

A Variationist Approach to Complementizer Agreement in Jordanian Arabic

Noor Al-Omyan * 

English Language Department, The University of Jordan, Amman, Jordan.

Received: 4/1/2022
Revised: 27/3/2023
Accepted: 20/4/2023
Published: 30/3/2024

* Corresponding author:
noor.fahed22@gmail.com

Citation: Al-Omyan, N. (2024). A Variationist Approach to Complementizer Agreement in Jordanian Arabic. *Dirasat: Human and Social Sciences*, 51(2), 281–295.
<https://doi.org/10.35516/hum.v51i2.3614>

Abstract

Objectives: This study aims to assess the impact of linguistic and social factors on the compatibility of source tools in the Jordanian dialect.

Methods: Thirty-six sociolinguistic interviews were conducted with 36 speakers residing in Jordan's capital, Amman. These interviews were recorded using a high-sensitivity, low-disturbance digital voice recorder and were transcribed into pre-prepared Excel tables. Statistical work was conducted, considering the coding protocol and using the GoldVarb X software. The study centered on three social factors: gender, educational level, and age, and three linguistic factors: sentence type, actor definition, and actor identification.

Results: The study found that complementizer agreement is not limited by any social factors but is connected to one of the linguistic factors discussed in the study, namely, nominal characteristics (1st person, 2nd person, and 3rd person). This is due to the presence of a "common context" in cases involving the 1st person and 2nd person, while this context is not evident with the 3rd person.

Conclusion: The study concluded that social factors do not influence grammatical diversity, unlike phonological diversity, which can be affected by social factors.

Keywords: Linguistics, sociolinguistics, agreement, person features, complementizer agreement, jordanian arabic, variationist approach.

المنهج التنوعي للتوافق المصدر في اللهجة الأردنية

نور العميان *

قسم اللغة الإنجليزية، الجامعة الأردنية، عمان، الأردن

ملخص

الأهداف: يهدف هذا البحث إلى دراسة تأثير العوامل اللغوية والاجتماعية في توافق الأداة المصدرية في اللهجة الأردنية. **المنهجية:** قد جرى إجراء ست وثلاثين مقابلة لغوية مع ستة وثلاثين متحدثاً يعيشون في العاصمة الأردنية عمان. وقد جرى تسجيل هذه المقابلات باستخدام مسجل صوت رقمي عالي الحساسية ومنخفض التشويش وقد جرى تفرغها في جداول على برنامج Excel مُعدّة مسبقاً لهذا الغرض. وبمراعاة نظام الترميز (coding protocol) وباستخدام برنامج GoldVarb X جرى القيام بالعمل الإحصائي. وقد ركزت الدراسة على ثلاثة عوامل اجتماعية وهي الجنس والمستوى التعليمي والعمر بالإضافة إلى ثلاثة عوامل لغوية أخرى وهي نوع الجملة وتعريف الفاعل وتحديد الفاعل.

النتائج: قد كشفت الدراسة أنّ التوافق المصدر ليس مقيداً بأي عوامل اجتماعية وإنما مرتبط بواحد من العوامل اللغوية المشمولة بالدراسة وهو خصائص الاسم (متكلم ومخاطب وغائب). ويُعزى ذلك إلى وجود "السياق المشترك" في حالتي المتكلم والمخاطب بينما لا يظهر ذلك في حالة الغائب.

الخلاصة: خلّصت الدراسة أنّ العوامل الاجتماعية لا تلعب دوراً في التأثير في التنوع النحوي (التنوع المصدرية) وذلك على عكس التنوع الصوتي الذي قد يتأثر في العوامل الاجتماعية.

الكلمات الدالة: اللغويات، علم اللغة الاجتماعي، التوافق، الأداة المصدرية، اللهجة الأردنية، المنهج التنوعي.



© 2024 DSR Publishers/ The University of Jordan.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC) license
<https://creativecommons.org/licenses/by-nc/4.0/>

1. Introduction

The study of language variation is an inseparable part of sociolinguistic studies; it is central to reflecting on the impact of several predefined socio-linguistic factors on a particular linguistic phenomenon. Variationist sociolinguistics is viewed as a trend in sociolinguistic studies which has changed the way sociolinguists view language change as well as the true impact of sociolinguistic factors on language use. Labov (1972), who is regarded as the founder of the discipline of variationist sociolinguistics, argues that the essence of studying this branch of sociolinguistics is crystallized when there are “two or more ways of saying the same thing” (p.271). As a comment on this, Al-Wer (2009: 1) explains: “Variation is an inherent characteristic of every human language. This means that in every language there is more than one way of saying the same thing, and no individual speaks in the same manner all the time and in all situations”. Furthermore, Wolfram (2006: 333) elaborates on this point, proposing that “if structure is at the heart of language, then variation defines its soul”.

Generally, variationists seek to quantitatively describe the linguistic system as central to providing an accurate explanation of the understudy variations of a given language and therefore the language change procedure. Variation in language is found in everyday vernaculars and it involves the study of how language varies among different groups of speakers and the relationship of this variation with social factors. Tagliamonte (2001: 5) proposes that:

variationist sociolinguistics is most aptly described as the branch of linguistics which studies the foremost characteristics of language in balance with each other – linguistic structure and social structure; grammatical meaning and social meaning – those properties of language which require reference to both external (social) and internal (systemic) factors in their explanation.

This explains that both linguistic and nonlinguistic (social) factors contribute to the propositional meaning of an utterance. Therefore, a speaker cannot ask the question “how can I say X?” because there is always more than one way to say the same thing.

Variations are not only limited to sounds but rather they can be found in word choice and grammatical structures within the same speech community. Several types of variations can be found in Arabic, for instance, phonological and syntactic variation. An example of phonological variation can be seen in Arabic varieties which have seven possible pronunciations for the word /qaal/ ‘he said’, namely [qa:l], [ga:l], [ʔa:l], [ka:l], [k-a:l], [gɒ:l], and [ʔɒ:l] (Al-Wer 2009). All of these different variants of the word /qaal/ ‘he said’ do not express different propositional meanings; rather, they are different with respect to their social meanings (Al-Wer, 2009). Another example of phonological variation is found in the urban Levantine dialects where the feminine ending is treated as a variable with two variants:

[e] is the default variant that occurs everywhere, except after velarized and pharyngeal consonants for which the variant [a] is used. In the same region, some rural dialects have the low open variant [a] as the default variant, except after coronal sounds, in which case the ending is raised to [ɛ]. Al-Wer (2002:11).

In her study, Al-Wer explained this by providing the following examples: ¹

/ħilwe/ ‘pretty’, /nadwe/ ‘seminar’, /saʕbe/ ‘difficult’, /maħkame/ ‘court’, /mixtilfe/ ‘different. But, /mantiqa/ ‘area/region’, /ruxša/ ‘a licence’, /ʕultʕa/ ‘authority’, /dʒa:mʕa/ ‘university’, /mari:dʕa/ ‘ill’. Thus, the word for ‘pretty’ is /ħilwa/ in Sult, but /ħilwe/ in Nablus, and in both dialects /a/ is raised in /ʕirse/ ‘vicious’, but no raising in either dialect in /dʒa:mʕa/ ‘university’ Al-Wer (2002:11)

Variability due to the selection of different grammars is said to be syntactic variability (Adger and Smith 2005, Roeper 2006). Under the syntactic variation approach, the view is “that there is more than one system of grammatical knowledge in the head of the native speaker, and variation boils down to the decisions that the speaker makes about which grammatical output to choose” (Adger and Smith 2005:164). In Arabic, for example, consider *ðahabt ʔlbanat-ɔ* vs. *ʔlbanat-ɔ ðahabn* ‘the girls went’. In these two sentences we have the same propositional meaning expressed in two different ways: in the

¹ Transcription as original source.

first sentence the verb appears in the singular feminine case when it precedes its subject i.e., VSO word order as in *ḍahabt ḥlbanat-ḥ* “the girls went” where *ḍahabt* “went” bears a singular feminine inflection, while in the second it bears a plural feminine inflection when it follows its subject i.e., SVO word order as in *ḥlbanat-ḥ ḍahabn* “the girls went”. This is an example of word order syntactic variation in Arabic (see Al-Shawashreh, 2016).

The occurrence of these variations is not arbitrary, but rather is governed by a set of linguistic (word order, definiteness, specificity) and/or social (age, gender, education) factors.

1.1 Complementizer Agreement in JA

Agreement is increasingly recognized as of interest not just for syntax, semantics and morphology, but also for acquisition, psycholinguistics and computational applications. It has been a central concept in the syntactic theory of human language. Before dealing with complementizer agreement in Jordanian Arabic, I explain what agreement is and provide examples from both English and Arabic.

Steele (1978: 610) argues that “the term agreement commonly refers to some systematic covariance between a semantic or formal property of one element and a formal property of another.” In English, for example, we have “this” and “these” which have the same meaning (demonstratives) but are different in terms of agreement with the following noun. A good example of this is: This man vs. these men. The relation that appears between the demonstrative “this” and following noun “man” is agreement. The demonstrative here agrees with the noun in terms of number i.e., both are either singular or plural. Another possible example is “he goes” vs. “they go” – agreement here is found in number as the pronoun “he” is a third-person singular pronoun and similarly the verb is inflected to the same number whereas both the pronoun “they” and the verb that follows are in plural form.

Agreement in number and gender is also found in Arabic. For instance, noun adjective agreement can be seen in *ḥarradḥul lkarjm* vs *ḥarrjdḥal lkwramjaḥ* “the generous man” vs. “the generous men” the noun *ḥarradḥul* “the man” agrees with the following adjective *lkarjm* “the generous” in number (singular), in gender (masculine) and in definiteness (both are definite). This relation of agreement is not arbitrary, but rather is governed by linguistic (and possibly social) factors.

The main focus of the current study is only the complementizer agreement; therefore, it does not deal with the different types of agreement, but rather it sticks to complementizer agreement (hence after CA) in Jordanian Arabic.

In Arabic, *ḥinn* “that” is a complementizer which is similar to the English complementizer “that” in the sense that they both link two clauses to one another. However, they differ in the sense that *ḥinn* “that” in Arabic is inflected and it agrees with the subject in the embedded clause, unlike the English complementizer “that” which is uninflected. The complementizer *ḥinn* “that” normally appears after nouns, verbs, and adjectives. Consider the following examples in (1), (2), and (3) below:

- | | | | | | |
|----|---|-------------|---------------|---------------|----------------|
| 1. | <i>hmmah</i> | <i>hakḥ</i> | <i>ḥinnuh</i> | <i>ḥirbha</i> | |
| | They | said | that-3sg.m | drank it | |
| | “They said that he drank it” | | | | |
| | | | | | |
| 2. | <i>hjjā</i> | <i>zḥlt</i> | <i>ḥinnhm</i> | <i>ma</i> | <i>hakḥlha</i> |
| | she | angry | that-3pl | not | tell her |
| | “She was angry because they didn’t tell her.” | | | | |

Notice that *ḥinn* in the examples above bears an inflectional suffix that connects the matrix clause with the embedded clause, and it agrees with the subject of the embedded clause. In example (2) for instance, *ḥinn* “that” connects the main clause *hmmah hakḥ* “they said” with the embedded clause *ḥirbha* “he drank it” and it is inflected to the understood covert subject.

Consequently, the current study is an attempt to examine whether this pattern of CA found in Jordanian Arabic is socially and/or linguistically constrained. This is because in Jordanian Arabic it can be the case that *ḥinn* does not agree at all with the subject of the embedded clause and it would appear in its default form as *ḥinnuh* “that” as in example (3a&b) below:

3. a. <i>hja</i>	<i>ʔakkadt ʔinnuh</i>	<i>ʔlmasʕarj</i>	<i>ʔʕsrqat</i>
She	asserted that-3sg.m	money	stolen
“She asserted that the money was stolen.”			
b. <i>hja</i>	<i>ʔakkadt ʔinnha</i>	<i>ʔlmasʕarj</i>	<i>ʔinsarqt</i>
she	asserted that-3sg.f	money	stolen
“She asserted that the money was stolen.”			

In example (3a) *ʔinn* “that” fails to agree with the plural subject of the embedded clause *ʔlmasʕarj* “money”; instead, *ʔinn* appears in its default form which is the masculine singular form *ʔinnuh*. On the contrary, in (3b) *ʔinn* does agree with the embedded subject *ʔlmasʕarj* “the money” in the embedded clause *ʔlmasʕarj ʔinsarqt* “the money was stolen”. In view of the fact that both sentences carry the same meaning, it can be concluded that the different variations of *ʔinn* do not affect the meaning. This is a clear example of the variationist approach whereby we have more than one way of saying the same thing, and this is the standpoint of the current study. These variations do not add to the propositional meaning of the sentence; however they may be different with respect to their social meaning, implying that such variations of the inflection of the complementizer *ʔinn* are never random, but rather a result of certain social (e.g., age, gender, education, etc.) and/or linguistic (e.g., word order, specificity, definiteness, types of subject, etc.) factors which are discussed in the following section.

1.2 Questions of the study

This study aims to investigate complementizer agreement in JA. It attempts to examine the role of certain linguistic (i.e., specificity, definiteness, word order etc.) and social (i.e. age, gender, and education) factors that may constrain the complementizer agreement (CA) in Jordanian Arabic (JA). Thus, the study aims to answer the following questions:

- Q1) To what extent is the complementizer agreement (CA) in Jordanian Arabic socially constrained?
- Q2) To what extent is the complementizer agreement (CA) in Jordanian Arabic linguistically constrained?

2. Setting the scene

Al-Shawashreh (2016) conducted a variationist study that tackles syntactic variation in Jordanian Arabic (JA). The study focuses on investigating whether two syntactic variables, namely word order variability and pro(noun)-drop variability, are constrained by an array of sociolinguistic factors, assuming that the first variable is significant in the research for two reasons. Firstly, because it mentions that the data of previous studies was based on decontextualized sentences taken from Standard Arabic (written form) to present that a certain word order is the basic order in Arabic varieties. Thus, previous studies on this topic are not based on systematic community-based approach by quantitatively analyzing spontaneous speech data. Secondly, previous literature on word order in Arabic shows that vernacular Arabic has changed from VSO to SVO but very few cases presented empirical demonstrations that this is the case. Hence, this study focuses on actual everyday speech in order to offer a valid analysis of the dominant word order in JA, the social and linguistic factors that influence it, as well as the direction of change in such word order. Explaining the choice of the second variable, it is claimed that the investigation of subject pronoun in Arabic provides a chance to compare it with the well-established research on similar variables in other languages.

Age and education were found to be the main social constraints on word order variant choice. Younger educated speakers tend to use the SV order unlike older speakers who disfavor SV, therefore suggesting that word order in JA is moving towards SV(O) structure. As for the education variant, the study reveals that the higher the level of education, the lower the usage of VS; in percent, (41.2%) of uneducated speakers favor VS compared to (31.5%) for intermediate education and (18.9%) for highly educated speakers. On the other hand, concerning pro-drop variation, the study observes that education is the only variant choice in JA, whereas age, gender and urban/rural origin are insignificant. Concerning linguistic factors, it is found that switch reference is the most significant factor in the selection of the overt subject.

Furthermore, overt subject pronouns are favored when they are not co-referential with the subject of the preceding clause, while null subject pronouns are favored when they are co-referential with the subject of the preceding clause.

Similarly, Habib's study (2021) states that exploring the pragmatic functions of Discourse Markers (DMs) qualitatively is important for understanding how DMs are used by individuals in a certain situational context (e.g., Cameron and Schwenter, 2013; Holmes, 2018), and how their varied functions can facilitate interaction among individuals. Moreover, studying the effect of social and linguistic factors on the variable use and frequency of DMs is essential to be able to reflect on the patterns of native speakers' use of these DMs. Subsequently, knowledge of the social and linguistic contexts that influence the use of one DM or the other is acquired and there are significant improvements in both learning and teaching these linguistic nuances as a second language. Habib highlights that the DM *yaʕni* has been explored in a few Arabic studies that mainly focus on its syntactic, pragmatic, and/or semantic functions (Al-Batal, 1994; Mughazy, 2003; Owens and Rockwood, 2008; Rieschild, 2011) whereas *ʔinnuh* has been examined within literature from a mainly syntactic perspective, often described as a complementizer (e.g., Cowell, 1964: 449-451, 541-547; Habib, 2009). Only Germanos's (2010) pilot study refers to *ʔinnuh* as a complementizer heading in the direction of becoming a DM. However, even Germanos's (2010) study does not point to the interchangeability of *ʔinnuh* as a DM with *yaʕni*.

The study concludes that, firstly, the apparent time data shows a statistically significant gender difference between men and women; women use *ʔinnu:* much more than men, which is in accordance with other pragmatic studies that have suggested that males and females differ in their communicative behavior (Coates, 1989) and that females use more hedges (Coates, 1988; Mirzapour, 2016), qualifiers, tag questions (Lakoff, 1975; Leaper and Robnett, 2011) and DMs or fillers than males (e.g. Laserna et al., 2014). On the other hand, this gender effect among adults is missing among children as the gender difference between boys and girls is statistically nonsignificant. Furthermore, age emerged as statistically significant among children, with the youngest age group 6-8 showing the lowest use of *ʔinnuh* and the preadolescent age group 9-11 showing the highest use of *ʔinnuh* indicating higher sensitivity and involvement in adopting the incoming innovative form.

Germanos (2010) is the first study to deal with *ʔinnu:* as a DM in addition to being a complementizer. The discourse functions of *ʔinnu:* were analyzed, suggesting that "it signals an elaboration - an illustration or a further explanation, for example - of what has preceded it in the discourse" (Germanos, 2010: 145). Additionally, she emphasized "that in all circumstances, *ʔinnuh* is to be considered as a word introducing what is felt by the speaker as a necessary completion to the meaning of a previous word, uncompleted fragment, or entire proposition." Germanos (2010: 145) claims that "ʔenno" as a DM consists of one morpheme and that -o should not be considered as a separate morpheme (cf. Cowell, 1964: 543). Concerning the data of the study, Germanos' (2010) data is limited to 217 tokens of *ʔinnuh* taken from seven Lebanese interviewees. In these 217 tokens, Germanos concluded that *ʔinnuh* tends to behave more like DMs than complementizers (71.89% vs. 24.42% respectively) and only 3.69% as part of a compound conjunction.

Germanos (2010: 161) concludes that *ʔinnuh* in Lebanese Arabic, functions at two levels: the syntactic level (operating as a complementizer), and the pragmatic level (operating as a discourse marker)." She emphasizes that although *ʔinnu:* as a DM "may have various functions, there remains an invariant meaning in all of its uses, since it always introduces what is felt as necessary for the completion of the meaning of the discourse, and for the conversation to go on without risk of misunderstanding or incomplete understanding" (Germanos, 2010: 161).

Complementizer variation in many languages is of interest for variationists. Featherston's (2004) study examines the effect of that-trace in German. In his study, Featherstone reports an investigation into that-trace effect in German which has played a significant role in syntactic theory building in the generative tradition. In spite of this, the effect is thought to be absent from German. He used the methodology of magnitude estimation of well-formedness, which permits the elicitation of judgment data with increased definition and tests the German equivalents to the English structures in which the that-trace effect is uncontroversially present (e.g. Cowart, 1997).

The results showed the effect to be robustly active in the grammar of German too, independent of the matrix verb. He further tested for the same effect in topicalization structures, with positive results. The researcher argues that these outcomes support a model of grammaticality, incorporating gradience; since constraint application and output selection are separate

functions of linguistic processing, constraint violations are survivable.

Liang et al. (2022) investigates the phenomenon of complementizer omission in spoken corpus of Quebec French, with the help of modern computational methods for annotation and mixed effects logistic regression models. The study reveals that the French complementizer *que* omission is conditioned by social factors and grammatical factors. However, the results also show that *que* omission is conditioned by cognitive factors such as information density.

Four social factors namely, education, gender, age and occupation in addition to four other linguistic factors namely, right phonological context, left phonological context, complement clause (CC) subject and the complementizer subject in addition to two cognitive factors namely, CC bias and frequency of the main verb were included.

The result of their study shows that there is a significant effect of information density on *que* omission: the more likely a verb is to appear with a CC, the more it favors the omission ($p < 0.001$). The result also implies that speakers show a higher preference for *que*-drop if the CC onset is less informative so as to avoid redundancy and thus increase communication efficiency. As for social factors, it concludes that both profession and education have significant effects on *que* omission. In particular, the results show that technicians and forepeople reveal higher omissions rate compared to white-collar workers. In regard to education, it shows that highly educated speakers are more likely to use the complementizer compared to those having low or medium education level.

3. Methodology and Theoretical framework

The study follows Labov's (1972, et seq.) variationist approach. According to Labov (1982), every language shows variability that is constrained by internal and external factors. Variability in language is not arbitrary, but rather it is rule-governed by a set of several social and linguistic factors that constrain the variant choice (Wienreich, Labov & Herzog 1968). One important assumption of the variationist approach lies in the claim that a speaker's speech in a certain community does not completely reflect the speech of the whole community. Labov (1982: 17) claims: "This heterogeneity is an internal part of the linguistic economy of the community, necessary to satisfy the linguistic demands of every-day life". Moreover, since the use of vernacular is a core element of Labov's approach, the present study is based on the everyday community-based speech of native speakers of Jordanian Arabic (JA). Following this framework, the current study examines the effects of three social factors, namely education, age, and gender, on the CA.

There is sufficient evidence in sociolinguistic literature to show that men and women use language differently. Labov (2001) asserts that women tend to use prestigious variants more often than men. Trudgill (1972) suggests that using prestigious forms is a way to achieve higher status within communities.

Moreover, another sociolinguistic factor the current study aims to investigate is access to education and its correlation with complementizer agreement in JA. Al-Wer (2002) highlights the significance of this constraint, arguing that "level of education as a speaker variable is a proxy variable, which acts on behalf of, mainly, amount and nature of contact with speakers of the target features" (p.14). She also elaborates on this by highlighting that level of education is an indicator of the nature of the speakers' social contacts.

Furthermore, age has also been considered by many studies in the Arab world to be an influencing factor with regard to the differences in speech between different age groups. Al-Khatib (1988) indicates that older people appear to adhere to the linguistic features which they have used for a long time because of their emotional attachment to the traditional norms and because of their age as well.

Gender, education, and age as social factors are fundamental when detecting language variation. In order to identify and capture the significance of their influence on complementizer agreement, interviews were carried out with native speakers of JA in the city of Amman, and the tokens were classified and analyzed in light of the aforementioned social factors in addition to three linguistic factors, namely word order, specificity, and definiteness.

Greenberg (1966: 1-2) states that "every language has some basic patterns of ordering the subject and the object in the sentence relative to the verb." He adds that "each word order pattern, such as SVO, VSO and SOV ... correlates with certain specific grammatical features." This indicates that the order of words in a given sentence/clause is never random, but rather

follows certain features and there is always a dominant pattern. Among the dominant word-order patterns, Greenberg (1966) argues that SVO is the most frequent word order pattern, whereas VSO is “a definite minority” (Greenberg 1966: 79). Old and medieval grammarians, to refer to sentence type, use the terms *jumlaḥ fi’liyyah* (verbal sentence) as in *darast fat‘ima* “Fatima studied” where *darast* “studied” is the main verb of the sentence, and *jumlaḥ ismiyyah* (nominal sentence) as in *fat‘ima darast* “Fatima studied” which starts with the subject *fat‘ima*. In terms of their grammatical taxonomy, medieval grammarians depend on the constituent that occupies the initial position in the clause or sentence. Thus, a verbal sentence is a “sentence whose subject follows its verbal predicate, without regard to the position of any other constituent in the sentence” (Peled 2009: 30). Edwards (2010) investigates word order in Egyptian Arabic. He (2010: 96) argues that SVO is grammatically the most neutral word order “in that this order is found with all types of subjects, and all types of verbs.” He (2010: 96) further argues that SVO is “pragmatically and informationally the least marked order, in that it does not in itself assign a particular informational status to any constituent, and is the order typically used to initiate a discourse.”

To understand the interpretations of the indefiniteness of the subject, we should understand how the distribution of subject interacts with the lexical semantics of a particular language. It is observed that there are two types of indefinite subject interpretations: one is quantificational including generic and specific reading and the other is nonquantificational including nonspecific and nongeneric reading (Tsai, 2001). Consider the following English example in (4) below:

4. A man arrived yesterday. (ambiguous)
 a. A certain man arrived yesterday. (specific)
 b. One man (rather than two) arrived yesterday. (nonspecific)

This feature of specificity is attributed here to the indefinite article “a”. In other words, specificity is used to describe various semantic and pragmatic contrasts of indefinite noun phrases. In Jordanian Arabic, an indefinite noun is specific when it is modified by an adjective and this indefinite noun bears higher intonation (rising intonation). Consider the following example in (6) below (bold noun bears higher intonation):

5. hwwi xa:f ?innuh **walad** zyjr wiqrY
 he afraid that.3sg.m kid little fall down
 “he was afraid that a little kid fall down.”

In the previous example the subject *walad* “kid” of the embedded clause *walad zyjr wiqrY* “a little kid fell down” is the indefinite specified subject.

Definiteness is another linguistic factor that is also considered in the current study to investigate whether the definiteness of the subject of the embedded clause is significant to CA. Many attempts have been made to explore the role of definiteness in sentence production and comprehension within various schools of thoughts (cf. Kathryn Bock and Irwin 1980; Bock 1982; Gernsbacher and Hargreaves 1988; Clifton and Frazier 2004; Cornilescu and Nicolae 2012; and Despić 2015). For instance, Heim (1982) links definiteness with information givenness, whereas Löbner (1987) with semantic necessity (Jarrah & Zibin, 2016). Furthermore, definiteness as a linguistic factor is thought to be relevant in the current study as it has been linked by many studies with agreement, especially when it is assigned to nonnominal entities (Brustad 2000; Kremers 2003; Ryding 2005; and Almansour 2012; and Abdullah and DeJani 2014)

For many researchers, one prominent function of definiteness is anaphoricity (Hawkins 1978; Sidner 1979; and Reinhart 1983). The general outcome of anaphoricity-based studies is that the definite article introduces a new referent or refers back to a referent which is already anchored in the previous discourse (or in the speaker’s mind). As such, definite determiner phrases (DPs) stimulate the listener’s previous knowledge and/or discourse, hence functioning as anaphors, e.g., the woman in example (7) below:

6. a. The woman left.
b. A woman left.

In (6a) the subject is rendered definite by use of the definite article “the” which means that it encodes previous information known to the listener, unlike (6b) which is indefinite. Studies that have addressed definiteness in Arabic claim that definiteness must be semantically interpreted (e.g., Belyayeva 1997). Consider the following examples in (7) from JA which reflect on the notion of specificity and definiteness:

7. a. *ʔħmad* *ʕɪɾɪf* *ʔɪnnuh* *dʒarruh* *ʔɪʃtaka*
Ahmed knew that.3sg.m his neighbor complained

“Ahmed knew that his neighbor complained.”

- b. *ʔħmad* *ʕɪɾɪf* *ʔɪnnuh* *dʒarr* *ʔɪʃtaka*
Ahmed knew that.3sg.m a neighbor complained

“Ahmed knew that a neighbor complained.”

- c. *ʔħmad* *ʕɪɾɪf* *ʔɪnnuh* *ʔɪdʒdʒarr* *ʔdʒdʒdjd* *ʔɪʃtaka*
Ahmed knew that.3sg.m the neighbor the-new complained

“Ahmad knew that the new neighbor complained.”

Considering the previous examples, we can see that in (7a) the subject *dʒarruh* “his neighbor” of the embedded clause *dʒarruh ʔɪʃtaka* “his neighbor complained” is definite and nonspecific, whereas in (7b) the subject *dʒarr* “a neighbor” of the embedded clause *dʒarr ʔɪʃtaka* “a neighbor complained” is neither definite nor specific. In (7c) the subject *ʔɪdʒdʒarr* *ʔdʒdʒdjd* “the new neighbor” of the embedded clause *ʔɪdʒdʒarr ʔdʒdʒdjd ʔɪʃtaka* “the new neighbor complained” is both specific and definite.

A clause in JA can have one of the following constituents as its subject: an overt NP (8a), an overt pronoun (8b) or a null argument (8c), as demonstrated below:

- (8) a. *xalɪd* *ʔɪdʒa* *mbarɪh*
Khalid came yesterday

“Khalid came yesterday.”

- b. *ʔana* *nabatj*
I vegetarian

“I am vegetarian”

- c. *bħkj* *ʕarabɪ*
speak.3SGM Arabic

“He speaks Arabic.”

Example (8) shows that it is possible in JA to drop the subject as it can be understood from the verb inflection. This rich morphology of the inflection of the verb shows the features of the subject (person, number, and gender) and can therefore identify one specific subject member for each clause. Inflectional affixes do not leave any opportunity for confusing the null subject with another member in the conjugational paradigm. Therefore, it is easy to recover and understand the missing subject because “the referential and/or thematic properties of an argument can be carried by the inflectional morphology of the verb” (Camacho 2013: 86).

3.1 Participants

It is very important to associate the study and the hypotheses with a community to test the social effects of this speech community on the targeted variables (Al-Shawashreh, 2016). To that effect, I targeted the community of the capital city Amman to choose potential participants. Therefore, the present study is based on a corpus that was collected using a sociolinguistic interview methodology (Labov 1984) to audio-record 36 native speakers of Jordanian Arabic living in Amman. Participants are stratified according to their age, gender, and level of education into three subgroups for each main group. The younger speakers are those aged 18-35 years old, while the middle-aged speakers are those aged 36-55 years old, and the older participants are those above the age of 56. Speakers are also stratified according to their level of education (no education, intermediate, and post-secondary) to assess whether education affects the speech patterns of these speakers. Participants are further stratified according to their gender (male and female).

3.2 Data collection and analysis

Each participant who was willing to participate was recorded using a digital recorder to ensure optimal voice quality. To ensure the flow of spontaneous speech, several conversational modules (Labov, 1984) were carefully designed to seek the vernacular speech style by focusing on personal experiences of the interviewees during different stages of their lives (e.g., schooling, childhood, work, etc.). Questions were carefully selected to elicit personal narratives. Furthermore, to avoid the effect of the observer's paradox, participants were not informed of the target of the study, but rather they were told that the study examines the local community of Amman and how it is changing. Only relevant instances of the target variable were extracted directly from the audio files and transcribed in an EXCEL file ready for coding using a rigorous transcription protocol to transcribe the data, which ensured that features of vernacular Jordanian Arabic (e.g., lexical choice, vernacular syntactic constructions, etc.) were respected. Through the use of coding, the tokens have been imported into a GoldVarb X file ready for statistical analysis. Distributional analysis and multivariate analysis technique were employed using GOLDVARB X (Sankoff, Tagliamonte & Smith, 2005).

4. Results

This section presents the overall distribution of complementizer agreement (CA) in the data and the multivariate analyses of the effect of the social and linguistic factors engaged in the study on variant choice.

4.1 Overall distribution of agreement variant in dataset

The results in Table (1) below show that the complementizer *ʔinn* 'that' frequently does not agree (72.2%) with the subject of the embedded clause in Jordanian Arabic. It is a high percentage compared with the appearance of agreement (27.8%) of the aforementioned complementizer in the database.

Table (1): Overall distribution of agreement variant in dataset

Variant(s)	No agreement	Y*
N	465	179
%	72.2	27.8
Total	644	

*All instances of 3rd SG.M were considered as "no agreement".

4.5 Multivariate Analysis of social and linguistic factors

Multivariate analysis allows to obtain three pieces of evidence. Multivariate analysis provides the statistical significance (less than 0.50) of the independent factors when they are run together simultaneously. This indicates the advantage of using multivariate analysis. Another advantage of using multivariate analysis is that the magnitude of effect is shown by the range value, which indicates the strength of the factor compared to the other factors. In addition, the constraint hierarchy within each factor indicates whether it favors or disfavors the choice of the variant.

In the following sub-section, the multivariate analysis is presented. The application value is 'No agreement' (N).

4.2 No Agreement as the application value (N)

The results in Table (2) below show that only phi-content of the subject is statistically significant, while age, gender, education, specificity, definiteness, and word order are non-statistically significant.

The constraint hierarchies within the factor group of phi-content of the subject show that 1st SG, 1st PL, 2nd SG. M, 2nd SG. F, 3rd SG. F and 3rd PL favor no agreement variant. Also, 2nd SG. F and 2nd SG.M favor no agreement, but they hover around a neutral effect.

Table (2): Multivariate analysis of the contribution of social and linguistic factors to the probability of choosing no agreement variant (N).

Corrected mean	0.431		
loglikelihood	-155.627		
Significance	0.051		
Number	286/644		
Phi-content of subject	Factor weight	%	N
1st SG	.87	50.8	94
1st PL	.78	72.0	36
2nd SG. M	.51	53.6	15
2nd SG. F	.51	57.1	4
3rd SG. M	.02	7.7	14
3rd SG. F	.86	63.4	71
3rd PL	.87	72.6	45
Range	85		
Gender			
Female	[.43]	40.7	127
Male	[.57]	47.9	159
Education			
High	[.49]	46.6	179
Low	[.52]	41.2	107
Age			
18-35	[.54]	47.8	109
36-55	[0.58]	51.1	114
56-higher	[0.36]	32.6	63
Word order			
SVO	[0.67]	56.0	70
V(O)	[0.48]	37.0	100
No verb	[0.29]	41.6	64
Parenthetical	[0.78]	61.5	24
VSO	[0.70]	34.6	9
Existential	[0.57]	68.0	17
Other	[0.34]	22.2	2
Definiteness of Subject			
Definite	[0.48]	53.6	135
Indefinite	[0.38]	31.8	14
other (pro)	[0.53]	39.4	137
Specificity of Subject			
Specific	[0.47]	41.4	12
nonspecific	[0.52]	52.1	136
other (pro)	[0.49]	39.0	138

It can be concluded from the results that the choice of agreement/no agreement of the Arabic complementizer *?inn* is not socially constrained as none of the social factors are statistically significant. Thus, social factors do not constrain the choice of the complementizer *?inn*. “that”.

5. Discussion

Observing the statistical results, we can infer two results. Only phi-content of subject (the person features of subject) is found to be a statistically significant factor to complementizer agreement (CA). On the other hand, it is clearly shown that social factors are not statistically significant in syntactic variations. These two results are the focus of the discussion in this part.

The results show that social factors are not statistically significant in syntactic variations; this finding is in line with other variationist studies. It has been argued that social factors are less decisive and do not play a major role in syntactic variation in comparison with linguistic factors, which is attributed to the fact that social factors are below the level of conscious awareness. Syntactic variations, therefore, do not distinguish social groups as phonological and morphological variants do (Winford 1996:188, Hudson 1996:45). Bassiouney (2009) stands against the presupposition that males and females speak differently; she asserts that research on gender has developed recently and goes beyond this assumption. According to Bassiouney (2009), gender is an essential factor in language variation, but it interacts with other linguistic and social factors i.e., it has to be “put in context” (2009b, 9). Eckert (2017) goes for the same conclusion, arguing that age as a social factor should be inseparable in research from other social factors. In this view, the linguistic behavior is stable and predictable throughout the life course, unless it is affected by and interacts with other social factors such as education, location and social status. She argues that:

The individual’s linguistic system would have to remain relatively stable throughout life, or any changes in the linguistic system during the life course would have to be regular and predictable. Yet, progress through the life course involves changes in family status, gender relations, employment status, social networks, place of residence, community participation and etc...

Al-Wer (2013), argues that education becomes less significant as a determining factor once the community is defined as an urban society:

once these communities are established as urban societies with urban-based economy and structure, where education is not necessarily a prerequisite for mobility and contact, level of education will no longer be capable of reflecting the true determinants of linguistic variation and change

Thus, in her view, education is a significant factor when the level of education plays a role in determining the social network and the place of residency and is therefore reflected in the linguistic behavior. However, once the community is defined as urban, where education is obligatory and accessible for larger classes in society, education is no longer a determining factor for linguistic behavior.

On the other hand, the findings of the current study do not go in line with other variationist studies that claim a strong connection between speakers’ linguistic behavior and their age, gender and education (Abdel-Jawad 1981, Al-Khatib 1988, Al-Wer 1991, Al-Salman 2003).

The second research question focused on the role played by linguistic factors in complementizer agreement (CA) in Jordanian Arabic. It was concluded that only Phi-content of subject is statistically significant i.e., only person features are statistically significant. In our discussion on person feature, it should be noted that there are a variety of studies that have tackled the notion of “person inventory” (Neelman and Ackema, 2018) and this includes several observations. The first important observation is that the third person has an apparent “default” status; therefore, the third person (as opposite to second and third person) can be used when there is no referent.

As evidence in support of this claim, some languages allow the use of third person verb form in the absence of an agreeing subject (fail of agreement). This assumption, therefore, supports the results of our statistical analysis as it was concluded that 3rd person singular form of the complementizer *?inn* (surface as *?innuh*) has high occurrence in the dataset.

Furthermore, the third person inflection of the complementizer also appeared in the instances where agreement fails to agree with the (overt or covert) subject of the embedded clause. Some research diverges from the perspective (Adger and Harbour 2007, Harley and Ritter 2002) of considering 3rd person as a default form. This view of the third person as a default form is said to “go against the traditional idea according to which only first and second person have a feature specification while ‘third person’ is the absence of any person information” (Nelman and Ackema, 2018). Our previous discussion on the default form is very important in discussing the notion of person features. It was argued by Barlow and Ferguson (1988) that the distance factor plays a role in the speaker’s choice of features as the speaker picks the default marker as a matter of difficulty in recovering the features of the controller (Yassin 2021).

Another important conclusion that can be drawn from the results of the statistical analysis is that it is the person feature (rather than number or gender) that plays a major significant role in complementizer agreement (CA). This finding is in line with the ones reached in other studies that linguistic factors does constrain variant choice (Abdel-Jawad 1981, Al-Khatib 1988, Al-Wer 1991, El-Salman 2003, Al-Shawashreh 2016). The studies that have tackled the notion of person features specifically are very limited.

Jarrah et al (2020) argues that person feature is a decisive factor in linguistic choice. In their study of Construct State (CS), they argue that the head noun of the CS agrees with the accompanying DP in JA when the noun is referential (referential DPs) and carries person feature, unlike nonreferential DPs that lack this person feature.

Kucerova (2019) argues that there is disagreement over person features in literature. Some researchers looked at third person features as “elsewhere features”, whereas other researchers argue that it has “valued features”. It also provides “a programmatic argument that this disagreement has a principled basis”. She argues that person features play a role not only in syntactic level but also in the semantic one, explaining that: “the representation of the features we identify as person changes between narrow syntax and the syntax-semantics interface”(p.2). This suggests that person features play an important role in syntactic process, and it is usually characterized as [\pm participant] which implies pragmatic or semantic features. The findings of the current work add support to this claim as person features are considered as a key factor in determining the choice of variant.

In conclusion, as it is explained, social factors are insignificant in the variant choice when it comes to syntactic variation (unlike the case of phonological variation) in Jordanian Arabic. This is not the case in other languages such as French for instance where linguistic factors are not the only determinant factors of the variant choice. Much research show that social factors play a role in the omission / retrieval of the French complementizer *que* particularly level of education and occupation (Liang, 2022).

6. Conclusion

The focus of this paper is to quantitatively study the notion of complementizer agreement (CA) in Jordanian Arabic (JA). A statistical analysis using GOLDVARB X, multivariate analysis and distributional analysis were carried out to examine the effect of the social and linguistic factors in establishing agreement relation between the complementizer *ʔinn* “that” and the subject of the embedded clause. The study focused on three social factors (i.e., age, education, and gender) in addition to three linguistic factors (i.e., specificity, definiteness, and word order) in order to answer the research questions. The results show that only phi-content of subject (person features of subject) is statistically significant while social factors are not statistically significant in CA.

REFERENCES

- Abed-El-Jawad, H. (1981). *Lexical and phonological variation in spoken Arabic in Amman*. (Unpublished doctoral dissertation). University of Pennsylvania, USA.
- Abdullah, H., & DeJani, B.A. (2014). A Comparative Study on Definiteness and Indefiniteness in Arabic and Malay Languages. *Dirasat Human and Social Sciences*, 41(1), 436-452.
- Adger, D., & Smith, J. (2005). Variation and the Minimalist Program. In L. Cornips & K. Corrigan (Eds.), *Syntax and Variation: Reconciling the Biological and the Social* (pp. 149-178). Amsterdam: John Benjamins.
- Adger, D., & Harbour, D. (2007). Syntax and syncretisms of the Person Case Constraint. *Syntax*, 10(1), 2-37.
- Ackema, P., & Neeleman, A. (2018). *Features of person: From the inventory of persons to their morphological realization* (Vol. 78). MIT Press.
- Al-Batal, M. (1994). Connectives in Arabic diglossia: the case of Lebanese Arabic. In M. Eid, V. Cantarino & K. Walters (Eds.), *Perspectives on Arabic Linguistics VI* (pp. 91-120). Amsterdam/Philadelphia: John Benjamins.
- Al-Khatib, M. (1988). *Sociolinguistic change in an expanding urban context: A case study of Irbid city*. (Unpublished doctoral dissertation). University of Durham, UK.
- Almansour, A.H. (2012). A phase-based approach to the construct state. *Journal of King Saud University-Languages and Translation*, 24(1), 23-34.
- Al-Shawashreh, E. (2016). *Aspects of grammatical variation in Jordanian Arabic*. (Unpublished doctoral dissertation). University of Ottawa, Canada.
- Al-Wer, E. (2009). Variation. In *Encyclopedia of Arabic Language and Linguistics IV* (627-639, 1-20).
- Al-Wer, E. (2007). The formation of the dialect of Amman. In C. Miller, E. Al-Wer, D. Caubet & J. Watson (Eds.), *Arabic in the City: Issues in Dialect Contact and Language Variation* (pp. 1-9). Routledge.
- Al-Wer, E. (1991). *Phonological variation in the speech of women from three urban areas in Jordan*. (Doctoral dissertation). University of Essex, UK.
- Al Wer, E. (2013). Education as a speaker variable. In *Language contact and language conflict in Arabic* (pp. 59-71). Routledge.
- Al-Wer, E. (2002). Jordanian and Palestinian dialects in contact: Vowel raising in Amman. *Contributions to the Sociology of Language*, 86, 63-80.
- Barlow, M., & Ferguson, C.A. (Eds.). (1988). *Agreement in natural language*. Center for the Study of Language (CSLI).
- Bassiouny, R. (2009). The variety of housewives and cockroaches: Examining code-choice in advertisements in Egypt. In *Arabic Dialectology* (pp. 271-284). Brill.
- Belyayeva, D. (1997). Definiteness realization and function in Palestinian Arabic. *Amsterdam studies in the theory and history of linguistic science*, Series 4, 47-68.
- Bock, J.K., & Irwin, D.E. (1980). Syntactic effects of information availability in sentence production. *Journal of verbal learning and verbal behavior*, 19(4), 467-484.
- Bock, J.K. (1982). Toward a cognitive psychology of syntax: Information processing contributions to sentence formulation. *Psychological review*, 89(1), 1.
- Brustad, K. (2000). *The Syntax of Spoken Arabic: A Comparative Study of Moroccan, Egyptian, Syrian and Kuwaiti Dialects*. Washington DC: Georgetown University Press.
- Camacho, J. (2013). *Null Subjects*. Cambridge University Press.
- Cameron, R., & Schwenker, S. (2013). Pragmatics and variationist sociolinguistics. In R. Bailey, R. Cameron & C. Lucas (Eds.), *The Oxford Handbook of Sociolinguistics* (pp. 464-483). New York/Oxford: Oxford University Press.
- Cheshire, J. (2005). Syntactic variation and beyond: Gender and social class variation in the use of discourse-new markers. *Journal of Sociolinguistics*, 9(4), 479-508.
- Coates, J. (1989). Gossip revisited: language in all-female groups. In D. Cameron & J. Coates (Eds.), *Women in Their Speech Communities* (pp. 94-122). London/New York: Longman.
- Cornilescu, A., & Nicolae, A. (2012). Nominal ellipsis as definiteness and anaphoricity: The case of Romanian. *Lingua*, 122(10), 1070-1111.
- Cowart, W. (1997). *Experimental syntax*. Sage.
- Cowell, M.W. (1964). *A Reference Grammar of Syrian Arabic (Based on the Dialect of Damascus)*. Washington DC: Georgetown University Press.
- Clifton, C., & Frazier, L. (2004). Should given information come before new? Yes and no. *Memory & Cognition*, 32(6), 886-895.

- Despić, M. (2015). Phases, reflexives, and definiteness. *Syntax*, 18(3), 201-234.
- Edwards, M. (2010). Word order in Egyptian Arabic: Form and function. In J. Owens & A. Elgibali (Eds.), *Information Structure in Spoken Arabic* (pp. 93-106). London: Routledge.
- Eckert, P. (2017). Age as a sociolinguistic variable. *The handbook of sociolinguistics*, 151-167.
- El Salman, M. (2003). *Phonological and morphological variation in the speech of Fallahis in Karak (Jordan)*. (Unpublished doctoral dissertation). Durham University, UK.
- Featherston, S. (2005). That-trace in German. *Lingua*, 115(9), 1277-1302.
- Frampton, J., & Gutmann, S. (2000). *Agreement is Feature Sharing*. MS. Northeastern University.
- Greenberg, J. (1966). *Universals of Language*. Oxford: MIT Press.
- Gernsbacher, M.A., & Hargreaves, D.J. (1988). Accessing sentence participants: The advantage of first mention. *Journal of memory and language*, 27(6), 699-717.
- Germanos, M.A. (2010). From complementizer to discourse marker: the functions of ʔanno in Lebanese Arabic. In J. Owens & A. Elgibali (Eds.), *Information Structure in Spoken Arabic* (pp. 145-164). New York: Routledge.
- Habib, R. (2009). The syntax of the Standard Arabic particles ʔan and ʔanna. In K. Grohmann & P. Panagiotidis (Eds.), *Selected Papers from the 2006 Cyprus Syntaxfest* (pp. 159-194). Newcastle-upon-Tyne: Cambridge Scholars Publishing.
- Harley, H. & Ritter, E. (2002). Person and number in pronouns: A feature-geometric analysis. *Language*, 482-526.
- Hawkins, J. (2015). *Definiteness and indefiniteness: A study in reference and grammaticality prediction*. Routledge.
- Heim, I.R. (1982). *The semantics of definite and indefinite noun phrases*. Amherst: University of Massachusetts.
- Holmes, J. (2018). Sociolinguistics vs pragmatics: where does the boundary lie? In C. Ilie & N. Norrick (Eds.), *Pragmatics and its Interfaces* (pp. 11-32). Amsterdam: John Benjamins Publishing Company.
- Hudson, R.A. (1996). *Sociolinguistics*. Cambridge university press.
- Jarrah, M. & Zibin, A. (2016). On definiteness and information trigger in Arabic. *Advances in Language and Literary Studies*, 7(2), 55-67.
- Jarrah, M., Altaxhaineh, A.R.M., & Al-Rasheedi, E. (2020). ϕ -agreement within Construct State in Jordanian Arabic. *STUF-Language Typology and Universals*, 73(1), 1-26.
- Kremers, J. (2003). Adjectival agreement in the Arabic noun phrase. *Proceedings of Console XI*. Available online at <http://www.sole.leidenuniv.nl/index.php3>.
- Kučerová, I. (2019). On the role of person in the mapping of syntactic features onto their interpretable counterparts. *Canadian Journal of Linguistics/Revue canadienne de linguistique*, 64(4), 649-672.
- Labov, W. (1982). Building on empirical foundations. In L. Winfred & Y. Malkiel (Eds.), *Perspectives on Historical Linguistics* (pp. 17-92). Amsterdam and Philadelphia: John Benjamins.
- Labov, W. (2001). *Principles of Linguistic Change, Vol II: Social factors*. Oxford: Blackwell.
- Labov, W. (1972). *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.
- Labov, W. (1984). Field methods of the project on linguistic change and variation. In J. Baugh & J. Sherzer (Eds.), *Language in Use: Readings in Sociolinguistics*. Englewood Cliffs (pp. 28-53). New Jersey: Prentice-Hall.
- Lakoff, R. (1975). *Language and Women's Place*. New York: Harper and Row.
- Laserna, C.M., Seih, Y.T., & Pennebaker, J.W. (2014). Um... who like says you know: Filler word use as a function of age, gender, and personality. *Journal of Language and Social Psychology*, 33(3), 328-338.
- Leaper, C. & Robnett, R.D. (2011). Women are more likely than men to use tentative language, aren't they? A meta-analysis testing for gender differences and moderators. *Psychology of Women Quarterly*, 35(1), 129-142.
- Löbner, S. (1987). Quantification as a major module of natural language semantics. *Studies in discourse representation theory and the theory of generalized quantifiers*, 8, 53.
- Liang, Y., Amsili, P., & Burnett, H. (2021). New ways of analyzing complementizer drop in Montréal French: Exploration of cognitive factors. *Language Variation and Change*, 33(3), 359-385.
- Mirzapour, F. (2016). Gender differences in the use of hedges and first-person pronouns in research articles of applied linguistics and chemistry. *International Journal of Applied Linguistics and English Literature*, 5(6), 166-173.
- Milroy, J., & Milroy, L. (1977). Belfast: Change and variation in an urban vernacular. In P. Trudgill (ed.), *Sociolinguistic Patterns in British English* (pp. 19-36). London: Edward Arnold.
- Mughazy, M. (2003). DPs Revisited: the case of wallaahi in Egyptian Arabic. In D. Parkinson & S. Farawanrh (Eds.), *Perspectives on Arabic Linguistics XIII* (pp. 3-29). Amsterdam/Philadelphia: John Benjamins.
- Owens, J., Young, B., Rockwood, T., Mehall, D., & Dodsworth, R. (2010). Explaining Ø and overt subjects in spoken Arabic. In J. Owens & A. Elgibali (Eds.), *Information Structure in Spoken Arabic* (pp. 20-60). London: Routledge.

- Owens, J., & Rockwood, T. (2008). Yaʿni: what it (really) means. In D. Parkinson (Ed.), *Perspective on Arabic Linguistics XXI* (pp. 83-114). Amsterdam: John Benjamins Publishing Co.
- Peled, Y. (2009). Extended Versions of Type-2 And Type-3 Sentences. In *Sentence Types and Word-Order Patterns in Written Arabic* (pp. 187-224). Brill.
- Reinhart, T. (1983). Coreference and bound anaphora: A restatement of the anaphora questions. *Linguistics and Philosophy*, 47-88.
- Robinson, J., Lawrence, H., & Tagliamonte, S. (2001). *Goldvarb 2001. A multivariate analysis application for Windows*.
- Rieschild, V. (2011). Arabic yaʿni: issues of semantic, pragmatic, and indexical translation equivalence. *Intercult. Pragmat*, 8 (3), 315-346.
- Ryding, K.C. (2005). *A reference grammar of modern standard Arabic*. Cambridge University Press.
- Sankoff, D., Tagliamonte, S., & Smith, E. (2005). *Goldvarb X: A multivariate analysis application*. Available at: http://individual.utoronto.ca/tagliamonte/Goldvarb/GV_index.html.
- Steele, S. (1978). Word order variation. In J. Greenberg (Ed.), *Universals of Human Language* (pp. 585-623). Stanford: Stanford University Press.
- Sidner, C.L. (1979). *Towards a Computational Theory of Definite Anaphora Comprehension in English Discourse*. Massachusetts Institute of Technology Cambridge Artificial Intelligence Lab.
- Trudgill, P. (1972). Sex, covert prestige and linguistic change in urban British English of Norwich. *Language in Society*, 1, 179-195.
- Trudgill, P. (1986). *Dialects in contact*. Oxford: Blackwell.
- Tsai, W.T.D. (2001). On subject specificity and theory of syntax-semantics interface. *Journal of East Asian Linguistics*, 10(2), 129-168.
- Weinreich, U., Labov, W., & Herzog, M. (1968). Empirical foundations for a theory of language change. In W. Lehmann & M. Yakov (Eds.), *Directions for Historical Linguistics: A Symposium* (pp. 95-188). Austin: University of Texas Press.
- Winford, D. (1996). Common ground and creole TMA. *Journal of pidgin and creole languages*, 11(1), 71-84.
- Wolfram, W. (2006). Variation and Language: Overview. In K. Brown (Ed.), *Encyclopedia of Language and Linguistics* (2nd edition) (pp. 333-341). Amsterdam: Elsevier.
- Yassin, S. (2022). *Agreement in Palestinian Arabic: An LFG Perspective*. (Doctoral dissertation). University of Essex, UK.