boundary between semantics and pragmatics can be probed usefully through a fairly simple, survey-based method, without requiring a specialised laboratory, which opens the door to further studies of this kind in other under-researched multilingual settings. For researchers, this study offers a working, structured judgment survey and a fresh dataset from a Pakistani sample that can be extended in future work, including studies that add timed processing measures or a wider range of sentence environments and trigger types. For educators, the results suggest that explicit teaching of presupposition and related semantics and pragmatics concepts may sharpen skills that many Pakistani English users already show some sensitivity to, which could be a useful addition to university-level English and linguistics courses. Taken together, the study offers both a theoretical contribution to the ongoing debate on presupposition projection and the semantics-pragmatics boundary and a practical contribution to English language education in Pakistan.

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