

Verb usage in Palestinian and Modern Standard Arabic: A developmental, cross-variety and cross-modality study

A Proposal for a Doctoral Dissertation in Linguistics
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List of Abbreviations

| | |
|-----------------|---|
| acc | accusative case marker |
| def | definite article |
| fm | feminine |
| obj | object pronoun |
| poss | possessive adjective |
| prep | preposition |
| sg | singular |
| 1 st | first person |
| 2 nd | second person |
| 3 rd | third person |
| [...] | part of the original excerpt is deleted |

1. Introduction

This study examines the distribution of verbal patterns in Palestinian and Modern Standard Arabic (hereafter PA and MSA, respectively) in terms of their frequency and their semantic-syntactic functions across four age groups, 4th, 7th, 9th and 11th graders. Data for this study comes from narrative and expository texts produced by school-age native speakers of PA. The distribution of verbal patterns in spoken PA as well as in written and in spoken MSA (hereafter MSA-W and MSA-SP, respectively) is compared in order to detect variety and modality differences in the distribution of verbal patterns across development.

Semitic morphology relies highly on non-concatenative morphology where words are formed in configurations labeled ‘patterns’. The pattern consists of a vocalic skeleton with slots for the consonantal root and, in some cases, additional affixes. The particular configuration among them provides the so-called verbal pattern. Arabic (MSA and PA) has ten verbal patterns (see Appendix 1), and every verb must conform to one of them. The difference between the patterns is mainly expressed in terms of differences in transitivity. For example, *CaCCaC* is usually used in transitive verbs, while *tCaCCaC* is primarily used in intransitive verbs (e.g., *wassaʕ* ‘made wide’ in *CaCCaC* and *twassaʕ* ‘became wide’ in *tCaCCaC*)¹. In addition, most patterns have typical semantic functions. For example, *tCa:CaC* is typical of reciprocal verbs, e.g., *tra:sal* ‘corresponded with’.

Developmental studies (e.g., Ravid & Levie 2010; Strömquist, Nordquist & Wengelin 2004; Berman & Ravid 2009) have examined ‘later language development’ (Berman 2004) and revealed that use of verbal patterns, along with other linguistic constructions, such as abstract nouns, complex noun phrases and embedded clauses, undergo significant changes during early or late adolescence (see 2.2). In this period, “adolescents are increasingly able to handle abstraction, and have greater attention, memory, and information processing resources” (Ravid 2004: 57), which brings about advanced development in the level of linguistic knowledge.

¹ The verbal patterns in MSA and PA are basically the same, with phonological differences between some patterns (e.g., *taCaCCaC* in MSA vs. *tCaCCaC* in PA). Therefore, we use a uniform system of verbal patterns for both varieties. In addition, the glottal stop is deleted from the names of some patterns for uniformity.

The distribution of verbal patterns in Hebrew has been examined within different frameworks, including verb innovation (Berman 1987, 2003; Bolozky 1978, 1999; Laks, forthcoming; Ravid 1990), language variation and change (Bat-El 2005; Laks 2013; Ravid 1995, 2003, 2004; Ravid et al. 2016; Schwarzwald 1981, 2002), acquisition (Armon-Lotem & Berman 2003; Armon-Lotem & Feuer 2009; Berman 1980, 1981, 1993; Ravid, Ashkenazi, Levie, Ben Zadok, Grunwald, Bratslavsky & Gillis 2016; Stansaz 2016) and different types of elicited texts (Ashkenazi, Ravid & Gillis 2016; Berman, Nayditz & Ravid 2011; Berman & Slobin 1994; Ravid 2004). In contrast, very few studies have examined verbal patterns in Arabic (Benmamoun 2003; Dank 2011; DeMiller 1988; Ford 2009; Henkin 2009; Shawarbah 2007) with focus on the early acquisition of verbal patterns in PA (Saed 2006).

Studying the distribution of verbal patterns across development in PA and MSA is particularly important in light of Arabic diglossia. Diglossia refers to a stable co-existence of two varieties in the same language community (Ferguson 1959; Kaye 1994; Maamouri 1998; Saiegh-Haddad 2012; Saiegh-Haddad & Henkin-Roitfarb 2014). Arabic Speakers acquire naturally and use a spoken vernacular or dialect for informal speech but learn to read and write in MSA, the formal variety; according to Ferguson (1959), the two varieties of Arabic are used for two sets of complementary social functions. MSA is typically a written language and is the language of literacy (Ayari 1996), though it is also used for formal, oral linguistic functions such as religious sermons, news broadcasts, public speeches, etc. (Saiegh-Haddad 2012). Spoken Arabic vernacular (SAV) is used for informal, daily speech, and it does not have a conventional written form (Younes 2006). It is noteworthy that a new form of written SAV is emerging in electronic writing and in computer-mediated communication (Abu-Elhija 2011; Zubidat 2013). Rather than a dichotomy between a spoken and written variety, many scholars refer today to a continuum of varieties that ranges between MSA and SAV (Badawi 1973; Hary 1996; Meiseles 1980; Saiegh-Haddad & Henkin-Roitfarb 2014; Suleiman 1986). These varieties include Educated Spoken Arabic and Semiliterate Spoken Arabic (Badawi 1973; Mitchell 1986). MSA and SAV are different in many linguistic respects (see 2.3). While MSA

is a largely uniform variety, SAV is different from one community to another and from one geographical region to another (Henkin 2010; Holes 1995; Maamouri 1998; Myhill 2009, 2014).

The proposed research aims to investigate differences between MSA and PA in the domain of morphology and specifically in the distribution of verbal patterns across development. The study tests the acquisition of verbal patterns in MSA and PA with focus on developmental trends, as well as on differences between the two modalities of MSA: MSA-SP and MSA-W, and between two varieties of the spoken modality: MSA-SP and PA (only spoken).

2. Literature review

2.1. Verbal patterns in Semitic languages

Semitic languages, like Arabic, have a rich morphology and this linguistic property organizes the entire lexicon (Berman 1978, 1987; Ravid 1990; Schwarzwald 1981, 2002). Words are structured fundamentally by non-concatenative morphology, which is based on the non-linear combination of consonantal roots and patterns (Berman 1978, 1987; Bolozky 1978; Junger 1978; Ornan 1971, 2003; Schwarzwald 1981, 2001). The pattern determines the phonological shape of the verb, i.e. its vowels, prosodic structure and affixes (if any), whereas the root determines its semantic family. Unlike other lexical categories, verbs are constructed only via non-concatenative morphology. Semantically related verbs share the same stem/root consonants and are represented in different patterns (Bat-El 2011; Berman 1978; Bolozky 1978; Goldenberg 1994, 1998; Schwarzwald 2001). The phonological shape of the verb is essential for determining the shape of the other forms in the inflectional paradigm (Aronoff 1994, 2007; Bat-El 1989; Berman 1978; Bolozky 1978).

The verbal patterns differ from one another mainly in the type of semantic and syntactic properties of the verbs they host (Ariel 1971; Benmamoun 2003; Berman 1978; Bolozky & Saad 1983; Doron 2003; Glanville 2011; Goldenberg 1994; Henkin 2009, 2010; Schwarzwald 2002; Shawarbah 2012; Younes 2000). For example, transitive verbs in *CaCCaC*, e.g., *ḡassal* ‘washed’, usually receive their intransitive alternates in *tCaCCaC*, e.g., *tyassal* ‘washed himself’.

There has been a lot of research in Hebrew on the semantic-syntactic relations between verbal patterns (Berman 1978, 2003; Doron 2003; Ravid 2004, 2008), and similar studies were conducted on Arabic (see Bolozky & Saad 1983; Hallman 2006; Holes 1998; Saad 1982). These studies mainly examined relations between existing forms, and they helped reveal the semantic-syntactic features that underlie some of the systematic alternations between patterns. For example, *CaCCaC* transitive verbs alternate with *tCaCCaC* in passive formation in PA (Rosenhouse 1991-1992; Tucker 2007; Younes 2000) and in inchoative and reflexive formation in PA and MSA. In addition, causative verbs are mostly derived in *CaCCaC/aCCaC* from *CaCaC* verbs (Ford 2009; Ouhalla 2016).

While Ryding (2005) provides a classification of the functions of Arabic verbal patterns (see Appendix 1), there has been no research on their function as reflected in actual text production. Moreover, while many of these studies were conducted on Hebrew (Ashkenazi et al. 2016; Berman et al. 2011; Stansaz 2016), no research addressed this question in Arabic. One exception is Saed's study (2006) which conducted a semantic analysis of verb tokens as they occurred in the conversations of Arabic-speaking children, ages 2-6 years, and revealed some of the semantic features of the verbal patterns in PA, e.g., *tCaCCaC* encodes inchoativity and reflexivity (see Appendix 1).

Another interesting facet of verbal patterns, especially in light of diglossia, is their distribution in actual texts as speakers produce them. Saed (ibid.) found that in preschoolers' conversations in PA, the most frequent patterns were *CaCaC*, *CaCCaC* and *tCaCCaC*, in descending order, whereas *iCCaCC* and *istaCCaC* were not used at all. A recent study by Laks, Al-Haj & Saiegh-Haddad (in preparation) on the use of verbal patterns in texts constructed by adults reveals that in PA and MSA, *CaCaC* (40% of types² and more than 50% of tokens) was the most prevalent pattern. *tCaCCaC* (13% of types, 10% of tokens) and *CaCCaC* (15% of types, 9% of tokens) were the second most frequent patterns. *aCCaC* (4% of types, 3% of tokens) was the second least productive pattern after

² Different inflected forms of the same verb, e.g., *yaktub* 'writes' and *kabab* 'wrote', are considered to be one type.

istaCCaC. These results are in line with earlier reports that *CaCCaC* and *tCaCCaC* are two main patterns in PA that are active in verb formation (Laks 2011, forthcoming). Laks et al. (in preparation) also showed that the frequency proportions of *tCaCCaC* were nearly the same in both MSA modalities as well as in PA. However, in contrast to PA, the type frequency of *CaCCaC* was about 5% lower in both modalities and the type/token frequency of *aCCaC* increased by 2% in MSA-SP but was doubled in MSA-W. In all text types, *istaCCaC* was the least frequent pattern and *iCCaCC* was not used at all.

.22. The acquisition of the verbal system in Semitic languages

The acquisition of the verbal system is a critical part of language acquisition, being one facet of derivational morphology that organizes the lexicon (Berman 1993; Berman & Ravid 2009; Ravid et al. 2016). With age, speaker-writers use a wider variety of patterns for a wider range of semantic-syntactic functions (Berman 1993). Many studies on Hebrew have pinpointed age-related differences in the acquisition of verbal patterns. Berman (1980, 1982, 1993) observes two stages in the acquisition of verbal patterns in Hebrew before the children master the system and the relations between the patterns (ages 5-6 years). During the initial stage, up to around age 3 years, a single non-alternating form is used for a given concept, with all thematic realizations of it conflated into a single pattern. For example, *ʔaxal* (*CaCaC*) can be used to convey both ‘ate’ and the causative verb ‘made eat’, instead of *heʔexil* (*hiCCiC*), e.g., *ʔima ʔaxla oti* instead of *ʔima heʔexila oti* ‘Mom made me eat’. At the second stage, around the fourth year, children alternate between patterns of the same root, manifesting two main types of switching – between the transitive patterns *hiCCiC* and *CiCeC* (e.g., *heʔelim* – *ʔilem* ‘made vanish’) and between the intransitive patterns *niCCaC* and *hitCaCeC* (e.g., *nirdam* – *hitradem* ‘fell asleep’)³. That is, their errors do not cross transitivity boundaries, a finding that is interpreted by Berman as indicating that children demarcate predicates according to their transitivity.

³ Children did not use *CaCaC* instead of other patterns. Berman (1980) regards this pattern as “basic” since it is neutral with respect to transitivity.

Research on Hebrew shows that at any age, *CaCaC* is the most frequent pattern for both transitive and intransitive verbs (Ashkenazi et al. 2016; Berman 1993; Berman & Ravid 2009), but the frequency rates of *CaCaC* verbs vary with development. They constitute about 70% of all verb tokens in the speech of children up to 3rd grade, yet they decrease with age, and *hiCCiC* and *CiCeC* increase. A drastic drop in *CaCaC* was noticed between 5-6 years of old (Stansaz 2016). The second most frequent patterns in speech and writing in Hebrew appear to be the transitive patterns *hiCCiC* and *CiCeC*, followed by the intransitive patterns *niCCaC* and *hitCaCeC*. The rarest verbs are the passive patterns *CuCaC* and *huCCaC* (Berman 1993; Ravid et al. 2016; Ravid & Vered, in press), which are virtually absent before the age of 3 years (Ashkenazi et al. 2016).

Relevant to this study are the findings on the development of verbal patterns in Hebrew at the 4th grade level and onwards. It has been shown that between 4th and 8th grades, transitive patterns are used more than intransitive ones in both speech and writing. However, there is a rise in the frequency of intransitive constructions, including passive, by 8th grade and on (Berman 2004; Berman et al. 2011; Berman & Ravid 2009). In contrast, in child-directed speech *CaCaC* continues to be the most productive pattern, followed by *hiCCiC* and *CiCeC*, with little or no use of passives (Ashkenazi et al. 2016).

Saed (2006) examined the acquisition of the verbal system in PA in preschool children, aged 2-3, 3-4, 4-5 and 5-6 years. Based on spontaneous conversations, the study showed that in all age groups, *CaCaC* was the most prevalent pattern, followed by *CaCCaC* and then *tCaCCaC*, with a slight rise in the frequency of other patterns with age. She argues that the semantic functions of causativity (*farrab* ‘made drink’), then reflexivity (*tharrak* ‘moved’) and inchoativity (*tkassar* ‘got broken’) are acquired early between the ages of 3-4 years. Reciprocal verbs (*tqa:tal* ‘fought each other’) are acquired as late as the ages of 5-6 years and intensive verbs (e.g., *kassar* ‘broke intensively’) are the second most frequently used verbs between the ages of 3-4 years, yet they become less frequent after the age of 4. These results led to the conclusion that the pace of verb

acquisition in PA is slower than that in Hebrew probably because PA employs many more verbal patterns.

2.3. Effects of variety differences on linguistic features

Although MSA and spoken Arabic share many features (Maamouri 1998), differences between the two varieties are manifested in all language domains: phonology, morphology, syntax and semantics (Eid 1990; Holes 1995; Ibrahim 1983; Rosenhouse 2007; Saiegh-Haddad 2012; Saiegh-Haddad & Henkin-Roitfarb 2014). Laks & Berman (2014) compared narrative texts produced by the same speakers in MSA and Jordanian Arabic and found heavy use of nominalizations in MSA (e.g., *badaʔa fi il-hafer* ‘started **digging**’), in contrast to considerable reliance on subjunctive constructions in Jordanian Arabic (e.g., *ballafyu-hfur* ‘started to **dig**’).

From a developmental point of view, SAV (PA in our case) is acquired spontaneously through daily interactions, while MSA is mainly taught at educational institutions (Boudelaa & Marslen-Wilson 2000; Khamis-Dakwar & Froud 2007), with school practices conducted mainly in a colloquial (Rosenhouse 2014; Saiegh-Haddad & Schiff 2016) or a semi-educated variety (Badawi 1973). As a result, the acquisition of MSA, compared to SAV, is slower (e.g., Elgibali 1996) and shows differences in developmental trajectories (Ibrahim & Aharon-Peretz 2005; Khamis-Dakwar, Froud & Godon 2012; Saiegh-Haddad 2003, 2004, 2007; Saiegh-Haddad & Schiff 2016; Schiff & Saiegh-Haddad 2017). The acquisition of SAV structures, such as phonological processing (Saiegh-Haddad 2004, 2011; Saiegh-Haddad, Levin, Hende & Ziv 2011), negation and interrogation (Wilnsen 2014) and other morpho-syntactic structures, usually precedes the acquisition of MSA structures of the same type. This implies that verbal patterns in PA and MSA might take different acquisition tracks.

2.4. Effects of modality differences on linguistic features

Written language differs from spoken language along various dimensions such as psycholinguistic processing (Berman 2005; Berman & Nir-Sagiv 2007; Chafe 1994), text organization (Brown & Yule 1983; Chafe 1992) and linguistic complexity (Halliday 1989; Hopper 2001). Recent studies

have examined writing-speech distinctions by comparing linguistic features employed in non-expert production of narratives and expository texts produced by the same participants. The comparison showed that the same participants kept less track of what they told than what they wrote, as evident in the use of more ancillary materials (i.e. discourse markers, repairs and repetitions) in spoken narratives than in written narratives (Berman & Ravid 2008; Ravid & Berman 2006). Spoken narratives were longer in terms of word and clause number (Berman & Ravid 2009)⁴; yet written texts were more compact and contained longer and denser information packages in the form of complex syntactic structures (Chafe 1994; Chafe & Danielewicz 1987), and employed more novel, informative material in the form of event descriptions and interpretations (Ravid & Berman 2006).

The linguistic devices employed in written language and which allow it to be dense with information are the complex lexical units and the complex syntactic structures (Berman & Ravid 2009). Research on the impact of modality on employment of structurally complex devices shows that writing contains more abstract nouns, longer words and a higher level of lexis, i.e. formal vocabulary items (Berman & Nir-Sagiv 2010; Berman Nir-Sagiv & Bar-Ilan, in press; Malvern, Brian, Chipere & Duran 2004; Ravid 2004). Moreover, writing exhibits higher syntactic complexity shown by longer and deeper noun phrases (NPs), i.e. more nodes under the NP head, e.g., *very smart dogs*, vs. *dogs*, (Ravid & Berman 2010) and a higher proportion of subordinate clauses (Beaman 1984; Perera 1986). In addition, writing deploys wider lexical diversity (Halliday 1989; Olson 2006) and a higher proportion of content words, resulting in higher lexical density (Ravid & Tolchinsky 2002; Strömquist et al. 2004). The circumstances of written text production encourage revision, reflection and rewriting, which result in higher levels of expressiveness (Ravid & Zilberbuch 2003). Spoken texts, in contrast, show the impact of the pressure of rapid, online production (Berman & Ravid 2008; Chafe 1994; Strömquist et al. 2004) which makes them less carefully structured.

⁴The *clause* is the basic syntactic unit that “contains a unified predicate expressing a single situation” (Berman & Slobin 1994: 660).

From a developmental point of view, cross-linguistic studies report that a significant change in the usage of linguistic features in text production occurs between mid-grade school and mid-intermediate school (Berman 2004, 2007; Berman & Nir-Sagiv 2010; Nippold 1998). In this period, age-related modality effects are manifested by a significant rise in the level of the lexicon, including register, lexical diversity and density, and the complexity of morpho-syntactic structures, e.g., longer adjective phrases (Ravid & Berman 2010; Ravid & Levie 2010). These trends are mostly manifested in writing but not in speech. At later stages of development, knowledge of linguistic features grows steadily, yet significant increases in certain lexical items, e.g., derived nominals, marked morpho-syntactic constructions, e.g., passive voice (in Hebrew) and center-embedded clauses, does not occur until late adolescence (Bar-Ilan & Berman 2007; Berman & Nir-Sagiv 2010; Berman & Ravid 2009; Ravid & Saban 2008).

2.5. Goals of the proposed research

One goal of the current study is to investigate the development of verbal patterns with respect to frequency and semantic-syntactic properties in the different varieties and modalities. A second goal is to examine whether usage of verbal patterns distinguishes between different varieties and modalities. The study will address the following questions: (i) Which verbal patterns are most prevalent at different points in development, in the two varieties, MSA-SP and PA, and in the two modalities of MSA, MSA-W and MSA-SP? (ii) With respect to each verbal pattern, which semantic and syntactic features are most predominant at different points in development, in the two varieties and in the two modalities? Hence, the study will provide a characterization of the typical semantic and syntactic features of the verbal patterns based on their distribution in different text types and in different points in development.

3. Methodology

Data for the study will be elicited from narratives and expository texts produced by native speakers of Arabic in PA, MSA-SP and MSA-W. Participants are PA native speakers from Kufur Qaref from 4 age groups, each consisting of 28 participants: 4th grade (9-10 years), 7th grade (12-13 years), 9th

grade (14-15 years) and 11th grade (16-17 years). These age groups were targeted because studies have shown that during this period, between mid-childhood across adolescence, language usage changes significantly in comparison to what has been observed for younger children (see 2.4).

3.1. Procedure and materials

The data for this study is part of a larger corpus of Arabic texts collected in the framework of an Israel Science Foundation project headed by Prof. Elinor Saiegh-Haddad and Dr. Lior Laks (Grant number 842/13). In this project, a total of 112 participants produced narratives and expository texts in the two modalities and varieties of Arabic yielding 6 texts: three expository texts produced in PA, MSA-SP and MSA-W as well as three narratives produced in PA, MSA-SP and MSA-W. There were 28 students in each group and the pool of data consisted of a total of 672 texts (4 groups × 28 subjects × 6 texts). In order to prompt participants to produce the different texts, they were shown a silent 5-minute movie depicting scenes of unresolved interpersonal conflicts before each of two elicitation sessions. In the first session, participants were asked to tell a story about interpersonal conflicts in PA as well as in MSA in speech and in writing yielding three narratives. In the second session, they were asked to give a talk in PA as well as in MSA in speech and in writing yielding three expository texts. The order of text elicitation was counter-balanced to ensure data is elicited under carefully controlled conditions (Berman & Ravid 2009) and to allow an examination of similarities and differences between modalities, MSA-SP and MSA-W, and varieties, PA and MSA-SP.

3.2. Analysis

Verbs in all text types will be compared in terms of frequency (types and tokens) and semantic and syntactic features. Verbs will be coded according to semantic class like causative, inchoative, reflexive and reciprocal, based on criteria established by Laks & Berman (in preparation) for Hebrew (see Appendix 1). Syntactically, verbs will be coded according to transitivity and the number and type of complements they take (Ravid et al. 2016). This methodology will provide information on (i) the frequency of each pattern by type and token; (ii) the semantic and syntactic

features of each pattern and (iii) the pattern(s) typical (and atypical) of each semantic and syntactic function. As noted, these parameters will be compared with respect to developmental stages, variety and modality. The analysis will also relate to the sum total of types and tokens for each function and the ratio of different verb types to the total number of tokens i.e. type-token ratio.

3.4. Predictions

As to the first goal, namely tracking developmental changes in the usage of verbal patterns by variety and modality, we predict to find more differences than similarities between PA and MSA in the distribution of verb types based on earlier research showing that differences between the two varieties exist in all language domains (see 2.3). More so than PA, MSA is predicted to manifest greater increase in the frequency of verb types in the transition to higher grades. This is because the MSA lexicon grows with literary development throughout schooling. With age, it is also predicted that there would be fewer differences in the distribution of verb types in the two modalities, especially in high school because at advanced stages of literacy students engage more with MSA for classroom speaking and for writing.

When comparing the two varieties, more so than PA, MSA-SP is expected to manifest higher frequency across most verbal patterns, a wider range of patterns employed to encode semantic-syntactic features and a higher overall verbal diversity in the deployment of patterns. These are possible predictions because MSA is the formal variety and, therefore, is likely to employ higher levels of the lexicon, including register and lexical diversity, than PA does. Moreover, we predict that *CaCaC* would be used to express more semantic functions in PA than in MSA-SP because other patterns in MSA may be used to convey some of the semantic functions expressed by *CaCaC* in PA.

When comparing the two modalities, it is predicted that written texts will employ more verb types and exhibit higher verbal diversity than spoken texts based on earlier research demonstrating that lexical diversity is diagnostic of writing (Ravid & Tolchinsky 2002). At the same time, we predict to find similar frequency proportions of patterns and semantic-syntactic features in the two modalities of MSA because the two are predicted to make use of the same verbal system.

Regardless of text type, it is predicted that *CaCaC* will be the most dominant pattern in Arabic texts, based on the findings of Saed (2006).

3.5. Contribution

The study is expected to have significant theoretical and practical implications. Theoretically, it elucidates the linguistic differences/similarities between varieties and between modalities of Arabic across development. The results will also have practical implications for pedagogy and assessment by native as well as non-native speakers. Moreover, the findings should have implications for language development and instruction among speakers of other Arabic dialects beyond PA, and could constitute a point of departure for examining the same variables in other dialects.

4. Preliminary results

A pilot study examined texts produced by 24 4th graders, where each participant produced PA, MSA-SP and MSA-W texts. The data in tables (1) and (2) show the distribution of verbal patterns.

Table 1 – **Token** percentages of verbal patterns by variety and modality

| Text type | <i>CaCaC</i> | <i>CaCCaC</i> | <i>Ca:CaC</i> | <i>aCCaC</i> | <i>tCaCCaC</i> | <i>tCa:CaC</i> | <i>inCaCaC</i> | <i>iCtaCaC</i> | Total |
|-----------|--------------------|--------------------|------------------|------------------|------------------|------------------|-----------------|------------------|-------|
| PA | 70.8% (646/912) | 11.2% (102/912) | 6% (54/912) | 3% (28/912) | 3% (28/912) | 5.1% (46/912) | 0.2% (2/912) | 0.7% (6/912) | 100% |
| MSA-SP | 70.4% (245/348) | 3% (11/348) | 4.6% (16/348) | 8.4% (29/348) | 6% (21/348) | 4% (14/348) | 0.6% (2/348) | 3% (10/348) | 100% |
| MSA-W | 69.4% (380/548) | 4.4% (24/548) | 6.5% (36/548) | 8.8% (48/548) | 4.7% (26/548) | 2.6% (14/548) | 0.3% (2/548) | 3.3% (18/548) | 100% |

Table 2 – **Type** percentages of verbal patterns by variety and modality.

| Text type | <i>CaCaC</i> | <i>CaCCaC</i> | <i>Ca:CaC</i> | <i>aCCaC</i> | <i>tCaCCaC</i> | <i>tCa:CaC</i> | <i>inCaCaC</i> | <i>iCtaCaC</i> | Total |
|-----------|-------------------|-------------------|------------------|-------------------|------------------|-----------------|-----------------|-----------------|-------|
| PA | 51.5% (70/136) | 22.8% (31/136) | 8% (11/136) | 2.2% (3/136) | 7.4% (10/136) | 5.2% (7/136) | 0.7% (1/136) | 2.2% (3/136) | 100% |
| MSA-SP | 49.2% (63/128) | 7% (9/128) | 9.3% (12/128) | 13.3% (17/128) | 7% (9/128) | 6.3% (8/128) | 1.6% (2/128) | 6.3% (8/128) | 100% |
| MSA-W | 55.2% (58/105) | 12.4% (13/105) | 7.6% (8/105) | 10.5% (11/105) | 4.7% (5/105) | 4% (4/105) | 0.9% (1/105) | 4.7% (5/105) | 100% |

The data reveals that *CaCaC* is the most productive pattern in terms of type and token frequency in all text types, which corresponds with the results of Laks et al. (in preparation) for adults. This stands in sharp contradiction to the results of verb innovation in PA, where new verbs are formed

almost exclusively in *CaCCaC* and *tCaCCaC* (Laks 2011, forthcoming). In addition, the *istaCCaC* pattern is not used at all, and *inCCaC* is rarely used. *inCaCaC* is usually used for inchoative and passive verbs, and it seems that other patterns take over these semantic functions.

A closer examination of the results reveals mostly variety-related distinctions, but also some differences between modalities. The analysis of the distribution of semantic features pertains only to the results on causative, inchoative and active verbs. These features are analyzed because they reveal distinctions between varieties and between modalities⁵.

4.1. Variety-related distinctions

CaCCaC is the second most productive pattern in PA with respect to types (22.8%), while its type frequency is only 12.4% in MSA-W and 7% in MSA-SP. A similar picture emerges with respect to tokens. The relatively high usage of *CaCCaC* verbs in PA is not surprising since it is the most productive pattern in PA transitive verb formation, and it is used as one of the default patterns for such new verbs that enter the language (e.g., *fannaʃ* ‘finish’). In contrast, in MSA, *aCCaC* verb types occur six times as frequently as they do in PA, where they are scarcely used. A similar picture exists vis-à-vis *aCCaC* verb tokens. One of the functions of *aCCaC* is causativity, and, as the data show, this function is mainly expressed in *CaCCaC* in PA. This is demonstrated in (3) and (4) below. The same participant used the same root, *w-q-ʕ*, in two different patterns to denote the causative verb ‘made fall’: *aCCaC* in MSA (written and spoken) and *CaCCaC* in PA, where both sentences depict the same scene (see more examples in Appendix 3)⁶.

(3) ʔibn sʕaff-i: **waqqaʕ-ni:** (CaCCaC) ʕa-l-ʔardʕ (Ahmad A-F-PA)
 mate class-1st.poss.1st.sg cause.fall.3rd.sg-obj.1st.sg prep-def-ground
 ‘my classmate made me fall to the ground’

(4) ʔibn sʕaff-i: **awqaʕa-ni:** (aCCaC) ʔardʕ-an (Ahmad A-F-MSA/W-SP)
 mate class-1st.poss.1st.sg cause.fall.3rd.sg-obj.1st.sg ground-acc
 ‘my classmate made me fall to the ground’

⁵ For example, reciprocal verbs were formed in *tCa:CaC* in the two varieties and modalities (see Appendix 2).

⁶ It is important to note that the ‘labeling’ of different examples as PA or MSA is based on the type of variety that participants were asked to use. There could be some cases of interference of PA elements in MSA and vice versa. Such cases are not addressed in this proposal.

In addition, *iCtaCaC* verbs occur more frequently in both modalities of MSA than they do in PA. In MSA, *iCtaCaC* is usually used for inchoative verbs (e.g., *intaḡar* ‘spread’), in addition to *tCaCCaC*. However, in PA, *tCaCCaC* takes over this semantic function (e.g., *tdammar* ‘got ruined’).

The comparison of the spoken varieties reveals some differences. First, with respect to types and tokens, *CaCCaC* verbs in PA occur three times as frequently as they do in MSA-SP. Second, *aCCaC* and *iCtaCaC* verb types (13% and 6.3%, respectively) occur more frequently in MSA-SP than they do in PA (2.2% for both). A similar picture exists vis-à-vis tokens.

The distribution of inchoative, causative and active verbs distinguishes the two varieties. The token frequency of inchoative verbs in *CaCaC* in MSA-SP (84%) is higher than in PA (71.2%). In contrast, the token frequency of inchoative verbs in *tCaCCaC* in PA (21.2%) is higher than in MSA-SP (8.9%). It is expected to find such high usage of *tCaCCaC* for inchoative verbs in PA because one typical function of this pattern is inchoativity, in addition to the fact that it is highly productive in the formation of new intransitive verbs in PA.

In PA, the type frequency of causative verbs in *CaCaC* (41%) is higher than in MSA-SP (25%). Furthermore, causative and active verb types in *CaCCaC* (54% and 21.5%, respectively) occur three times as frequently as they do in MSA-SP. In MSA-SP, causative and active verb types in *aCCaC* (58.3% and 17%, respectively) occur more frequently than they do in PA (4.1% and 1.9%, respectively). Similar differences exist vis-à-vis tokens. As shown in (5) and (6) below, the same speaker used the same root, *k-m-l*, in two different patterns to denote the active verb ‘continued’. *aCCaC* is selected in MSA-SP, while *CaCCaC* is selected in PA, wherein both sentences depict the same scene. This shows that in PA, *CaCCaC* is more productive than *aCCaC* not only for causative verbs but also for active verbs in general.

- (5) il-mḡallm-e [...] **akmala-t** (aCCaC) al-film (Aseel K-C-MSA-SP)
 def-teacher-fem continued-3rd.sg.fm def-film
 ‘the teacher continued the film’
- (6) il-mḡallm-e [...] **kammala-t** (CaCCaC) il-film (Aseel K-C-PA)
 def-teacher-fem continued-3rd.sg.fm def-film
 ‘the teacher continued the film’

4.2. Modality-related distinctions

The distribution of verbal patterns distinguishes the two modalities as well. This is demonstrated by the fact that *tCaCCaC* verb types occurs more frequently in MSA-SP (7%) and PA (7.4%) than they do in MSA-W (4.7%). Again, the relatively high frequency of *tCaCCaC* verbs in PA is not surprising since it is a highly productive pattern in intransitive verb formation, and it is used as another default pattern for new verbs (e.g., *tʔamrak* ‘became American-like’), in addition to *CaCCaC*, which is mostly used for transitive verbs. Further, the type frequency of *Ca:CaC* and *tCa:CaC* in MSA-SP (9.3% and 6.3%, respectively) and PA (8% and 5.2%, respectively) is higher than in MSA-W (7.6% and 4%, respectively). However, in PA, both patterns occur twice as frequently as they do in MSA with respect to tokens. This suggests that only a few *Ca:CaC* and *tCa:CaC* verbs are used in PA and that they are quite frequently used. These patterns are not productive in PA, apart from a few verbs.

A comparison of the MSA modalities shows that the written texts contain almost twice as many *CaCCaC* verbs as the spoken texts with respect to types. The written texts also contain more *tCaCCaC* verbs (4.4% vs. 3%) with respect to tokens. Vis-à-vis types, the second most productive pattern in MSA-W is *CaCCaC* (12.4%), while in MSA-SP it is *aCCaC* (13.3%). The type frequency of verbs formed in *Ca:CaC*, *aCCaC*, *tCaCCaC*, *tCa:CaC*, *inCaCaC* or *iCtaCaC* is higher in speaking than in writing. This finding suggests that MSA-SP texts yield greater verbal diversity.

The distribution of causative and inchoative verbs distinguishes the two modalities as well. With respect to tokens, there are more inchoative verbs in *CaCaC* in MSA-SP (84%) than in MSA-W (71%) but less inchoative verbs in *tCaCCaC* (8.9% vs. 15.8%). With respect to types and tokens, *CaCCaC* causative verbs in MSA-W occur twice as frequently as they do in MSA-SP.

So far, the results seem to support the study’s hypotheses regarding variety differences. In MSA-SP, compared to PA, the frequency of most patterns is higher, a wider range of patterns is employed to express different semantic functions, and the scores of overall verbal diversity are higher, as manifested in the deployment of verbal patterns in tables 2, 4 and 6 in Appendix 2. These results

indicate that during the online production of MSA-SP, PA lexical items might be called upon when the speaker does not access the relevant MSA lexical items or has not acquired them yet.

Comparing the results of the distribution of patterns and their semantic functions in MSA-SP and MSA-W reveals that the similarities between them outnumber the differences. This supports the hypothesis that the two modalities function similarly. Yet, contrary to the predictions, MSA-SP, not MSA-W, contained more verb types and showed greater diversity. This suggests that 4th graders tend to use PA verbs while speaking MSA, but not while writing it. This highlights the special status of MSA-SP as a “mediator” between PA and MSA-W.

Comparing the results for 4th graders with the results of Laks et al. (in preparation) for adults allows some predictions about the development of the usage of verbal patterns. First, adults use *Ca:CaC*, *tCaCCaC* and *iCtaCaC* more frequently than 4th graders do, and, based on that, it may be assumed that the use of these patterns will increase throughout schooling. Second, it is predicted that *CaCaC* will remain the prevailing pattern and that *inCaCaC* and *istaCaCaC* will continue to be unproductive patterns with age, as adults rarely use them.

5. Work stages and timetable

The writing process of the dissertation will follow the timetable below. The first year and a half will be mostly devoted to coding the data of the three other age groups, processing the results and analyzing them. The next year and a half will be devoted to a general analysis of the results, comparing them to research on other languages and providing an analysis of the developmental stages of the acquisition of the verbal patterns.

| Stage | Details |
|---|--|
| First Year <i>First semester</i> | <ul style="list-style-type: none"> ● completing coding the data of 4th graders, processing the results and analyzing modality and variety similarities and differences. ● coding the data of 7th graders, processing the results and analyzing the relevant similarities and differences. ● comparing the results for 4th and 7th graders to pinpoint developmental similarities and differences. |
| First Year <i>Second semester</i> | <ul style="list-style-type: none"> ● coding the data of 9th graders, processing the results and analyzing them. ● comparing the results for 4th, 7th and 9th graders. ● coding the data of 11th graders, processing the results and analyzing the relevant similarities and differences. |

| | |
|--|--|
| | <ul style="list-style-type: none"> ● comparing the results for 4th, 7th, 9th and 11th graders. |
| Second Year <i>First semester</i> | <ul style="list-style-type: none"> ● discussing modality-related and variety-related similarities and differences within each group and developmental similarities and differences across the population. |
| Second Year <i>Second semester</i> | <ul style="list-style-type: none"> ● comparing the results with studies conducted on modality and developmental similarities and differences in other languages. |
| Third Year | <ul style="list-style-type: none"> ● The last year will be devoted for writing up the general discussion and conclusions. |

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Appendix 1 -Arabic verbal patterns and their semantic and syntactic features

Table 1 - Arabic verbal patterns

| Pattern | Examples | Gloss |
|-----------------|----------|---------------------|
| <i>CaCaC</i> | katab | ‘wrote’ |
| <i>CaCCaC</i> | jammaʕ | ‘put together’ |
| <i>Ca:CaC</i> | qa:tal | ‘fought’ |
| <i>aCCaC</i> | asʕaf | ‘gave first aid’ |
| <i>tCaCCaC</i> | thayyar | ‘became puzzled’ |
| <i>tCa:CaC</i> | tqa:tal | ‘fought each other’ |
| <i>inCaCaC</i> | inhabas | ‘was jailed’ |
| <i>iCtaCaC</i> | irtawa: | ‘got irrigated’ |
| <i>iCCaCC</i> | izraqq | ‘became blue’ |
| <i>isCaCCaC</i> | istantaj | ‘concluded’ |

Table 2 – Semantic and syntactic features of MSA verbal patterns according to Ryding (2005)

| Verbal patterns in MSA | Semantic function(s) | Syntactic function (transitivity) |
|------------------------|---|-----------------------------------|
| <i>CaCaC</i> | common standard semantic usage | transitive / intransitive |
| <i>CaCCaC</i> | causative, resultative, intensive | transitive |
| <i>Ca:CaC</i> | reciprocal, activity | transitive |
| <i>aCCaC</i> | causative (of <i>CaCaC</i> intransitive verbs) | transitive |
| <i>tCaCCaC</i> | reflexive (of the <i>CaCCaC</i> verbs), medio-passive (between reflexive and spontaneous development) | transitive / intransitive |
| <i>tCa:CaC</i> | reciprocal | intransitive |
| <i>inCaCaC</i> | passive, resultative, reflexive | intransitive |
| <i>iCtaCaC</i> | reciprocal, reflexive, medio-passive | transitive / intransitive |
| <i>iCCaCC</i> | the acquisition of color or physical trait | intransitive |
| <i>istaCaCaC</i> | requestative, estimative | transitive / intransitive |

Table 3 – The semantic features that appeared in the different verbal patterns of PA, as revealed by the study of Saed (2006)

| Function verbal pattern | basic | causative | reciprocal | change and becoming | reflexive | intensive |
|-------------------------------|-------|-----------|------------|---------------------------|-----------|-----------|
| <i>CaCaC</i> | + | | | | | |
| <i>CaCCaC</i> | + | + | | | | + |
| <i>Ca:CaC</i> | + | | + | + | | |
| <i>aCCaC</i> | + | | | | | |
| <i>tCaCCaC</i> | + | | | + | + | + |
| <i>tCa:CaC</i> | + | + | + | | + | |
| <i>inCaCaC</i> | + | | | + | + | |
| <i>iCtaCaC</i> | + | | | | + | |
| <i>istaCCaC</i> | + | | | | + | |

Table 4 – Syntactic categories (transitivity) for coding Arabic verbs, based on the criteria set for coding Hebrew verbs (Laks & Berman, in preparation)

| Category | Example | Comments |
|--|--|---|
| DO=direct object | <i>raʔay-tu-ha: huna:k</i> 'I saw her there' | A transitive verb takes a nominal or pronominal obligatory complement |
| NC=no complement | <i>badaʔa ya-takallam bi-sʕawt-in ʕa:l-in</i> 'he started talking loudly' | A transitive verb takes a complement that is not realized either because this thematic role is not obligatory or it is obligatory, but is not manifested in the sentence as the coding is made per a sentence |
| CMT= communicative phrase | <i>ħatta: baqa-t-ef ti-ħki: maʕ-na:</i> 'she even didn't speak with us ' | The first complement is realized as a prepositional phrase (PP) that includes the preposition <i>maʕ</i> 'with' and has the semantic function of a patient |
| min= the preposition min 'from' | <i>iʕtaðar-tu min-ha:</i> 'I apologized to her ' | The first complement is realized as a PP that contains the preposition <i>min</i> 'from' and has the semantic function of a patient |
| OBL=oblique | <i>lam ta-ħtamm bi-ða:lika al-fayʔ</i> 'she didn't care about that thing ' | The first complement is realized as a PP that does not contain the prepositions <i>maʕ</i> 'with' or <i>min</i> 'from', and has the |

| | | |
|--------------------------------|--|---|
| | | semantic function of a patient |
| IO= indirect object | <i>arsala-t l-i: risa:la</i> 'she sent a letter for me ' | A PP is the second complement of a verb |
| CP= a clause complement | <i>iqtaraha-t ṣala-yya ṣan u-sa:miha-ha:</i> 'she suggested that I forgive her ' | The complement is a clause |

Note: Transitivity is a syntactic feature that relates to the number of complements that a verb takes.

“**IT**” indicates **intransitive** verbs, i.e. ones that take no complements (e.g., *na:m* ‘slept’).

“**TR**” indicates **transitive** verbs, i.e. ones that take complements, either obligatory (e.g., *raʔa:* ‘saw’) or optional (e.g., *akal* ‘ate’).

Table 5 - Semantic categories for coding Arabic verbs, based on the criteria set for coding Hebrew verbs (Laks & Berman, in preparation)

| Category | Example | Comments |
|--|--|---|
| inch = inchoative | <i>taṣaṡṡara-t sʕadi:q-at-i:</i> <i>bi- al-ḥabla</i> 'my friend stumbled over the rope' | These verbs denote 'becoming or entering into a state' |
| inch-act = inchoative activity | <i>daxal-tu ʔila: al- sʕaff</i> 'I entered the classroom' | The external argument of an inchoative verb can be interpreted as a cause or an agent |
| inch-exp= inchoative experiencer | <i>hazin-tu</i> 'I became sad ' | The external argument of an inchoative verb is an experiencer |
| inch~pass = inchoative~passive | <i>bi-il-a:xer inhalla-t il-muṣkile</i> 'finally, the problem was solved ' | These verbs are both inchoative and passive (mainly <i>tCaCCaC</i> and <i>inCaCaC</i>) |
| act = activity | <i>kun-na: na-lṣab luṣbat al-qita:l</i> 'we were playing the fighting game' | It is restricted to cases in which the actor/agent must be (and is) an animate argument |
| caus-nam = causative, non-animate | <i>al-muṣallem-a halla-t al-muṣkila</i> 'the teacher solved the problem' | These are 'cause to be(come)' verbs where the external argument can be both animate and inanimate |
| caus = causative | <i>awqafa-t al-muṣallim-a al-film</i> 'the teacher stopped the film' | These are 'cause to do' verbs |

| | | |
|--|---|---|
| loc = locative | <i>jalas-tu ʕala: janbi al-malʕab</i> ‘I sat on the side of the playground’ | These are verbs that take an obligatory place |
| aff= affective | <i>a-taḏakkār kull yawm tilka al-ḥa:diḥa</i> ‘I recall that accident every day’ | These verbs denote senses, affections, thoughts and attitudes |
| Reciprocal | <i>naḥnu taxa:sʕam-na: ʕala: al-malʕab</i> ‘we fought over the playground’ | The agent and the patient of the action are associated with the same argument, a case in which both arguments act on each other |
| Reflexive | <i>taqarraba-t min-n-i: al-fataya:t</i> ‘the girls got closer to me’ | The agent and the patient of the action are associated with the same argument, a case in which the agent acts on himself |
| act- recip = action, reciprocal | <i>sʕadi:q-i: lam yu-sa:ʕid-ni:</i> ‘my friend did not help me’ | These verbs denote an action and are the base of reciprocal verbs |
| Iterative | <i>il-walad kabkab il-may</i> ‘the boy spilt the water over and over again ’ | These verbs denote an action which is done repeatedly |
| say =saying | <i>la: tu-ri:du ʔan ta-takallam maʕ-i:</i> ‘she does not want to talk to me’ | These verbs denote ‘saying something’ or introduce a saying |

Appendix 2 - Tables of results

Table 1 – Token and type percentages and numbers of the **verbal patterns** out of total by modality and variety.

| Verbal pattern | MSA-W | | MSA-SP | | PA | |
|----------------|------------|-----------|------------|-----------|------------|-----------|
| | Tokens | Types | Tokens | Types | Tokens | Types |
| <i>CaCaC</i> | 69.4%(380) | 55.2%(58) | 70.4%(245) | 49.2%(63) | 70.8%(646) | 51.5%(70) |
| <i>CaCCaC</i> | 4.4%(24) | 12.4%(13) | 3%(11) | 7%(9) | 11.2%(102) | 22.8%(31) |
| <i>Ca:CaC</i> | 6.5%(36) | 7.6%(8) | 4.6%(16) | 9.3%(12) | 6%(54) | 8%(11) |
| <i>aCCaC</i> | 8.8%(48) | 10.5%(11) | 8.4%(29) | 13.3%(17) | 3%(28) | 2.2%(3) |
| <i>tCaCCaC</i> | 4.7%(26) | 4.7%(5) | 6%(21) | 7%(9) | 3%(28) | 7.4%(10) |
| <i>tCa:CaC</i> | 2.6%(14) | 4%(4) | 4%(14) | 6.3%(8) | 5.1%(46) | 5.2%(7) |
| <i>inCCaC</i> | 0.3%(2) | 0.9%(1) | 0.6%(2) | 1.6%(2) | 0.2%(2) | 0.7%(1) |
| <i>iCtaCaC</i> | 3.3%(18) | 4.7%(5) | 3%(10) | 6.3%(8) | 0.7%(6) | 2.2%(3) |

Table 2 – Sum total of **pattern frequency** and overall verbal diversity

| Text type | MSA-W | | | MSA-SP | | | PA | | |
|--------------|------------|------------|------------------|------------|------------|------------------|------------|------------|------------------|
| | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity |
| Total | 548 | 105 | 19.2% | 348 | 128 | 36% | 912 | 136 | 14.9% |

Table 3 – Token and type percentages and numbers of **causative** verbs in the different verbal patterns out of total by modality and variety

| Verbal pattern | MSA-W | | MSA-SP | | PA | |
|----------------|-----------|----------|-----------|----------|---------|-----------|
| | Tokens | Types | Tokens | Types | Tokens | Types |
| <i>CaCaC</i> | 17.6%(6) | 21.4%(3) | 31.2%(5) | 25%(3) | 20%(10) | 41.7%(10) |
| <i>CaCCaC</i> | 29.4%(10) | 35.7%(5) | 12.5%(2) | 16.6%(2) | 76%(38) | 54.2%(13) |
| <i>aCCaC</i> | 53%(18) | 42.9%(6) | 56.3%(12) | 58.3%(8) | 4%(2) | 4.1%(1) |

Table 4 - Sum total of **causative** verbs and overall verbal diversity

| Text type | MSA-W | | | MSA-SP | | | PA | | |
|--------------|-----------|-----------|------------------|-----------|-----------|------------------|-----------|-----------|------------------|
| | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity |
| Total | 34 | 14 | 41.2% | 19 | 13 | 68.4% | 50 | 24 | 48% |

Table 5 – Token and type percentages and numbers of **inchoative** verbs in the different verbal patterns out of total by modality and variety

| Verbal pattern | MSA-W | | MSA-SP | | PA | |
|----------------|----------|-----------|---------|-----------|-----------|---------|
| | Tokens | Types | Tokens | Types | Tokens | Types |
| CaCaC | 71%(40) | 78.5%(11) | 84%(29) | 75.2%(12) | 71.2%(47) | 65%(13) |
| tCaCCaC | 15.8%(6) | 14.3%(2) | 8.9%(3) | 18.8%(3) | 21.2%(14) | 20%(4) |
| iCtaCaC | 5.2%(2) | 7.2%(1) | 5.9%(2) | 6.2% (1) | 7.6%(5) | 15%(3) |

Table 6 – Sum total of **inchoative** verbs and overall verbal diversity

| Text type | MSA-W | | | MSA-SP | | | PA | | |
|--------------|-----------|-----------|------------------|-----------|-----------|------------------|-----------|-----------|------------------|
| | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity |
| Total | 48 | 14 | 29.4% | 34 | 16 | 47% | 65 | 20 | 29% |

Table 7 – Token and type percentages and numbers of **active** verbs in the different verbal patterns out of total by modality and variety

| Verbal pattern | MSA-W | | MSA-SP | | PA | |
|----------------|-----------|---------|----------|-----------|------------|-----------|
| | Tokens | Types | Tokens | Types | Tokens | Types |
| <i>CaCaC</i> | 67.6%(92) | 70%(28) | 81%(107) | 72.3%(34) | 78.5%(233) | 70.6%(36) |
| <i>CaCCaC</i> | 4.4%(6) | 7.5%(3) | 2.2%(3) | 6.3%(3) | 12.1%(36) | 21.5%(11) |
| <i>Ca:CaC</i> | 8.8%%(12) | 5%(2) | 2.2%(1) | 2.2%(1) | 1.3%(4) | 4%(2) |
| <i>aCCaC</i> | 17.6%(24) | 15%(6) | 13.7%(8) | 17%(8) | 7.4%(22) | 1.9%(1) |
| <i>tCaCCaC</i> | 1.4%(2) | 2.5%(1) | 0.8%(1) | 2.2%(1) | 0.6%(2) | 1.9%(1) |

Table 8 – Sum total of **active** verbs and overall verbal diversity

| Text type | MSA-W | | | MSA-SP | | | PA | | |
|--------------|------------|-----------|------------------|------------|-----------|------------------|------------|-----------|------------------|
| | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity | Tokens | Types | Verbal diversity |
| Total | 136 | 40 | 29.4% | 120 | 47 | 39% | 297 | 51 | 17% |

Table 9 – Token and type percentages and numbers of **reciprocal** verbs in the different verbal patterns out of total by modality and variety

| Verbal pattern | MSA-W | | MSA-SP | | PA | |
|----------------|-------|--------|--------|--------|-------|--------|
| | Types | Tokens | Types | Tokens | Types | Tokens |
| tCa:CaC | 100% | 100% | 100% | 100% | 100% | 100% |

Appendix 3 - Examples

Contrasting excerpts taken from Aseel's narratives

I. awqafa-t al-film (Aseel K-C-MSA-SP/W)

stopped-3rd.sg.fm def-film

“she stopped the film”

II. waqqafa-t il-filim (Aseel K-C-PA)

stopped-3rd.sg.fm def-film

“she stopped the film”