The Interaction of Indirect Evidentiality, Temporality and Epistemic Modality in Jordanian Arabic: The Case of Deverbal Agentives

By

Mohammed Al-Malahmeh

Submitted to the graduate degree program in The Department of Linguistics
and the Graduate Faculty of the University of Kansas
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy.

_____
Dr. Clifton Pye (Chairperson)

_____
Dr. Utako Minai

_____
Dr. Marc Greenberg

_____
Dr. Naima Boussofara

_____
Dr. Andrew McKenzie

_____
Dr. John Bricke

Date Defended: December 16, 2013

The Dissertation Committee for Mohammed Al-Malahmeh
certifies that this is the approved version of the following dissertation:

The Interaction of Indirect Evidentiality, Temporality and Epistemic Modality in Jordanian Arabic: The Case of Deverbal Agentives

_____

Dr. Clifton Pye (Chairperson)

Date approved: December 16, 2013

Abstract

Evidentiality is commonly concerned with two basic notions: evidence type and the speaker's commitment towards the truth of the proposition expressed (Chafe and Nichols 1986). Throughout a detailed study of the morphosyntax and semantics of deverbal agentives (DAs), this dissertation investigates indirect evidentiality and its interaction with two other semantic categories, particularly epistemic modality and temporality in Jordanian Arabic (JA). The study shows that the semantics and morphosyntax of DAs is far more complex than what has been described in the previous literature which mainly focused on the temporal and non-verbal features of DAs.

I propose an indirect evidential account to capture the semantics of DAs. The evidential proposal is grounded on a diverse body of evidence which shows that DAs are the hallmark of indirect evidentiality in JA. The evidential meaning of DAs is explored with regard to their interaction with temporality and epistemic modality. The proposed analysis provides a *unified* account of DAs where the evidential, modal and temporal components are incorporated. I argue that the indirect evidence is specified by anterior and posterior temporal relations. I also show that evidential DAs trigger a modal reading in their semantics. The modal reading is captured by a compositional analysis where DAs are analyzed as quantifiers over possible worlds, adopting Kratzer's possible world theory (1981, 1991). Morphosyntactically, the study calls for a reconsideration of the previous categorization of DAs found in the literature (Kremers 2003, Mughazy 2004 among others). I defend an alternative evidential categorization of DAs in JA. The morphosyntactic analysis also challenges the 'verbal vs non-verbal' view of predication in Arabic in general and in JA in particular. Based on this fact, I propose an alternative view of predication in JA based on a modal vs non-modal rather than a verbal vs non-verbal distinction.

The empirical findings of the current study have significant implications for the linguistic analysis of JA, Arabic dialects, Semitology and evidentiality cross-linguistically. The study provides an alternative evidential perspective of the temporal behavior of DAs and specifically the temporal problem of DAs which has long dominated the literature on DAs in all Arabic dialects. Typologically, the current evidential account suggests that any theory of evidentiality should not restrict the requirement of the evidence type to a lexical or morphological specification, but include a temporal specification as well. Also, the evidential-modal analysis suggests that the type of inferential reading not only includes consequent-state inferential readings as assumed in the literature but also result-state inferential readings as well. Additionally, the current study is the first attempt to account for evidentiality in Semitology. Contrary to the widely held belief in the Semitic literature, this study provides evidence that evidentiality does exist as a separate category in at least one Semitic language - JA.

Acknowledgement

There is much gratitude I owe for those who helped and inspired me throughout the path that led to the present dissertation. For all of them I say 'Thank you'. I would like to start by extending my greatest thanks and gratitude to my advisor Dr. Clifton Pye. My appreciation to him is beyond any linguist or language can ever express as he was indeed the greatest linguist and friend I have ever known. To him I say 'I had honor and pleasure to work with you, I will never forget you and I will always love you as a friend, and as an inspiring linguist'. I am also indebted to my committee members: Dr. Marc Greenbege, Dr. Utako Minai, Dr. Naima Boussofara, Dr. Andrew McKenzie and Dr. John Bricke for their great help, reviews and constructive input which enormously contributed to the success of my dissertation. They have each influenced the shape of this dissertation in their own way. I owe special thanks to Dr. McKenzie who showed interest in my work and guided me throughout writing this dissertation by his clever insights and extremely enjoyable discussion on evidentiality and modality. My thanks also go to my sponsor, Mutah University, for the financial support of the first four years of my study at Kansas University.

I can never express my gratitude to my family who supported me throughout my doctoral study at the States. As a linguist who is supposed to have all the eloquent words, I can find none to say to my family to pay them the many thanks they deserve. My family means the world to me and the whole world can never pay them back the overwhelming love, support and devotion they gave me during my study. All that I am and hope to be, I owe to my father and mother who instilled the love of education in me since childhood. Their true love and prayer were my angels throughout the difficult times. I can never forget the love and support I had from my sister

Hadeel, my brothers Ahmad, Ismael and Musab, my sister's husband Hakim and his son Anas and his three daughters Sarah, Malak and Lina.

To Dima, I say 'Thank you; thank you for being the most gracious gift in my life. It is because of you I have reached a point in my life where I feel it is no longer necessary to impress anyone. I found you and that is all I want'.

Throughout my stay at Lawrence I met the greatest people ever; those whom I will never forget and I will always be indebted to. I start with my dearest friends Feras Gosheh, Baha Safadi, Ali Muqadam, and Jawad Obaid. To them I say 'Guys, I love you all, you were a family to me, I have never met people like you in my life (I guess I will not), and I could not have achieved my dissertation without your help, support and understanding. The memories of all the good times and laughs we had together will always be with me. You truly shaped part of my character and mentality; and for all of that I will always be there for you as you were always there for me.'

I would like also to express my sincere appreciation to the Jayhawks at the department of linguistics at Kansas University who would make such great linguists one day. They all set the tone of daily life and discussion: Atef Al-Sarayreh, Rania Al-Agarbeh, Mujdey Abudalbuh, Turki Binturki, Hiba Gharib, Emad Alkulaib, Kelly Berkson, Mircea Sauciuc, Ibrahima Ba, Alonso Canales, Kristi Bond, Sok-Ju Kim, Khady Tamba, and Pedro Mateo. My warmest gratitudes also go to my friend Hesham Aldamen and his family who encouraged me a lot and offered help with my tests of language intuition. Special thanks are due to my informants who were so generous in offering help and time.

A lot of people I met at Lawrence deserve many special thanks as well: Dr. Mahmoud Al-Kofahi and his wife, Khalid Al-Kofahi, Mjali Al-Kofahi, Ayman Batayneh, Shaalan Al-Garni, Mukhtar Al-Twairi, Mahmoud Al-Bishti, Amer Safadi and his wife Haala, Rami Safadi, Sami Safadi, Ahmad Muqadam and Abdullah Al-Hmood. I thank them all for the good time and the true company.

Table of Contents

List of Symbols and Abbreviations:

JA	=	Jordanian Arabic	t	=	Time
MSA	=	Modern Standard Arabic	ERs	=	Event Arguments
CA	=	Classical Arabic	*w*	=	World
RSI	=	Result-State Inferential	*w'*	=	Possible World
CSI	=	Consequent-State Inferential	w*	=	Real World
DAs	=	Deverbal Agentives	*f(w)*	=	Modal Base
DAPs	=	Deverbal Active Participles	*g(w)*	=	Ordering Source
APs	=	Active Participles	ST	=	Stereotypical
PPs	=	Passive Participles	Dox	=	Doxatic
EAT	=	Evidence Acquisition Time	S	=	Speech Time
R	=	Accessibility Relation	Epis	=	Epistemic
s	=	State	MASC	=	Masculine
E/e	=	Event Variable	FEM	=	Feminine
EV	=	Evidential Operator	NOM	=	Nominative
R	=	Reference Time	ACC	=	Accusative
TT	=	Topic Time	PERF	=	Perfective
SAO	=	Speaker's Awareness Origio	IMPERF	=	Imperfective
PS	=	Post-State	SING	=	Singular
P	=	Prejacent	PL	=	Plural
P	=	Proposition	1	=	First Person
T	=	Time of described eventuality	2	=	Second Person
TU	=	Time of Utterance	3	=	Third Person

CENs	=	Complex Event Nominals
∩	=	Intersection
⊆	=	Subset
| |	=	Cardinality
#	=	Semantically Unacceptable
*	=	Grammatically Unacceptable
p↔q	=	Mutual Entailment
¬p↔q	=	Lack of Mutual Entailment
¬	=	Negative Operator
X	=	Speaker
i	=	Index
=	=	Equal
≠	=	Not Equal
∀	=	Universal Quantifier
∃	=	Existential Quantifier
◇	=	Possibility Operator
□	=	Necessity Operator

List of Phonetic Symbols:

Symbol	IPA	Description
‘	ʔ	Glottal stop
Dh	ð	Voiced dental fricative
th	ɵ	Voiceless dental fricative
j	ʤ	Voiced palato-alveolar affricate
tsh	ʧ	Voiceless palato-alveolar affricate
3	ʕ	Voiced pharyngeal fricative
H	ħ	Voiceless pharyngeal fricative
gh	ɣ	Voiced uvular fricative
x	x	Voiceless uvular fricative
sh	ʃ	Voiceless post-alveolar fricative
D	$ð^{ʕ}$	Voiced interdental fricative (emphatic)
S	$s^{ʕ}$	Voiceless alveolar fricative (emphatic)
T	$t^{ʕ}$	Voiceless alveolar stop (emphatic)
z̲	$d^{ʕ}$	Voiced alveolar stop (emphatic)
q	q	Voiceless uvular stop
y	j	Voiceless palatal approximant
w	w	Voiceless palatal velar

List of Tables and Figures

1. Tables

Chapter One:

Chapter Two:

Chapter Three:

Chapter Five:

2. Figures

Chapter Two:

Chapter Three:

Chapter Four:

Chapter One

Introduction

Evidentiality is commonly concerned with two basic notions: evidence type and the speaker's commitment towards the truth of the proposition expressed (Chafe and Nichols 1986). The former notion specifies the source of information the speaker uses to base his claim upon which includes direct, indirect (inference) and hearsay evidence (Aikhenvald 2004). The latter notion, on the other hand, subsumes evidentiality under the realm of epistemic modality where a proposition is possibly or necessarily true. That is, it views evidentiality as encoding the speaker's attitude towards his knowledge of reality.

Cross-linguistically, the notion of evidentiality has been investigated relatively recently. Most of the previous studies of evidentiality have shown that evidential interpretations arise from separate expressions i.e. either lexical or morphological expressions (Garrett 2001, Faller 2002, Aikhenvald 2004, Matthewson et al. 2007, Peterson 2010, and others). For example, in Turkish direct and indirect evidence are indicated morphologically (Şener 2011). In past events where the speaker has direct evidence (i.e. the speaker perceived the event), the morpheme [-DI] is used (1a). However, when indirect evidence is obtained (i.e. the speaker did not perceive the event), the morpheme [-mIs] is used (1b).

(1)

(a) Ev kirmizi-y**di.**
house red-COP-past-DIR.EV-3SG
'Speaker has direct evidence that the house is red.'
(Direct Evidence/ Şener 2011: 10)

(b) Adam anla-**mis.**
man understand-past-INDIR.EV-3SG
'It was reported to the speaker that / the speaker inferred that the man understood/has understood.'

(Indirect Evidence/ Şener 2011:11)

In this dissertation, I investigate indirect evidentiality and its interaction with modality and temporality in Jordanian Arabic (JA). Indirect evidentiality in JA deviates from previous studies of evidentiality (in which the distinction between direct and indirect evidence is specified lexically or morphologically) in that the type of evidence is specified temporally. I argue that the indirect evidence requirement in JA is a result of two temporal relations: anterior and posterior temporal relations between the time of the event and the evidence acquisition time (EAT, following Lee 2011). An anterior temporal relation corresponds to a post-state reading (2a), and a posterior temporal relation corresponds to a futurate reading (2b); both readings are denoted by Deverbal Agentives (DAs) in JA. I propose that DAs are the exemplary structure of indirect evidentiality in JA.

(2)

(a) sarah msawieh el-'akil.
Sarah make-DA the-food
'Sarah has made the food.'

(Post-state reading: anterior relation)

(b) 'anas jaay bukrah.
Anas travel-DA tomorrow
'Anas is coming/ is going to come tomorrow.'

(Futurate reading: posterior relation)

The proposed evidential analysis assumes that the anterior and posterior temporal relations of DAs trigger an inferential reading as well: the fact that the event is anterior or posterior to the EAT guarantees that *the speaker does not perceive the event*; rather s/he *infers* it. The inferential interpretation is accounted for by providing a compositional modal analysis of evidential DAs where DAs are analyzed as quantifiers over possible worlds, adopting Kratzer's possible world theory (1981, 1991) and by incorporating the temporal component into the modal denotation of DAs. The proposed modal analysis captures that the proposition in the scope of the evidential implication of DAs is true in a set of possible (accessible) worlds which I call the speaker's belief worlds rather than the actual world.

Evidentiality is a new topic in Semitology as shown by the scarcity of studies on evidentiality in Semitic languages. The reason behind this fact is the long held belief that a category of evidentiality does not exist in Semitic languages (Isaksson 2000, Aikhenvald 2004 among others). Until now there has not been a single study that provides a comprehensive and detailed semantic analysis of evidentiality in any Semitic language. The current work is the first attempt to account for evidentiality not only in Arabic but in Semitology in general. The contribution of the proposed evidential account is achieved by the fact that active and passive participle constructions in JA, a Semitic language, are argued to be the hallmark of indirect evidentiality. This provides compelling evidence for the first time that evidentiality exists as a separate category in Semitology.

In order to investigate indirect evidentiality and its interaction with temporality and modality in JA, I discuss the semantics and morphosyntax of deverbal agentives (DAs) which I view as an exemplary structure of indirect evidentiality in JA. In the current work, I propose that DAs are indirect evidentials that express indirect evidence (which is specified temporally) and a

modal inferential reading. Most of the previous approaches to the semantics of DAs in Arabic (the lexical aspect approach of Holes 2004 and Brusad 2000 among others; the formal aspect approach of Mitchell and El-Hassan 1994, Boneh 2004 and others; and the sub-atomic approach of Kinberg 1992 and Mughazy 2004) were centrally concerned with accounting for the varied temporal and aspectual interpretations of DAs. For example, these approaches attempted to account for the temporal problem of verbless sentences with DAs in Arabic. Verbless sentences in Arabic have always been accounted for as encoding a present default reading that is licensed by a null copula. When verbless sentences encode past or future reading, an overt copular verbs *kaan* 'was/were' or *ykoon* 'be' are used to express these temporal readings respectively. However, unlike all other verbless sentences, those with DAs have varied temporal readings in that they license temporal adverbials that belong to different time specifications without the need of overt copular verbs (Mughazy 2004). For example, sentence (3) licenses the present temporal adverbial *delwa'ti* 'now', while those in (4) and (5) license the past adverbial *embareH* 'yesterday' and the future adverbial *bukra* 'tomorrow' respectively without the need of an overt copular verb; (Examples taken from Egyptian Arabic, Mughazy 2004:5).

(3) mona nayma delwa'ti.
Mona sleep-DA now
'Mona is asleep now.

(4) 'ana kaatib eg-gawaab embareH.
I write-DA the-letter yesterday
'I wrote the letter yesterday.'

(5) 'ana misaafer bukra.
I travel-DA tomorrow
'I am going to travel tomorrow.'

Furthermore, the previous approaches have attempted to account for why sentences with DAs vary in terms of their aspectual readings. The problem that arises with these aspectual readings is that there is no verbal component in these sentences to license the different aspectual readings of DAs and that DAs maintain the same morphological template in all of these readings. Examples (6-8) are illustrative; (Egyptian Arabic, Mughazy 2004).

(6) 3ali saakin fe el-beet da.
Ali live-DA in the-house this
'Ali lives in this house.'

(7) nadir mashi hinaak 'ahoh.
Nader walk-DA there now right
'Nader is walking over there right now.'

(8) mona lissa mixallaSa el-wageb.
Mona just finish-DA the-homework
'Mona has just finished the homework.'

Sentence (6) has a present simple reading, sentence (7) a present progressive reading, while (8) has a present perfect reading.

In the current study, I provide a theoretical and empirical criticism of these approaches as will be discussed in chapter 2. One of the prevailing shortcomings of these approaches, for instance, is that none of these approaches has explored or accounted for the evidential interpretation of DAs as exemplified by the sentences under (9 and 10).

(9)
(a) **majdi** Saaf es-sayarah, bs (mumkin) 'aHmad (elli) Safh-a.
Majdi park-DA the-car, but (maybe) Ahmad (who) PERF-park-it
'Majdi has parked the car, but Ahmad did/Ahmad might have done it.'
Intended: '[I infer that] it is Majdi who parked the car.'

(b) **majdi** Saf es-sayarah,# bs (mumkin) ‘aHmad (elli) Safh-a.
Majdi park-PERF the-car,# but (maybe) Ahmad (who) PERF-park-it
‘Majdi has parked the car, but Ahmad did/Ahmad might have done it.

(10)

(a) ‘ana sheft sarah msawieh el-ma3mool, bs ma sheftha lamma sawwat-uh.
I see Sarah make-DA the-dessert, but not see when make-PERF-it
‘I saw Sarah had already made the dessert, but I did not see her making it.’

(b) ‘ana sheft sarah sawwat el-ma3mool, # bs ma sheftha lamma sawwat-uh.
I see Sarah PERF-make the-dessert, # but not see when make-PERF-it
‘I saw Sarah making the dessert, but I did not see her making it.’

Contra to the perfective in (9b), the sentence with a DA (9a) survives the actuality entailment test which asserts that the proposition is true in an irrealis world (i.e. modal component) rather than the actual world. In (10a), a DA is allowed in a context where the speaker did not perceive the event contra to the perfective in (10b). These sentences pose a challenge to the previous semantic approaches of DAs in Arabic in that none of them has either explored or accounted for such problematic cases. Sentences (9 and 10) show that the semantic behavior of DAs is different from the semantics of the perfective verbal form. The contrast between the semantics of DAs and other verbal forms such as the perfective and imperfective has been undetected by most of these approaches. The current work provides an alternative evidential-modal account to capture the semantic behavior of DAs shown in (9a) and (10a). It also provides an explanation for the semantic contrast between DAs and other verbal predicates in JA such the perfective and imperfective verbal forms. Additionally, the proposed evidential analysis accounts for the temporal and aspectual behavior of the DAs from an alternative evidential perspective. DAs have other semantic features that are problematic for the previous approaches which will be further discussed in chapter 2.

Morphosyntactically, DA predicates are a mixed category that exhibits both verbal and non-verbal (i.e. nominal and adjectival) properties. The fact that DAs have mixed verbal and non-verbal properties has led to the assumption that DAs can be classified as either non-verbal predicates (i.e. nominal, adjectival and complex adjectival predicates) or verbal predicates.

Under the non-verbal analysis, the major argument for categorizing DAs as nominals comes from the definiteness property. Definiteness is a distinguishing feature of nominals in Arabic that sets them apart from other non-nominals (i.e. verbal predicates). In Arabic, all nominals can be either definite or non-definite as shown in (11a and b).

(11)

(a) sami shaarak fee **es-sbaag.**
Sami participate-PERF.3SG.MASC in **the race**
'Sami has participated in the race.'

(b) sami sharaak fee **sbaag** el-thaHieh.
Sami participate-PERF.3SG.MASC in **race** the-city
'Sami has participated in city race.'

However, DAs are only grammatical when they are indefinite as shown by the grammaticality of (12a) and the ungrammaticality of (12b) where the DA *Saayim* 'fast $_{(DA)}$' is used with the definite article *el* 'the'.

(12)

(a) 'ana Saayim bukrah.
I fast-DA tomorrow
'I am fasting/going to fast tomorrow.'

(b)* 'ana el-Saayim bukrah.
I the-fast-DA tomorrow
'I am the fasting/going to fast tomorrow.'

I argue that the definiteness property is a sufficient argument against the nominal classification of DAs due to the fact that definiteness is a denominating feature of all nominals in Arabic including event and non-event nominals.

DAs have been classified as verbal predicates as well. However, a closer look at DA's morphosyntactic behavior, namely the property of person agreement, calls for a reconsideration of this claim. The property of person agreement is a denominating feature of the verbal category in Arabic which distinguishes them from non-verbal categories where only number and gender agreement is marked. The fact that DAs violate this typical feature of verbs in Arabic clearly suggests that DAs cannot be categorized as verbal predicates (Mughazy 2004 and Boneh 2004, 2005 and 2010).

The most recent approach to the morphosyntactic categorization of DAs is the (complex) adjectival approach which has been proposed under the non-verbal analysis (Kremers 2003 and Mughazy 2004). The same argument has also been extended to DAs in JA as proposed by Al-Agarbeh (2011). For example, Mughazy (2004) claims that the major argument in support of the adjectival analysis comes from the fact that DAs can be used in comparative and superlative contexts in which only adjectival predicates are licensed as shown in (13); (Mughazy 2004: 53).

(13) 'Hna 'a'dar min-ak 3ala Hal el-mushkila di.
we become able to-DA from-you on solving the-problem this
'We are better able to solve this problem than you.'

I argue that this argument is incomplete and based on a very limited set of data. In fact, the only permissible DA structure in comparative contexts is the dynamic modal *gaadir* 'can/be able to' as shown in sentence (13). No other DA forms are attested in these contexts; not only in

JA but in most dialects of Arabic as well. Consider sentences (14a and b) where the DA forms are used in comparative contexts, yet the utterances yield ungrammaticality.

(14)

(a)* sami ‘aakal li-tufaaHa min-ak.
Sami eat-COMP to-the-apple than-you
‘Sami is more eating to the apple than you.’

(b)* sami ‘aftaH la-l-baab min-ak.
Sami open-COMP to-the-door than-you
‘Sami is more opening to the door than you.’

Based on these facts, I argue that DAs are problematic for all the previous verbal and non-verbal analyses. In this work, I defend an alternative categorization of DAs which has recently been categorized in the literature as adjectival predicates (Kremers 2003, Mughazy 2004, Al-Agarbeh 2011 among others). I also attempt to present an alternative perspective of the conventional dichotomy of predication in Arabic in general and in JA in particular which is based on the ‘verbal vs non-verbal’ distinction. The motivation for this alternative view comes from the fact that this conventional view fails to account for the mixed and intermediate morphosyntactic behavior of DAs which exhibits both non-verbal vs verbal properties.

1.1 Significance of the Study

The current study has significant implications for the literature on JA, Arabic dialects, Semitology and the typology of evidentiality. First, this study is the first attempt to account for evidentiality not only in Arabic but in Semitology in general. In Semitology, evidentiality is a totally new topic as shown by the scarcity of studies on evidentiality in Semitic languages. Semiticists have long held that evidentiality as a separate category does not actually exist in

Semitic languages (Isaksson 2000). Contrary to this belief, I show that participle constructions are the hallmark of the evidential category in JA, which is a Semitic language.

Second, this study provides an alternative evidential account for the semantics of DAs. This evidential analysis differs from all of the previous approaches cited in the literature on Arabic dialects where the central concern was only to account for the temporal and aspectual interpretations of DAs. It also accounts for the temporal problem of DAs from an alternative evidential viewpoint and provides new perspectives on the temporal relations in JA, especially the incorporation of evidence acquisition time (EAT, following Lee 2011) into the temporal relations in JA and the evidential relative tense analysis.

Typologically, the current work contributes to the existing literature of evidentiality in many regards. I show that the type of evidence in JA is specified temporally not lexically or morphologically as always assumed in the typology of evidentiality. Moreover, this study is one of the few to provide a *unified* account of indirect evidentiality where not only the evidential and modal components are used but the temporal component is incorporated as well. While the proposed evidential-modal analysis provides further typological support for the close overlap between evidentiality and epistemic modality (Izvorski 1997, Matthewson et al. 2007, McCready and Ogata 2007, Peterson 2010, Lee 2011 and others), it also shows that the type of inferential reading is not only restricted to consequent-state inferential readings as previously proposed in the literature but also to result-state inferential readings as well.

Fourth, the current study proposes an alternative morphosyntactic view of the categorical status of DAs in JA. It shows that DAs constitute a major challenge to the conventional 'verbal vs non-verbal' view of predication in Arabic in general and in JA in particular. Based on this

fact, I defend an alternative view of predication in JA based on a modal vs non-modal rather than a verbal vs non-verbal distinction.

1.2 Language of the Study

The current study investigates indirect evidentiality and its interaction with modality and temporality based on data taken from Jordanian Arabic (JA). Jordanian Arabic is a Levant dialect of Arabic spoken in the country of Jordan. JA belongs to the South-Central Semitic languages, most closely related to Aramaic, Amharic, Hebrew, Ugaritic and Phoenician (cf. Comrie 1987). JA is used as a spoken variety in all the regions of Jordan. JA, as a spoken variety in informal settings, coexists with another variety, Standard Arabic which is mainly used in formal settings such as the media, academic settings, etc… (Ferguson 1959, El-Hassan 1977, Mitchell 1978 among others).

1.3 Methodology

The data presented in the current study are based on JA. The semantic field work methodology adopted in this study for data elicitation comprises natural conversation and formal elicitation techniques (Mathewson et al. 2004 and Peterson 2010). These two techniques were used to elicit data for the semantic and morphosyntactic analyses of this study. It is worth mentioning that the current study is the first to account for the semantics of evidentiality in Semitology with no other previous studies, therefore I proceeded on virgin soil with regard to the techniques and methods used for elicitation of the meaning of evidentials in the current study. I followed some of the methodologies adopted by previous and seminal studies of evidentiality in other languages such as Mathewson et al. (2004) and Peterson (2010).

1.3.1 Informants

Data were collected from 125 native speakers of JA representing all of the regions in Jordan. The motivation for including speakers from all parts of Jordan is to assure that the current semantic account is applicable to JA regardless of the region where it is used. All the informant information along with their regions, gender, age and number is given in Table (1). There were no discernible differences with regards to the intuition of these speakers in both the semantic and morphosyntactic elicitation tests.

Table (1) Informants of the study: demographic information

Age Range	Gender	Region			Total
		South [Karak, Ma'an]	Center [Amman, Salt]	North [Irbid]	
20s	Female	**12**	**8**	**5**	**25**
	Male	**12**	**6**	**7**	**25**
30s	Female	**11**	**7**	**5**	**23**
	Male	**12**	**6**	**4**	**22**
40s	Female	**5**	**4**	**4**	**13**
	Male	**6**	**6**	**5**	**17**

1.3.2 Techniques and Data Collection

There have been three major techniques used for semantic elicitation in this study. The primary technique was to provide JA native speakers with a variety of *contexts* that target the evidential and modal meanings and then ask them to choose the appropriate sentence that adequately describes the context at hand. The sentences that were introduced to the speakers include sentences with DAs, passive participles, perfective and imperfective verbal forms. The following is an illustrative example.

(15) Context: Majdi is smoking outside while Sami is working on his laptop inside. Suddenly, Majdi sees two kids start to fight and Majdi is watching them. Sami hears the noise from inside and then asks Majdi who is still watching them fighting:

Sami: what is this noise outside?

Majdi: (a) fii wlaad thneen ga3deen bethawashu.
in kid-PL two IMPERF.PART IMPERF-fight.3PL.MASC
'There are two kids fighting.'

(b) fii wlaad thneen mithawashiin.
in kid-PL two fight-DA
'There are two kids have fought.'

The speaker is presented with this context and then asked which sentence, sentence (a) with a DA or (b) with an imperfective form, s/he chooses to adequately describe the context given in (15).

Another technique that was used to collect data for the semantic analysis is the acceptability judgment task. This task is crucial for the semantic analysis since it includes the intuition of the native speakers of the evidential and modal meanings under examination. In this task, JA speakers were introduced with pairs of sentences describing the same context and then were asked which sentence is semantically felicitous. The sentences given under (16) are illustrative example.

(16)

(a) 'ana sheft 3ali raakib el-baaaS, bs ma sheftu-h lamma rakbu-uh.
I see Ali ride-DA the-bus, but not see-him when ride-it
'I saw Ali had already ridden the bus, but I did not see him ride it.'

(b) 'ana sheft 3ali rakib el-baaaS,# bs ma sheftu-h lamma rakbu-uh.
I see Ali ride-PERF the-bus, # but not see-him when ride-it
'I saw Ali (when he) rode the bus, but I did not see him ride it.'

The third method I implemented for the sake of the semantic analysis was to record natural telephone conversations for JA native speakers in informal settings. This method afforded me the chance to observe how JA speakers use DAs in a variety of contexts without the interference of the researcher. It also provided me with instances of the use of DAs in reported contexts especially hearsay reportive where the speaker is reporting incidents via a third party. This information was crucial to account for the reportive use of DAs as part of its indirect evidential interpretation.

In addition to testing the semantic acceptability of utterances that are essential for the evidential and modal accounts, the current study also implemented tasks to elicit data for the morphosyntactic analysis. To this end, I used a grammaticality judgment task where JA speakers were asked to evaluate the given sentences from grammatically acceptable, awkward and grammatically unacceptable. In this task I used a variety of contexts where I applied the nominal, adjectival and verbal properties to DAs in order to test the acceptability of the sentences with DAs with each of these features. The following is an illustrative example taken from this task.

(17)

(a) el-banaat 3aamlaat keik.
the-girl-PL do-DA-**SPL** cake
'The girls have made cake.'

(b) *el-banaat 3ummal keik.
the-girl-PL do-DA-**IPL** cake
'The girls have made cake.'

1.4 A Remark on Terminology

In this dissertation I discuss the semantics and morphosyntax of *deverbal agentives* (DAs) as an exemplary structure of indirect evidentiality in JA. DAs are the major domain of inquiry in this work. DAs are also known in the literature of Arabic as active participles (APs) or

deverbal active participles (DAPs). Throughout this dissertation, I equate deverbal agentives (DAs) and (deverbal) active participles (DAPs/APs) and use them interchangeably. The motivation for referring to DAPs/APs as DAs is to draw attention to the *agentivity* of DAs which was overlooked in the literature of Arabic. Based on the modal analysis of DAs advocated in this study, I show that the *agentivity* of DAs is only a matter of inference.

1.5 Outline of the Dissertation

This dissertation is organized as follows. Chapter two reviews the previous literature on the semantics of DAs and evidentiality in the dialects of Arabic and Semitology. This chapter is divided into two sections. In section one I survey the previous approaches to the semantics of DAs in the dialects of Arabic. These approaches include the lexical aspect approach, the formal aspect approach and the sub-atomic semantic approach. All these approaches were mainly concerned with accounting for the varied temporal and aspectual interpretations of DAs. I lay out the major arguments of these approaches and then provide a theoretical and empirical criticism of them. I also show that all these approaches fail to account for the evidential interpretations of DAs in JA. In section two, I discuss the most related studies of evidentiality in Arabic and Semitic languages.

Chapter Three explores the morphosyntactic properties of DAs in JA. In this chapter I present the morphological template of DAs and show how DAs exhibit a mixed morphosyntactic behavior of verbal and non-verbal properties. The chapter also discusses verbal vs non-verbal predication in JA and then provides compelling evidence showing that this conventional view fails to account for the mixed and intermediate behavior of DAs which exhibit both non-verbal vs verbal properties. The last section in the chapter argues for an alternative view of predication in JA based on a modal vs non-modal rather than verbal vs non-verbal dichotomy. Under the

alternative view of predication, I argue that DAs belong to an evidential category. I provide evidence for this categorization based on the behavior of passive participles in JA as well.

Chapter four proposes an alternative indirect evidential account to capture the semantics of DAs in JA contra to the previous literature. The evidential proposal is grounded on an ample and diverse body of evidence which shows that the interpretation of DAs reflects the semantics of indirect evidentiality. The chapter shows that DAs have the three basic features of indirect evidentiality: speaker-dependency, indirect evidence and speaker's attitude towards the proposition expressed i.e. a modal component. I show that speaker dependency is evident from the contrast in meaning between DAs and the imperfective under habitual readings. The evidence comes from the fact that the habitual interpretation with DAs is anchored to the speaker rather than to the subject as evident from the entailment test.

I argue that DAs introduce an indirect evidence requirement similar to indirect evidentials i.e. the speaker did not directly perceive the event. The argument is based on the fact that DAs are acceptable under a cancelation test that negates seeing the event on the part of the speaker and that DAs are not acceptable in contexts where the speaker perceives the event itself. However, both imperfective and perfective are acceptable when the speaker perceived the event. Typologically, I show that DAs in JA introduce a temporal contribution to the indirect evidence requirement: the indirect evidence is specified temporally rather than morphologically or lexically. In this regard, JA differs from other evidential languages where direct and indirect evidence is specified by separate morphemes.

The chapter discusses how DAs trigger result-state (RSI) and consequent-state (CSI) inferential readings. A RSI inferential reading indicates that there is an entailment between the state (i.e. evidence) and the event, and therefore a speaker can only target event arguments (ERs)

in his or her inference and the inference about the event itself is blocked. In the CSI inferential reading, the lack of entailment allows inference to target the event. By this meaning, DAs differ from other inferential evidential systems cross-linguistically where only a CSI reading is triggered; no RSI reading has been attested in these systems.

Chapter four also analyzes how DAs pattern with other inferential evidential predicates (evidential proper) such as *shakluh* 'it looks like' in JA. I probed the evidential meaning of DAs further by claiming that DAs express a mirative reading and show sensitivity to the first person; these are one of the notable semantic extensions of indirect evidentiality cross-linguistically (Aikhenvald 2004). Contrary to perfectives and imperfectives, only DAs are felicitous in contexts where a mirative interpretation is expressed; also only DAs show sensitivity to first person. In addition, DAs are used as reported evidentials where JA speakers employ DAs to communicate the lack of direct evidence contrary to perfectives and imperfectives.

The chapter concludes by extending the indirect evidential proposal to account for the semantics of passive participles (PPs) in JA. Based on this extension, I conclude that active and passive participles are the hallmark of evidentiality in JA. This conclusion poses a challenge to the belief in the literature of Semitology where it is assumed that evidentiality as a separate category does not actually exist in Semitic languages.

Chapter five examines the interaction of indirect evidentiality and epistemic modality. It provides a formal semantic account of the modal reading of DAs based on Kratzer's possible worlds theory (1981, 1991). In this regard, the modal analysis of evidential DAs lends typological support for the close overlap between evidentiality and epistemic modality. It also provides further support for the indirect evidential account of DAs advocated in chapter 4.

In this chapter I argue that the results of the diagnostics of the level of meaning show that DAs pattern with epistemic modals and modal evidentials and not with non-modal or illocutionary evidentials. Further support for the modal analysis is provided based on the interaction of DAs and modal subordination and the behavior of DAs in counterfactual copular contexts. Therefore, it is concluded that a modal analysis would account for the behavior of evidential DAs. On the basis of the empirical findings of these diagnostics, I analyze DAs as quantifiers over possible worlds where the modal base includes the indirect evidence and the ordering source ranks the accessible worlds and picks out the most ideal world depending on what the speaker knows at the evidence acquisition time. I also incorporate the temporal component in the modal analysis of DAs since anterior and posterior temporal relations are essential to the establishment of the indirect evidence requirement and consequently to the inferential reading of DAs.

Chapter six concludes the dissertation. This chapter summarizes the main findings of the previous chapters. It also discusses the implications of these findings for the research of JA, Arabic dialects and typology of evidentiality. The last section provides directions for further research.

Chapter Two
Review of Related Literature

2.1 Introduction

The present chapter surveys the theoretical and descriptive approaches to the semantics of Dverbal Agentives (DAs) in Arabic. It also provides a comprehensive criticism of these analyses. Previous approaches to DAs are centrally concerned with two major issues. First, the literature on DAs in Arabic is mainly concerned with providing explanation of the temporal behavior of DAs which has long intrigued the previous studies on DAs. The temporal problem of DAs is concerned with the varied temporal interpretations licensed by DAs in the absence of an overt copula unlike other verbless sentences. The second issue addresses the different aspectual reading of DAs. These issues will be discussed under three main approaches: the lexical aspect approach, the formal aspect approach and the subatomic semantic approach. None of the approaches reviewed here accounts for the evidential semantics encoded by DAs as proposed in the current work.

This chapter also includes a tentative survey of previous studies on evidentiality in Arabic. Evidentiality is a totally new topic in Semitology as shown by the scarcity of studies on evidentiality in Semitic languages. There is not a single study that provides a comprehensive and detailed semantic analysis of evidentiality in Semitic languages. The reason behind this fact is a long held belief that evidentiality as a category does not actually exist in Semitic languages. The current work is the first attempt to account for evidentiality not only in Arabic but in Semitology as well.

This chapter is organized as follows. Section two surveys the temporal approaches of DAs in Arabic. This section is divided as follows; in sub-section one I present the main arguments advocated by the lexical aspect approach to account for the semantics of DAs. Sub-section two provides a review of some studies that address the semantics of DAs from the perspective of viewpoint aspect approach. In sub-section three, I review the most seminal works that have been done under subatomic approach (Kinberg 1992 and Mughazy 2004). Section three presents previous studies of evidentiality on Arabic and Semitic languages, mainly Hebrew. Section four concludes the chapter.

2.2 Approaches to the Temporal Problem of DAs in Arabic

2.2.1 The Lexical Aspect Approach

In this section I review previous studies that discuss semantics of DAs from a lexical aspect viewpoint. Most of the studies within this approach base their arguments on the assumption that the lexical aspectual properties of the verbs from which DAs are derived play a central role in determining the temporal and varied aspectual interpretations of DAs (Al-Najjar 1984, El-Bakry 1990, Brustad 2000, Holes 2004 among others). Below I discuss the most relevant studies in this approach.

Holes (2004) argues that the temporal specifications of DAs are based on the lexical aspect properties of the verbal base of the derived DA. According to him, finite verbs and DAs in Arabic receive their temporal readings by the context. He claims that DAs have no intrinsic temporal or finite features in their structure similar to finite verbs in Arabic. He argues that these findings are valid in Modern Standard Arabic (MSA) and the dialects of Arabic as well. In MSA, the DA of dynamic verbs often indicate a futurate reading relative to the time of utterance as

shown in example (1) below. However, the DA of stative verbs often expresses a situation simultaneous to the time of utterance as shown in example (2). Examples are takes from Holes (2004: 220).

(1) ‘alHarbu waqe3atuun la maHala.
the-war happen-DA no avoid
‘War will break out , inevitably.’

(2) ‘nni muSaddequka.
I believe-DA-you
‘I believe you.’

Holes (2004) argues that the imperfective form of the verb (which he labels the p-stem) can be used interchangeably with the DAs in sentences (1) and (2) above. The same finding holds for the perfective form (which he labels the s-stem) when used as a substitute of DA in (2). In the absence of time adverbs, only the DA in sentence (1) allows, out of context, a present and futurate readings.

He further claims that the dichotomist view of stative verbs (which include verbs of perceptions and cognition) and dynamic verbs (which include verbs of motion) is the determining factor of the temporal readings of DAs in all Arabic dialects. While the DA derived from the stative verbs expresses state as in example (3) below, DAs derived from the a motion verb express a futurate reading rather than perfective meaning as in (4), (Holes 2004: 221):

(3) ana mish 3aarif irragil da. (Cairene Arabic)
I not know-DA the-man this
‘I do not know this man.’

(4) wein raayeH?
Where go-DA
‘Where are you going?’ (Most dialects of Arabic according to Holes 2004)

Holes (2004) observes instances where there is opposition between the s-stem (perfective form of verb) and DAs derived from dynamic verbs such that the perfective form expresses a completed action or (complete episode in Holes terms) and DAs produce a resultative interpretation. Examples (5-9) are illustrative (Holes 2004:221):

(5) klit. (Moroccan Arabic)
Perf.eat-1.sg
'I ate.'

(6) 'akalit. (Baghdadi Arabic)
Perf.eat-1.sg
'I ate.'

(7) kalet. (Bahraini Arabic)
Perf.eat-1.sg
'I ate.'

(8) wakil. (Moroccan Arabic)
eat-DA
'I have eaten.'

(9) makil. (Baghdadi and Bahraini Arabic)
eat-DA
'I have eaten.'

In sentences (5-7) the perfective forms of the verb *klit, akalit and kalet* 'eat' express a completed action or a neutral statement of fact according to Holes (2004). It can also be used in narrative contexts. The corresponding DAs in (8-9) are appropriately used in contexts where the speaker has already eaten and not hungry at the time of utterance.

Holes' account of DAs has a number of conceptual and empirical weaknesses. The first problem is concerned with attributing the temporal specification of DAs to the aspectual classes of verbs. It has been argued that DAs derived from a motion verb express a futurate reading rather than perfective meaning. However, in sentence (10) below the DA *meshtaghleen* 'work' is

derived from a dynamic verb, yet the sentence is felicitous under a perfect interpretation and not a futurate reading.

(10) ‘l3umaal meshtaghleen ‘el-Tareeg.
The-worker-PL work-DA the -road
‘The workers have finished working in the road.’

This claim can be supported by the fact that only the deictic adverbial *hassa* ‘now’ and the past adverbial *imbareH* ‘yesterday’ are acceptable with the DA *meshtaghleen* ‘work’ in (10) above. The presence of the future adverbial *bukrah* ‘tomorrow’ renders the sentence unacceptable as shown in (11) and (12) respectively.

(11) ‘l-3umaal meshtaghleen ‘el-Tareeg hasa /imbareH.
The-worker-PL work-DA the-road now/yesterday
‘The workers have/had finished working in the road now/yesterday.’

(12) ?/* ‘l-3umaal meshtaghleen ‘el-Tareeg bukrah.
The-worker-PL work-DA the -road tomorrow
‘The workers will finish working in the road tomorrow.’

Another empirical problem with Holes’ account is the assumption that both verbal forms (the perfective form (s-stem) and the imperfective form (p-stem)) can be used interchangeably with DAs as indicated in examples (1) and (2) above. This assumption leads to many erroneous predictions. One problem is the licensing of habitual adverbials by the imperfective form of the verb and DAs as illustrated in sentences (13) and (14) respectively. Sentence (13) denotes a habitual or generic reading. This is expressed by the use of the imperfective form (p-stem in Holes terms) and the licensing of the habitual adverbial *kulla marratin* ‘every time’. However, in sentence (14) the DA is used instead of the imperfective form of the verb, yet the sentence is unacceptable. Holes’ account erroneously predicts that both sentences are acceptable in that both the imperfective form and the DA should license the habitual adverbial as shown in (13) and

(14). I will address this issue in more details in chapter 4 when I provide an evidential analysis of the interpretation of habituality in DAs and imperfective; (the examples below are taken from Fassi 1993: 183).

(13) kaana r-rajulu yfthaHu faahu kulla maratin.
was the-man-NOM IMPERF-open.3sg.Masc mouth-his every time
'The man used to open his mouth every time.'

(14) *kaana r-rajulu faatiHaan faahu kulla maratin.
was the-man-NOM open-DA.Masc mouth-his every time
'The man was in the state of opening his mouth every time.'

Brustad (2000) discussed the semantics of DAs in a comparative study of four Arabic dialects: Moroccan, Egyptian, Syrian and Kuwaiti. Her analysis of the semantics of DAs comprises three major notions: (a) the relation between the semantics of DAs to lexical aspect, (b) the major aspectual reading of DAs and (c) the temporal reference of DAs in these dialects. I will discuss each notion in turn.

Brustad (2000) argues that the semantic analysis of verbs is better exemplified by providing arrays of meanings to each verb and that each meaning belongs to a different category. Therefore, she argues that Arabic verbs can have both telic and atelic meanings depending on the context. For example, the verb *naam* 'to sleep' can have a telic meaning 'to fall asleep' and an atelic reading 'to sleep'. Following Ingham (1994), she proposes a classification of verbs in Arabic where verbs are classified as action verbs or state/motion verbs. Based on this classification she provides two emerging patterns of DAs as presented in Table (1) taken from Brustad (2000:171):

Table (1) Brustad's Classification of Lexical Aspect and the Participles

	Telic	**Atelic**
State/Motion	Resultant State	Progressive
Action	Resultant State	----------

Table (1) provides the aspectual interpretations of participle predicates (DAs) in the four dialects under investigation. This table clearly shows that the aspectual interpretation of participle predicates are dependent on the lexical class of the verb each participle is derived from.

Brustad (2000) claims that DA predicates denote a 'resultant state' reading as its canonical reading. According to this claim, DA predicates are always subsumed under the perfect aspect paradigm where the DAs always project a state resulting from a prior event and relevant to the utterance time. In an attempt to provide a further investigation of the perfect aspectual interpretation of DAs in Arabic, she claims that the use of DAs in the given dialects conforms to the Li and Thompsons (1982) proposal for perfect aspect in Chinese. Li and Thompson (1982) analyzed the pragmatic properties of perfect meaning of Mandarin Chinese. They listed five pragmatic functions of perfect in Chinese, two of which Brustad (2000) believes to be relevant to the perfect interpretations in Arabic as shown below (Brustad 2000: 179):

1- To indicate a change of state, or change of perception on the part of the speaker.

2- To correct a wrong assumption.

According to Brustad (2000), the above features are meant to account for the behavior of DAs in contrast to imperfective form as shown in examples (15-17).

(15) ba3ref keif kull waHad bifakir.
IMPERF-know.1SING how each one IMPERF-think-3.SING.MASC
'I know how each one thinks.'

(16) maani 3aarif allah wein HaaTni.
Neg know-DA God where put-DA
'I do not know where God put me (what is going on with me).'

(17) 'nna 3aarif shuu 3am baHki.
I know-DA what Prog IMPERF-say
'I know what I am saying.'

Brustad (2000) claims that the motivation for the use of the imperfective in example (15) is to indicate an 'underlying process' of acquiring knowledge. She further argues that examples (16) and (17) can be accounted for by the pragmatic functions in (1) and (2) above. Sentence (16) presents a loss of perception by the speaker, whereas sentence (17) implies a correction of assumption by the interlocutor about the speaker.

Brustad (2000) has also investigated the temporal reference of DAs in the four Arabic dialects she discussed. She argues that DAs have no intrinsic temporal reference in their semantics. The temporal reference is thus indicated through the use of time adverbials or established by the context. Accordingly, she provides further evidence that verbal predicates in Arabic including DAs comprise relative tense rather than absolute tense (cf. Cowell 1964, Comrie 1976, 1985, Eisle 1988, 1990 and Mitchell and El-Hassan 1994).

Brustad (2000) bases her analysis of the temporal reference of DAs on Eisle (1990) who proposes that DAs express a current relevant state and an implied event. The current state is bound to a present reading and the implied event is either bound to a past or a future interpretation which in turn licenses the past and future adverbials. For example, in sentence (18) the future adverbial *bukrah* 'tomorrow' is licensed by the future event of leaving. The same sentence could also denote a future perfect interpretation (Brustad 2000: 227).

(18) humma mashyeen bukrah.
They leave-DA tomorrow
'They are leaving tomorrow.'

Brustad's analysis of DAs presents some insightful observations about the semantics of DAs especially those related to the fact that DAs comprise a state and an event. However her analysis is inadequate and lacking on many grounds. Brustad (2000) proposes a classification of verbs in Arabic where verbs are classified as action verbs or state/motion verbs. Based on this classification, she provides two emerging patterns of DAs as presented in Table (1) above. I argue that such patterns do not provide adequate predictions. The DA *shaghaal* 'work' in (19) is derived from the action verb *yshtaghel* 'work' and according to Table (1) we would assume that the aspectual reading denoted by this verb should give a resultant state reading and not a progressive one. Yet, sentence (19) is only acceptable under a progressive and not a resultant state reading.

(19) Adam shaghaal fee el-maktabeh.
Adam work-DA in the-library
'Adam is working in the library.'

Furthermore, as mentioned earlier, Brustad (2000) believes that some of the pragmatic features of perfect in Chinese can be relevant to the perfect interpretations in Arabic as presented in examples (16) and (17) above. However, it is still not clear how these features account for the semantics of the DA *Haab* 'love$_{(DA)}$' in (20):

(20) 'adam Haab el-bent.
Adam love-DA the-girl
'Adam loves/is in love with the girl.'

Brustad (2000) draws a distinction in meaning between the imperfective and DA predicates in that the former is used to indicate an 'underlying process' and the latter expresses a completed event with resultant state as shown in examples (15-17) above. However such a distinction is still insufficient to account for the difference in meaning between the habitual interpretation denoted by the imperfective and the DAs predicates in sentences (21) and (22).

(21) majdi dayman birkab el-baaS la el-jaam3a.
Majdi always IMPERF-ride.3SING.MASC the-bus to the-university
'Majdi always rides the bus to the university.'

(22) majdi dayman raakib el-baaS la el-jaam3a.
Majdi always ride-DA the-bus to the-university
'Majdi always rides the bus to the university.'

Moreover, her account does not provide an adequate explanation of why sentence (22), repeated here as (24), is still acceptable when continued with a contradictory statement that negates the habitual readings with the DAs while such contradiction yields unacceptability with the imperfective form in (21) repeated here as (23).

(23) majdi dayman birkab el-baaS lal-jaam3a,# bs mush
Majdi always IMPERF.ride .3.SING.MASC the-bus to the-university, #but not
ma3naatuh ennu dayman birkab el-baaS lal-jaam3a.
mean that always IMPERF.ride .3.SING.MASC the-bus to the-university
'Majdi always rides the bus to the university but it does not mean he always rides the bus to university.'

(24) majdi dayman raakib baaS el-jaam3a, bs mush ma3naatuh ennuh
Majdi always ride-DA bus the-university, but not mean that
dayman birkab baaS el-jaam3a.
always IMPERF.ride .3.SING.MASC bus the-university
'Majdi always rides the bus to the university but it does not mean he always rides the bus to university.'

Brustad (2000) claims that sentences such as (18), repeated here as (25), could express a future perfect interpretation (Brustad 2000: 227).

(25) humma mashyeen bukrah.
They leave-DA tomorrow
'They are leaving tomorrow.'

This assumption erroneously predicts that (25) is similar in meaning to sentence (26) where the copular verb *bykoon* 'to be' is used to express a future perfect interpretation.

(26) humma bykoon-u mashyeen lamma neji bukrah.
they to be-they leave-DA-PL when come.INF.1st.PL tomorrow
'By the time we come tomorrow, they would have left.'

In sum, I argued in this section that lexical aspect studies have both empirical and theoretical shortcomings. I showed that the lexical aspect properties of the verbal base of the derived DAs are lacking in that it confines some temporal and aspectual readings of DAs to a specific verb classes to the exclusion of others. Furthermore, none of the studies presented above accounts for the evidential behavior of DAs which is a prevailing shortcoming of all the previous studies of DAs as shown in the next sections.

2.2.2 The Formal Aspect Approach

The formal aspect approach argues that DAs bear aspectual interpretations in their semantics. The proponents of this approach claim that DAs encode a perfect aspectual reading which mainly translates as a result-state reading. While their main argument in accounting for DAs semantics is based on a viewpoint aspect perspective, they also highlight the significance of the lexical aspect properties of the verbal stem of which DAs are derived from as one of the key factors of the varied temporal and aspectual readings of DAs. The current work draws on some

implications presented by the formal aspect approach as will be discussed in chapters 4 and 5 especially those related to the result-state reading of DAs i.e. anterior temporal relation. However, it will be shown that a lot of the assumptions made by these accounts are inadequate and do not provide plausible explanations for the more complex semantics of DAs. For example, these accounts as they stand do not account for the evidential behavior of DAs and they do not provide adequate explanation of the contrast between DAs and the perfective form other than that based on resultant-state reading.

Mitchell and El-Hassan (1994) attempted to account for the semantics of DAs by the use of lexical aspectual verb classes and viewpoint aspect. They argue that that the temporal interpretation of DAs stems from the class of the verb the DAs are derived from. In this regard, they classified the verb classes into three types: non-motive verbs, motive verbs (also known as motion verbs or translocatives since they denote a change of spatial location in Mitchell and El-Hassan terms) and situative or locative verbs. The non-motive verbs express a perfect aspectual reading; the translocatives express a future interpretation, while the locatives indicate a progressive interpretation as shown in sentences (27), (28) and (29) respectively.

(27) ‘ana maakil.
I eat-DA
‘I have eaten.’

(28) ‘ana msaafer bukrah.
I travel-DA tomorrow
‘I am leaving tomorrow.’

(29) ‘ana baayet 3end mHammad eleileh.
I stay-DA at Mohammed tonight
‘I am staying at Mohammed’s house tonight.’

Based on Mitchell and El-Hassan's account, DAs also exhibit an aspectual interpretation namely a perfect aspect reading. They argue that DAs "refer to the inception of an act, activity, or a state and to a consequent state of affairs" (Mitchell and El-Hassan 1994: 18). They have distinguished two types of result states based on data from Egyptian and Jordanian Arabic: while the DAs refer to an unbroken relevant result state in Egyptian, no such implication arises in Jordanian Arabic as in (30); example taken from Mitchell and El-Hassan (1994:78).

(30) laabis el-badhleh.
wear-DA the -suit
'He is wearing the suit.'

According to their analysis, this sentence means that he put on the suit at earlier time and that he has not taken it off since. They claim that this reading only arises in Egyptian but not in Jordanian Arabic. Moreover, they showed that the current relevant state is also available with the copular verb *kaan* 'to be/was' in Egyptian and not in Jordanian Arabic as in (31).

(31) kaan laabis el-badhleh (lamma shuftuh).
was wear-DA the-suit (when I saw him)
'He was wearing the suit (when I saw him).'

Sentence (31) expresses a past perfect reading where the subject of the sentence had put on the suit and at no time after that he took it off not until the time of seeing him as indicated by the continuation (when I saw him). It is argued that this relevant state reading is only available in Egyptian Arabic and not in Jordanian where no current or 'unbroken' relevant sate reading is implied. To support their argument regarding the absence of current relevant state reading, Mitchell and El-Hassan (1994) argue that (32) is acceptable in Jordanian Arabic where the continuation *w shaaleHha* 'and took it off' negates the relevant result state.

(32) kaan laabis el-badhleh **w shaaleHha** (lamma shuft-uh).
was wear-DA the-suit **and take if off-DA** (when I saw him)
'He had worn the suit and took it off (when I saw him).'

The same facts regarding the relevant state reading in Jordanian also obtain for passive participles, and therefore (33) according to their analysis is felicitous only under a reading where there is *no* current relevant state (i.e. the door is not open). This interpretation is supported by sentence (34) where the sentence is still acceptable under cancellation.

(33) el-baab maftooH.
The-door open-PP
'The door is open.' (Mitchell and El-Hassan 1994:80)

(34) el-xazaaneh maftooHa **wi msakarah.**
The-safe open-PP **and close-PP**
'The safe is opened and is (now) closed.' (Mitchell and El-Hassan 1994:80)

Among the limitations of this analysis, there are the following four. First, Mitchell and El-Hassan (1994) argue that the presence of temporal phrases affects the interpretations of DAs in Jordanian Arabic. Those that specify the total duration, the beginning and end, give non-durative readings while those that indicate an inceptive specification give durative readings as in (35) and (36) respectively.

(35) ayman mixtafii fii elmasjid yoomeen.
Ayman hide-DA in the-mosque two days
'Ayman hid in the mosque for two days.'

(36) ayman mixtafii fii elmasjid min youm elxamees.
Ayman hide-DA in the-mosque since day-Thursday
'Ayman hid in the mosque since Thursday.'

I argue that such assumptions are inaccurate. In (37) below the DA *kaatib* 'write' is used with a temporal phrase that specifies an inceptive reading, yet the sentence yields a non-durative i.e. complete event with a result state obtained. The same observation holds for the DA *3aayesh* 'live' in sentence (38) which is used with the temporal adverbial *min santeen la7ad elyoom* 'since two years till today' specifying the total duration (beginning and end of state of affairs) of the DA and yet the sentence yields a durative reading contra to Mitchell and El-Hassan's prediction.

(37) majdi kaatib el-resaleh min yoom elxamees.
Majdi write-DA the-letter since day Thursday
'Majdi has written the letter since Thursday.'

(38) majdi 3aayesh fe 3amman men santeen la7ad elyoom.
Majdi live-DA in Amman since two years till today
'Majdi has been living in Amman two years up until today.'

Second, according to Mitchell and El-Hassan (1994) only motion verbs (translocative verbs) give rise to future interpretations as in sentence (28) above. However, the futurate reading can also be obtained by other classes of verbs such achievements as in the DA *meshtari* 'buy$_{(DA)}$' derived from the achievement verb *ysthtari* 'buy' as shown in (39).

(39) bedi ajeeb aay foon ma daam 'enni meshtari meshtari.
IMPERF.want.1SING bring.Inf.1st I phone as far as I buying buying
'I want to bring an iphone as far as I am buying one.

It has also been argued that DAs derived from motion verbs express futurity without the need of future adverbs. That is, they can express future interpretations in out of the blue contexts without the presence of future adverbs *bukrah* 'tomorrow' as in (40).

(40) Hasan msaafer.
Hasan travel-DA
'Hasan is leaving.'

Again, this implication is inadequate due to the fact that sentence (40) can also be used to indicate a current relevant state and not futurate reading as in this dialogue:

A: wein Hasan?
where Hasan
'Where is Hasan?'

B: Hasan msaafer.
Hasan travel-DA
'Hasan has traveled.'

The above dialogue clearly shows that the DA *masafer* 'travel' is used to denote a current state of leaving in that the speaker (B) emphasizes the fact that Hasan is not here now and *not* that he is leaving in the future as expected by Mitchell and El-Hassan's approach.

Third, the lack of the relevant current state in Jordanian Arabic as indicated in sentences (30-32) above is not substantially supported. Contra to Mitchell and El-Hassan's approach, JA speakers intuit that sentences (30) and (31) repeated here as (41) and (42) respectively are perfectly acceptable under a current relevant and unbroken result state reading.

(41) laabis el-badhleh.
wear-DA the-suit
'He is wearing the suit.'

(42) kaan laabis el-badhleh (lamma shuft-uh).
was wear-DA the-suit (when I saw him)
'He was wearing the suit (when I saw him).'

I support my claim regarding the felicity of the result state reading in sentences (41) and (42) above by the cancellation test as shown in (43) and (44) respectively. The fact that (43) and (44) yield unacceptable utterances clearly indicates that the DA *laabis* 'wear' semantically asserts a result state reading; it also shows that the result reading is current and unbroken. In

other words, Mitchell and El-Hassan's analysis erroneously predicts that (43) and (44) should be acceptable. However, this is not the case with (43) and (44).

(43) laabis el-badhleh# bs shaaleHha.
wear-DA the-suit # but took it off-DA
'He is wearing the suit but had taken it off.'

(44) kaan laabis el-badhleh# bs shaaleHha (lamma shuftuh).
was wear-DA the- suit # but took it off-DA (when I saw him)
'He was wearing the suit but had taken it off (when I saw him).'

Sentence (42) above has been argued to express a broken result state at the time of seeing/witnessing. In other words, (42) indicates that he was not wearing the suit at the time I saw him. I would assume therefore, that sentences (45-47) indicate a broken result state at the time of seeing *Majdi* in accordance with Mitchell and El-Hassan's assumption. Therefore, we predict the following result states of these sentences respectively: the book was not on the table, the TV was not on, and that *Majdi* was not walking.

(45) majdi kaan HaaT le-ktaab 3ala eTawleh (lamma shuftuh).
Majdi was put-DA the-book on the-table when saw-him
'Majdi had put the book on the table when I saw him.'

(46) majdi kaan mshaghel el-telfezion (lama shuftuh).
Majdi was switch-DA the-T.V (when saw-him)
'Majdi had switched the T.V on when I saw him.'

(47) majdi kaan maashi (lamma shuftuh).
Majdi was walk-DA (when saw-him)
'Majdi was walking when I saw him.'

However, all JA speakers intuit that these sentences are only acceptable under an 'unbroken result state' interpretation at the time of seeing Majdi. In fact, most of JA speakers find it very awkward to assign an alternative interpretation to these sentences as assumed by Mitchell and El-

Hassan's proposal. I use the same arguments above to support my claim regarding the assertion of the result state of passive participles. I argue that passive participles pattern with active participles (DAs) in that they also assert a result state (unbroken state) in their semantics contra Mitchell and El-Hassan (1994). Sentences (48) and (49) are illustrative.

(48) el-baab maftooH# bs msaker.
The-door open-PP # but closed-PP
'The door is open but closed.'

(49) el-bab kaan maftooH (lamma shuft-uh).
The-door was open-PP (when saw-it)
'The door was open when I saw it.'

Sentence (48) shows that the passive participle *maftooH* 'opened' asserts a result state and the state is unbroken as shown by the unacceptability of (48) under cancellation. Sentence (49) is only felicitous under the 'unbroken result' reading at the time of seeing the door. In other words, at the time of seeing the door it was still open (i.e. the unbroken result reading) and it is awkward to think of the sentence otherwise i.e. the broken result reading where the door is not open as assumed by Mitchell and El-Hassan's account.

Based on data from Syrian Arabic, Boneh (2004, 2005 and 2010) explored the temporal interpretations of DAs in non-embedded contexts. Her analysis of the DAs is based on two major premises: the lexical aspect of the VP determines the temporal reading of the DAs and viewpoint aspect of DAs encodes a perfect aspectual reading.

According to Boneh's data, she claims that the temporal reading of DAs is dependent on the type of the verb class the DAs are derived from. To this end, she argues that the variations of temporal readings of DAs depend on the VP type: telic verbs and activity verbs encode an anteriority reading as in sentence (50), stative verbs denote a simultaneous reading as in (51)

and directional motion verbs give imminent future interpretations as in (52). Examples are taken from Boneh (2005:4-5).

(50) sami kaateb er-risaale.
Sami write- DA.sg.m the-letter
'Sami has written the letter.

(51) sami Haabeb mouna.
Sami love- DA.sg.m Mouna
'Sami has fallen in love with Mouna (and now he is in love with her).'

(52) sami maašii.
Sami leave- DA.sg.m
'Sami is about to leave.'

Boneh (2004, 2005 and 2010) argues that telic and activity verbs pattern together in that the subject is understood as being in consequent state of the event implied by the DA having taken place prior to the utterance time. In other words, the subject is in a current relevant sate that holds at TU and this state is bound by an anterior implied or (underlying eventuality in Boneh's terms). Furthermore, she contends that the resultative reading of the subject is not at all dependent on the result state of the object. According to her analysis, there are examples in Syrian Arabic in which the state of the subject is clearly dissociated from that of the object even with verbs that allow the object to be in a resultative state such as the verb *fateH* 'open', as in (53); the example is taken from Boneh (2005: 6).

[Context: it is cold in the room. The window is closed]

(53) Shuu faateH esh-shubbaak?
Q open-DA the-window
'Have you opened the window?'

In (53), the question targets the status of the subject (i.e. the addressee) in that he is held responsible for the temperature in the room irrelevant of whether the window is open or closed. Speakers of Syrian Arabic have the choice of using the passive participle *maftooH* 'opened' if the focus is on the state of the window as assumed by Boneh's analysis.

In her analysis, stative verbs give rise to a simultaneous post-state reading in which the subject of the DA constructions undergoes this state after going into a change of state. Unlike the statives, the motion verbs give rise to an imminent future reading. Based on Boneh's account, the subject DP of such verbs is in a preceding state of the underlying eventuality. Therefore, the subject *Sami* in (52) above is understood to be in a *pre-state* of going down to the market. Boneh argues that the imminent future reading is only attested with motion verbs and that such reading does not arise with any other verb class.

The future reading in Boneh's account depends on two conditions. The first is concerned with the speaker's point of view as expressed in (54). The sentence invites two possible readings depending on the situational context: (a) a futurate reading: if the speaker is at home with *Sami*, (b) an anteriority reading: if the speaker sees *Sami* at the market.

(54) sami naazel 3a s-s-uu'.
Sami go-down-DA-sg.m to the-market
(a) 'Sami is about to go down to the market.'
(b) 'Sami has gone down to the market.'

The second condition is concerned with the animacy of the subject. Boneh (2004, 2005 and 2010) argues that the futurate reading only occurs with animate subjects. The motivation for this assumption is that the intentions of carrying out the event can only be assessed with animate subjects. On the other hand, if an inanimate subject is used with motion verbs, then the sentence with DAs yields an anterior reading where the subject is understood to be in a post-state rather

than a pre-state. In this case the DAs receive the same temporal reading of dynamic verbs i.e. an anteriority reading as in (55) where the subject *l-3arabaye* 'baby cart' is in a post-state (i.e. anterior reading) rather than a pre-state (i.e. future reading); example is taken from Boneh (2005:8).

(55) l-3arabaye kaarje l-zaawet l-Tarii'.
the-baby carriage roll- DA to-corner the street
'The baby's carriage rolled to the corner of the street.'

The imminent future interpretations with inanimate subjects are expressed by the use of the canonical future form which comprises the future particle *raH* 'will' followed by the non-finite form of the verb. In (56), the speaker uses the future form if he/she sees that the pot of flowers is going to fall down as indicated by Boneh (2005: 8).

(56) Hood l-ward raH yuu'a3 la taHet.
Pot the-flower will INF. 3sg.m-fall down to down
'The flower pot is about to fall down.'

The other major premise of Boneh's account is concerned with the view point aspect encoded in the semantics of DAs. She proposes that participial constructions encode a perfect viewpoint aspect. Following Klein (1994), Boneh (2004, 2005 and 2010) argues that this perfect viewpoint aspect is distinct from the other two in the verbal system of Syrian Arabic in terms of the type of temporal relation used which specifies the nature of the aspectual reading at play. In the case of perfective and imperfective, the temporal relation holds between reference time (Topic-Time TT in Klein's terminology) and eventuality time. However, in the case of DAs a perfect aspect is denoted; the relation holds between TT and the post-time state rather than the eventuality as is the case with the imperfective and the perfective.

Based on this proposal, Boneh (2004, 2005 and 2010) provides the following schematic representations for the aspectual system in Syrian Arabic (after Klein 1994); (Adapted from Boneh 2005 and 2010; she used AST-T for TT):

(TT: Topic Time, TU: Time of Utterance, Ev-T: Event Time, Post-T: Post time State)

(57) a. Perfect Aspect (DAs): TT ⊆ POST-T, TU ⊆ TT

b. Perfective Aspect: Ev-T ⊆ TT

c. Imperfective Aspect: TT ⊆ Ev-T

As can be noted from this representation, the perfect aspect denoted by DAs is distinct from the imperfective and perfective in two regards. With the DAs, the inclusion relation is between TT and Post-time state instead of the core eventuality as it is the case with the imperfective and perfective. Also, the DAs are assigned a temporal reading in that they receive a *default present* temporal specification; this is shown by the inclusion relation between the TT and the TU (i.e. present tense reading).

The current work draws on some implications of Boneh's analysis especially those that are related to the post-state interpretation of DAs. However, her analysis is lacking in some regards. As mentioned earlier, Boneh bases part of her analysis regarding the variations of temporal readings of DAs on the aspectual properties of the verbal base which the DAs are derived from. For example, she argues that telic verbs and activity verbs encode an anteriority reading while motion verbs encode a future reading. I argue that such a proposal is insufficient because it is merely descriptive in nature. This is due to the fact that the question of why DAs that are derived from different verb classes give varied temporal interpretations remains unanswered.

Boneh's analysis of the future reading yields inadequate observations. She argues that the future reading is only attested with motion verbs and not with other verb classes. Boneh sets two conditions for disambiguating the anteriority from future readings as mentioned earlier. The ambiguity between the anteriority and future reading only arises with motion verbs as seen in (54) above. However, in (58) the DAs *jaayeb* 'bring' is not derived from a motion verb, yet the sentence is ambiguous between an anteriority and futurate reading. In other words, the restriction laid out here that the ambiguity between anteriority and future reading only arises with motion verbs is not substantially supported.

(58) (xalas), 'ana jaayib el-'ayy foon.
(enough), I bring-DA the iphone
(a) 'I have brought the iphone.'
(b) 'I am buying the iphone.'

Furthermore, the restriction on the animacy of agents under the futurate reading is flawed as well. In (59), the DA is derived from a motion verb *ejaa* 'come' and the subject of the DA predicate is inanimate *el-thawrah* 'revolution'; yet the DA denotes a futurate reading. Boneh's analysis erroneously predicts that the reading denoted by the DA in (59) is felicitous only under an anteriority reading not a futurate reading.

(59) el-thawrah jaayieh.
the-revolution come-DA
'The revolution is coming.'

Boneh (2004, 2005 and 2010) claims that the choice of using the canonical future form which comprises the future particle *raH* 'will' followed by the non-finite form of the verb versus the DA is dependent on the animacy status of the DP subject. The inanimate subject is used with the former while the animate is used with latter. However, this claim is refuted by sentence (59) above where the inanimate subject is felicitously used to denote a futurate reading with the DA.

In my current proposed analysis of DAs, the semantic difference between the canonical form of future and futurate reading of DA is not based on an animacy hierarchy; rather it is captured by an evidential analysis. I argue that while the canonical future form expresses non-evidential interpretation, DAs express an indirect evidential interpretation as an essential part of their semantics (See chapter 4 for detailed discussion). The contrast between the non-evidential interpretation vs the indirect evidential provides more plausible explanation of why the canonical future form is used in sentence (56) above, repeated here as (60), and not the DA.

(60) Hood l-ward raH yuu'a3 la taHet.
Pot the-flower will INF. 3sg.m-fall down to down
'The flower pot is about to fall down.'

Contra to Boneh's analysis, I argue that the acceptability of using the future form *raH yuu'a3* 'will fall' instead of the DA is better captured by evidential perspective rather than animacy restrictions. In (60) the speaker witnesses/sees that the flower pot is falling or going to fall as indicated by Boneh (2005: 8). In other words, the speaker's judgment was based on a witnessed event (i.e. direct evidence) which is not compatible with the semantics of DAs where only an indirect type of evidence is asserted (i.e. non-witnessed event); hence, the unacceptability of a DA in (60).

The evidential account proposed in the current work provides a further explanation of why sentence (59) is felicitous despite the inanimacy of the agent. In Boneh' analysis, sentence (59) is erroneously predicted to be unacceptable based on the fact that only animate subjects are allowed with DA predicates under futurate readings. The motivation for her claim as mentioned above is that only animates subjects' intention can be assessed. However, (59) is perfectly acceptable. The acceptability of (59) is better accounted for by the proposed evidential analysis:

in Boneh's analysis sentences with DA predicates are subject-oriented predicates (i.e. non-evidential), therefore the contrast between animate vs inanimate subjects comes into play in determining the correct futurate reading with DAs. However, her explanation fails to account for the acceptability of (59). Under the current proposal, DAs are speaker-oriented predicates (i.e. evidential) therefore the contrast between animate vs inanimate subjects is irrelevant to the future reading of the DAs. Contra to Boneh, the intention of the subject of sentences with DAs is assessed on a speaker-oriented basis (i.e. from the perspective of the speaker) rather than subject-oriented basis (from the perspective of the subject).

Boneh has highlighted the contrast in meaning between the resultative reading of DAs and perfectives. In (61) the resultative reading is semantically asserted with DA but pragmatically given with the perfective as in (62). The perfect semantic representation proposed for the DAs under (57) earlier accounts for this contrast; examples taken from Boneh (2004:30).

(61) sami mlaa'ii l-kenez # bas Daya3o.
Sami find-DA the-treasure but lose-3SG-it
'Sami has found the treasure but lost it.'

(62) sami la'a l-kenez bas Daya3o.
Sami find-PFV the-treasure but lose-3SG-it
'Sami (has) found the treasure but lost it.'

However, the same semantic representation fails to account for the contrast between the DA and perfective in the following pair of sentences.

(63)

(a) 'ana sheft majdi gaa3id bs maa sheftuh lamma ga3ad.
I see-PERF Majdi sit-DA but not see-PERF-him when sit-PERF
'I saw Majdi sitting but I did not see him sitting down.'

(b) 'ana sheft majdi ga3ad# bs maa sheftuh lamma ga3ad.
I see-PERF Majdi sit-PERF # but not see-PERF-him when sit-PERF
'I saw Majdi sitting but I did not see him sitting down.'

In (63a) the sentence with the DA is acceptable despite the contradictory continuation which cancels witnessing the event. However, the perfective (63b) does not survive the cancellation. One might argue that the representation given under (57a) accounts for this contrast especially if we know that (57a) describes a relation with which the *post-time state* rather than eventuality is asserted. I argue that while this might look true superficially, a closer examination of the behavior of DAs reveals that eventuality is part of the meaning of the DAs as it can be part of the assertion sometimes. This proposal can be supported by the fact that DAs license adverbials that measure the length of the event such as the adverbial *In X* in a similar fashion to the perfective (where eventuality is part of the assertion). Examples (64a and b) are illustrative.

(64)

(a) majdi kaateb er-resaleh fii saa3a.
Majdi write-DA the-letter in one hour
'Majdi has written the letter in one hour.'

(b) majdi katab er-resaleh fii saa3a.
Majdi write-PERF.3SG.MASC the-letter in one hour
'Majdi wrote the letter in one hour.'

It is clear therefore that eventuality is part of DA meaning as shown by the acceptability of (64 a). It is still not clear, though, why a sentence such as (63a) is felicitous under cancellation i.e. the contradictory statement that targets the event. Therefore, any claim that the representation in (57a) accounts for the contrast under (63) is not semantically supported.

The same result holds for (65a) where the DA is felicitous despite the continuation which cancels the truth of the original sentence in which *Majdi* is the one who is supposed to have opened the door. The perfective (65b), on the other hand, does not allow a contradiction. The representation in (57a) does not suffice to explain this contrast.

(65)

(a) majdi faateH el-baab bs ‘aHmad elli fataHu-h.
Majdi open-DA the-door but Ahmad who PERF-open.3SG.MASC-it
‘Majdi has opened the door but it was Ahmad who opened it.’

(b) majdi fataH el-baab # bs ‘aHmad elli fataHu-h.
Majdi PERF-open the-door # but Ahmad who PERF-open.3SG.MASC-it
‘Majdi has opened the door but it was Ahmad who opened it.’

These examples clearly show that the representation given under (57) is lacking. Any account for DAs should provide explanations for the contrasts between the DAs and perfectives as mentioned above and not only for the contrast in terms of the resultative reading between them as is the case with Boneh’s analysis. Most importantly, none of the studies presented in this section accounts for the evidential reading of DAs. The proposed evidential analysis of DAs in the current work is used to revisit the semantics of DAs in JA. The proposed evidential analysis accounts for why DAs encode perfect and futurate readings as its canonical readings. In other words, the current work attempts to answer the question of *why* DAs involve anterior and posterior relations i.e. perfect and futurate readings respectively and not an overlap relation as is the case with perfectives and imperfectives. None of the studies discussed so far provides an explanation for this question. The evidential account also provides an explanation of why DAs are distinct from the other two viewpoint aspects such as perfective as discussed in the contexts (63 and 65) above.

2.2.3 The Sub-atomic Semantic Approach

The studies presented in this section are the first attempts to account for the semantics of DAs using the logical semantic approach. For example, Mughazy (2004) is the first study to use logical and formal semantic representations based on the Neodavidsonian approach to account

for the semantics of DAs. The major premise of the subatomic analyses presented in this section is based on the claim that DAs denote a present state that is bound by underlying retrospective and prospective events which in turn license past and future adverbials respectively. This notion has precedence in the literature. Fleischman (1982) points out that the moment of speech which is temporally anchored at present *now* could encompass a prospective and retrospective present. The prospective and retrospective present is viewed as indicating *non-now events* (i.e. prospective and retrospective events) that are linked in a retrospective or prospective sense to the present time (S) as shown in figure (1).

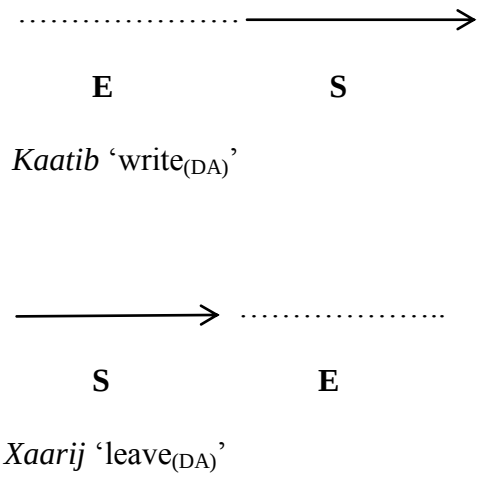
Figure (1): Prospective and Retrospective Present (Flieschman (1982))

(E: Event, S: Speech time/Present)

(Retrospective present) E…..…….S…… E (Prospective present)

A similar observation has been made by Belazi (1993) who accounts for the semantics of time reference of DAs in Tunisian Arabic using the same logic presented by Flieschman (1982). She argues that DAs in Tunisian encode a resultant relevant state that is bound by retrospective or prospective events as presented by Figure (2) (adapted from Belazi 1993: 75).

Figure (2) Prospective and Retrospective Present (Belazi1993)



According to this representation, the DA *Kaatib* 'write$_{(DA)}$' expresses a result state reading where the event (E) is in an anterior relation to the present (S). On the other hand, the DA *Xaarij* 'leave$_{(DA)}$'expresses a futurate reading in which the event is in a prospective relation to present (S). In the remainder of this section, I discuss the most relevant and seminal works under the subatomic analysis, Kinberg (1992) and Mughazy (2004).

Kinberg (1992) proposed a theoretical framework for the multiple functions and varied temporal specifications of DA predicates in Quranic text. His analysis is also meant to capture the different readings of DA predicates in classical Arabic and the dialects of Arabic as well. He argues that DAs semantics can be captured in two ways. First, DAs denote an unbound imperfective state that is characterized by a relative simultaneous tense. The reference time for this tense can be at TU (present), prior to TU (past), or posterior to TU (future). Second, he argues that DAs denote a present state bounded by a past or future event. This present state is open in that it can be bound for its beginning or its end by a binding event. The event that binds the beginning of this state is referred to as retrospective event while the event that binds the end

of the state is referred to as prospective event in Kinberg's terms. The former covers the resultative use of the DAs while the latter expresses its futurate reading. According to this analysis, the participial form expresses the present state while the context provides the retrospective and prospective actualization of the event. In order to capture the bounded-state meaning, Kinberg proposes the term *semi-imperfective present* for this type of DA predicates. The motivation for the name 'semi-imperfective' comes from the fact that DAs express a state bound only in one of its edges either the beginning or the end. The present refers to a state that holds at the TU.

With regards to the first type of DAs (i.e. unbound imperfective states), Kinberg argues that there are two anchoring reference points of the relative tense of these predicates: either at TU denoting a present unbound imperfective state, or outside the TU i.e. either prior or posterior expressing past and future unbound imperfective states respectively. Examples (66-68) are illustrative (Kinberg 1992: 308-310).

(66) enna bekulin kaferoon.
We in each disbelieve-DA
'We disbelieve both of them.'
(Quran ch. 23: 48)

(67) 'enna fer3awanna wa hamaana wa junudahuma kaanu xaTe'een.
Certainly Pharaoh and Haman and soldiers-their were-they sin-DA
'Certainly, Pharaoh and Haman and their soldiers were sinners.'
(Quran ch.28:8)

(68) yawma nabTeshu al-baTshata al-kubra 'enna muntaqemuun.
Upon-day assulut the-assult the-most mighty certainly-we vengeance-take-DA
'Upon the day when we shall assault most mightily, then shall take vengeance.'
(Quran ch.44:16)

Example (66) expresses an unbound imperfective state holding at the TU. Examples (67 and 68) denote an unbound state in the past and in the future respectively. The second type of DAs denotes a bound state. These DA predicates refer to a present state that is bound at its beginning by a retrospective event or at its end by a prospective underlying event. The former corresponds to the resultative state reading of the DAs while the latter covers the future reading. In these cases, the occurrence of the event is not simultaneous to the reference point but rather prior or posterior to it. Kinberg (1992) proposes the term semi-imperfective to refer to this type of DA predicates along with their underlying binding events. Examples (69-70) are illustrative.

(69) quli l-lahu xaliqu kulli shay'in w hwuaa al waHeduu al-qahhaar.
say Allah create-DA everything and he the-one and the-omnipotent
'Say: Allah has created all things, He is the One and the Omnipotent.'
(Quran ch.13:16)

(70) 'inn s-sa3ata la-'atiyatun.
certainly the-hour assertive-come-DA
'Certainly, the Hour is coming.'
(Quran ch.40: 59)

Example (69) asserts a present state holds at TU and bound by a retrospective event prior to TU. Kinberg (1992) argues that the actualization of this underlying anterior event is liable to cancellation and that the location of this event is not given grammatically but rather is indicated by extra-linguistic means such as contextual information and world-knowledge. He assumes that the same fact also holds for other dialects of Arabic. In (70), the state holds at present while bound by a prospective event posterior to TU.

It has been argued that prospective semi-imperfective predicates and the finite form of the verb are interchangeable. For example, Kinberg (1992) argues that the DA *muxreju* 'bring forth' which characterizes a prospective semi-imperfective reading (i.e. present state bound by future event) and the finite form *yuxreju* 'bring forth' which indicates a future interpretation in (71) are interchangeable.

(71) yuxreju al-Hayya mina l-mayyeti wa muxreju l-mayyeta mina l-Hayyi.
bring-forth the-living from the dead and bring-forth-DA the dead from the living
'He brings forth the living from the dead, He brings forth the dead from the living.'

In (71), the DA predicate is coordinated to the finite form of the verb which indicates a future reading here. It is assumed that the interchangeability of the DA predicate with the finite from of the verb exhibits a neutralization of the distinction between the future tense and the futurate reading denoted by the DA predicate.

Kinberg's account of DAs exploits some appealing remarks on the tense-aspect system in Arabic. It provides an alternative perspective of imperfective aspect in Arabic where the imperfective aspect is subcategorized into unbound imperfective and bound imperfective (i.e. semi-imperfective). However, the account of semi-imperfectivity is not firmly established.

Kinberg's analysis is based on the notion that imperfective aspect is subcategorized into the unbound imperfective vs the semi-imperfective (bound). The DA predicates also fall under each subcategorization as noted earlier. As an unbound imperfective, DAs express an unbound imperfective state which is similar to the stative reading of the imperfective form of the verb. In other words, it is assumed under this analysis that both structures (DAs and imperfective) denote the same stative interpretation. I argue that this assumption is flawed. In (72) the stative reading of the imperfective form *beHeb* 'like' is distinct from the stative reading given by the DA *Haab* 'like' in that the former expresses a loose reading of the state that stretches over a longer span of

time or a generic meaning, while the latter has a more specific reference time. Kinberg's analysis erroneously predicts that both readings are analogous.

(72)

(a) majdi beHeb yrooH ytsawwag.
Majdi IMPERF-like.3SG.MASC INF-go.3SG.MASC INF-shop.3SG.MASC
'Majdi likes to go shopping (in general).'

(b) majdi Haab yrooH ytsawwag.
Majdi like-DA INF-go.3SG.MASC INF-shop.3SG.MASC
'Majdi likes to go shopping (now/this time).'

As far as the unbound state is concerned, Kinberg (1992) argues that sentence (67) above, repeated here as (73), expresses an unbound state in the past with no beginning or end specified. The sentence does not invite the inference that the state given is resultative or an outcome of a change-of-state transition period.

(73) 'enna fer3awanna wa hamaana wa junudahuma kaanu xaTe'een.
Certainly Pharaoh and Haman and soldiers-their were-they sin-DA
'Certainly, Pharaoh and Haman and their soldiers were sinners.'

However, I argue that such an implication is inaccurate. The argument that sentence (73) invites an unbound result state reading entails that the DA *xaTe'een* 'sinners' describes a permanent and enduring quality that is attributed to Pharaoh and Haman rather than a changing or contingent property. This assumption is challenged by the fact that DAs describe a changing state rather than a permanent state which is a quality always ascribed to pure adjectives not DAs in the traditional grammar of Arabic (Fassi 1993). Hence, DAs denote a change of state or resultative reading rather than a permanent state reading. In other words, the unbound state reading assumes that the meaning of (73) can be captured by saying that 'Pharaoh and Haman *were* sinners' instead of 'Pharaoh and Haman have become sinners (i.e. entered the state of committing sins)'. The former reading is captured by an unbound state reading while the latter is

captured by a change of state or resultative reading. Furthermore, the former reading (Pharaoh and Haman *were* sinners) contradicts their image and fate in the Quran where they were ultimately punished. The fact that they *were sinners* should rule out the punishment as one cannot be punished unless s/he has the choice of committing sins (i.e. have become sinner/ resultative reading) and not *were* intrinsically sinners from beginning till the end (i.e. unbound state). Only the resultative reading could correctly explain why they were punished at the end and not the unbound reading as Kinberg (1992) claims.

The assumption that DAs are 'deictic tensed forms' is not substantially supported. As mentioned earlier, DAs are assumed to indicate a present tensed reading as their main deictic center. Kinberg (1992: 311) argues that "It is inaccurate to conclude, however, that participle clauses are timeless. Thus, the reference point would generally be the present moment of utterance". This assumption is challenged by the fact that DAs have varied relative points of reference: prior to the TU as in (74) and posterior to the TU as in (75) and not only a present tense reading (Kinberg 1992: 310).

(74) w hum min faza3en yawma'ethen 'amenuun.
and they from terror upon-day-of-then secure-DA
'and they shall be secure from terror that day.'

(75) 'am xalaqna l-mala'ikata 'enaathan wa hum shahiduun.
or-whether created-we the-angles females while-they witness-DA
' Or did We create the angles as females, while they were witnessing.'

If Kinberg's assumption is correct regarding the deictic present reading of DAs, two predictions should be born out. First, DAs would exhibit different inflectional and morphological templates under each temporal reading. However, this prediction is not born out since DAs maintain the same inflectional template with all temporal readings. Second, if DAs are '*deictic* tensed forms' they should necessarily undergo the restriction which states that the deictic time

adverbs or reference points indicated by relative tense should match the deictic time reference contained in the tensed form. In other words, since DAs are believed to involve a *present deictic* reading in their semantics, then sentences (74) and (75) above should be ungrammatical because the present deictic reading of DAs should conflict with the past and future reference points in (74) and (75) respectively. The fact that these sentences are perfectly acceptable suggests again that analyzing DAs as deictic present tensed forms is flawed. The current work assumes that DAs trigger an *evidential relative* tense reading not a *deictic present* tensed form as claimed by Kinberg (1992).

Another major challenge for Kinberg's claim that DAs are deictic present-tensed forms comes from their interaction with the copular verb *kaan* 'was/were' in classical and Modern Standard Arabic. DA predicates do not bear deictic tense because they do not form complex tenses with the copular verb *kaan* 'was/were' (77) unlike present verb forms (76). This is confirmed by the fact that there is no temporal specification given by DAs that can be anchored in the temporal reading expressed by the copular verb (Fassi 1993).

(76) kana 3aliyuun yqefu 3endama daxaltu el-bayata.
was Ali 3SG-stand.Masc when enter-PERF.1SG the-house
'Ali was standing when I entered the room.'

(77) kana 3aliyuun waqefan 3endama daxaltu el-bayata.
was Ali stand-DA when enter-PERF.1SG the-house
'Ali was standing when I entered the room.'

Sentence (76) includes a present form of the verb and is ambiguous between two readings: result state reading in that Ali was in the state of standing when I entered the house; and a simultaneous reading in that he was in the process of standing when I came in (i.e. the temporal specification of the verb is anchored in the time specified by the copula verb *kaan*). However, the interpretation in (77) with the DA *waqefan* 'standing' bears only a result state reading.

One last complication of Kinberg's analysis lies in the assumption that prospective and retrospective semi-imperfective predicates and the finite form of the verb bear analogous interpretations therefore they are assumed to be interchangeable. One piece of evidence that has been provided to support this claim is coordinated contexts as in (71) above. In other words, Kinberg (1992) argues that the interchangeability of the DA with the finite form of the verb neutralizes the distinction between the future form and the prospective DAs (futurate reading) in one hand, and the imperfective form of the verb and retrospective DAs (perfect or anterior reading) on the other. However, I have already argued that this assumption is inaccurate in that the futurate reading denoted by DA is distinct from the future reading given by the future tense form. I have also shown that the imperfective form of the verb bears a different meaning from that denoted by DAs (see the previous two sections for further discussion).

Mughazy (2004) also provides a subatomic analysis of DAs in Egyptian Arabic. His analysis attempts to account for the temporal problem of verbless sentences with DAs. These verbless sentences have always been accounted for as encoding a present default reading that is licensed by a null copula. When verbless sentences encode a past or future reading, an overt copular verbs *kaan* 'was/were' or *ykoon* 'be' are used to license these temporal readings respectively. However, unlike all other verbless sentences, those with DAs have varied temporal readings in that they license temporal adverbials that belong to different time specifications without the need of these overt copular verbs. For example, sentence (78) licenses the present temporal adverbial *delwa'ti* 'now', while those in (79) and (80) license the past adverbial *embareH* 'yesterday' and the future adverbial *bukra* 'tomorrow' respectively without the need of an overt copular verb (Mughazy 2004:5).

(78) mona nayma delwa'ti.
Mona sleep-DA now
'Mona is asleep now.'

(79) 'ana kaatib eg-gawaab embareH.
I write-DA the-letter yesterday
'I wrote the letter yesterday.'

(80) 'ana misaafer bukra.
I travel-DA tomorrow
'I am going to travel tomorrow.'

Mughazy (2004) argues that licensing past and future adverbials by DAs without the need of an overt copular verb creates a problem for the assumption that the reference time of the tensed form should be similar to the deictic temporal reading of the adverbial. Furthermore, it has been argued in his analysis that sentences with DAs vary in terms of their aspectual readings. The problem that arises with these aspectual readings is that there is no verbal component in these sentences to license these different aspectual readings and the DAs maintain the same morphological template in all of these readings. Examples (81-83) are illustrative.

(81) 3ali saakin fe el-beet da.
Ali live-DA in the-house this
'Ali lives in this house.'

(82) nadir mashi hinaak 'ahoh.
Nader walk-DA there now right
'Nader is walking over there right now.'

(83) mona lissa mixallaSa el-wageb.
Mona just finish-DA the-homework
'Mona has just finished the homework.'

Sentence (81) has a present simple reading, while sentences (82) and (83) exhibit present progressive and present perfect readings respectively.

In order to account for this temporal problem, Mughazy (2004) proposed a subatomic analysis for DAs in Egyptian Arabic. He argues that all sentences with DAs should be analyzed as encoding a default present tense reading similar to all other verbless sentences in Arabic. All DAs license different temporal adverbials regardless of the lexical aspect of the verbal base from which DAs are derived. He claims that DAs are complex adjectival predicates that express a target state that is bound by an underlying event (onset event in Mughazy's terms). These underlying events occur at the beginning or at the end of the target state which always holds indefinitely at speech time. When the state is bound at its beginning, the underlying event is viewed as retrospective onset event that binds the beginning of the target state which in turn licenses past temporal adverbials. On the other hand, if the target state is bound at its end, the underlying event is viewed as a prospective event that licenses the future adverbials. The nature of the target state is three fold: it holds indefinitely upon the completion of the onset event, it holds at speech time, and it functions as the landing site of the present temporal adverbials. Mughazy distinguishes between a target state and a resultant state in that the former holds indefinitely due to the fact that it is a natural consequence of the completion of the underlying event whereas the latter is only pragmatically implicated.

Mughazy's account is based on the sub-atomic analysis of event predicates, also known in the literature as the Neo-Davidsonian approach as in the works of Parsons (1990) and Higginbotham (2000). According to this subatomic analysis, any predication is analyzed into a lexical decomposition that includes semantic components (i.e. the arguments). According to this approach, both events and states are introduced as arguments of the verb just like other thematic arguments. Both events (e) and states (s) are restricted variables in that they are existentially bound. Mughazy (2004) extends this analysis to DAs and argues that DAs are complex

predicates that involve an existential quantification over a state and an event unlike verbs that involve either quantification over states or events. According to Mughazy's subatomic analysis, the following is a semantic representation of DAs in Egyptian Arabic where the DA *baa3it* 'send' involves an existential quantification over state and event variables (Mughazy 2004: 18).

(84)

(a) 3ali delwa'ti baa3it eg-gawaab min 'usboo3.
Ali now send-DA the-letter from week
'Ali is now in a state of having sent the letter a week ago.'

(b) ∃s ∃e [sending (e) Agent (e, Ali) & Patient (e, the letter) & A week ago (e) & Having sent the letter (s) & Theme (s, Ali) & Now (s) & ONSET (e,s)].

Despite its intuitive appeal, Mughazy's account suffers from many complications. One of the major premises of Mughazy's analysis lies in the fact that DAs quantify over a *target state* that holds indefinitely in time. This is based on the view that, as Mughazy (2004) claims, a state terminates iff its subject undergoes a change of state (i.e. shifting from a state into another one), which is not applicable to the target state denoted by DAs. For example, in (85) the target state of having read the book by Mona holds indefinitely in time because such a state is irreversible i.e. it is not possible for Mona to enter a state of not having read the book after she had read it (Mughazy 2004: 165):

(85) mona 'aarya ek-kitaab da min 3ashar seneen.
Mona read-DA the-book this from ten years
'Mona read that book ten years ago.'

Mughazy (2004) argues that the target state of 'Mona having read the book' in (85) still applies to Mona even though the *reading* event is completed ten years ago. In other words, the target state of 'Mona having read the book' is still applicable to Mona from the beginning of the ten years interval and up to speech time. I argue that this account fails to distinguish between the

interpretation of DAs and perfectives as far as the target state is concerned. In other words, it is not clear how the target state denoted by the perfective in (86) below is different from that given by the DA *'aarya* 'read$_{(DA)}$' in (85) above.

(86) mona 'arat ek-kitaab da min 3ashar seneen.
Mona read-PERF.3SG.FEM the-book this from ten years
'Mona read that book ten years ago.'

Sentence (86) has the perfective form of the verb *'arat* 'read'. The event of reading the book by Mona took place ten years ago, yet it is still true that at the right edge of the reading event which characterizes the interval at which the completion of the event is born out, Mona has entered a target state of 'having read the book' and this target state started to hold ten years ago up until now. Note here that such a state is still irreversible (i.e. holds indefinitely in time) as it is not possible for Mona to move from the target state of having read the book to another state that cancels it i.e. a state of 'Mona *not* having read the book'. The fact that perfective form exhibits a target state similar to that of DAs undermines the assumption made by sub-atomic account of confining the target state to DAs and not to any other form.

I further argue that the resemblance of the target state between DAs and perfectives as shown above leads to unwanted results especially those related to the truth conditions of DAs as given by the sub-atomic account. Remember that according to the sub-atomic account DAs are complex predicates that project both state and event variables into their logical form, as illustrated in (84a and b) repeated here as (87a and b).

(87)
(a) 3ali delwa'ti baa3it eg-gawaab min 'usboo3.
Ali now send-DA the-letter from week
'Ali is now in a state of having sent the letter a week ago.'

(b) ∃s ∃e [sending (e) Agent (e, Ali) & Patient(e, the letter) & A week ago (e) &
Having sent the letter (s) & Theme (s, Ali) & Now (s) & ONSET (e,s)]

The logical form under (87a) clearly suggests that the ONSET, which is the underlying inceptive event, binds two variables: a target state (s) and an event (e). The above logical form reads as follows "there is an event of sending such that it is a sending of letter by Ali, and this sending took place during the interval representing the day preceding the speech time. Moreover, there is a state such that it is a state of Ali's having sent the letter, and this state holds of Ali at speech time and it came about at the point in time when the event of Ali's sending the letter was completed. More specifically, the event of Ali's sending the letter occurs over an open interval t_1-t_2 and the target state of him having sent the letter begins to hold over an interval that is closed at its beginning (viz, t_2) and it holds indefinitely." (Mughazy 2004: 19). The reading of the logical form as shown here clearly shows that the *target state* is a natural result or consequence that comes about upon the completion of the onset event of sending the letter: upon completion of the onset event of sending the letter, Ali enters the target state of 'having sent the letter' which holds over a span of time stretching from the ending point of the event interval (i.e. t_2) up to speech time and holds indefinitely ever after as well. I argue that the nature of the target state as given by Mughazy (2004) under (87a and b) for the DA can be extended to the target state of the perfective as discussed under (86). Therefore I assume that the logical form of the DA in (87b) can be extended to the perfective in (86), repeated here as (88a), as shown in (88a and b):

(88)

(a) mona 'arat ek-kitaab da min 3ashar seneen.
Mona read-PERF.3SG.FEM the-book this from ten years
'Mona read that book ten years ago.'

(b) ∃s ∃e [reading (e) Agent (e, mona) & Patient (e, the book) & ten years ago (e) & Having read the book (s) & Theme (s, M) & ONSET (e,s)].

The logical form in (88b) reads as follows: upon completion of the onset event of reading the book which spans from t_1-t_2, Mona enters the target state of 'having read the book' which holds over a span of time stretching from the ending point of the event interval (i.e. t_2 which also characterizes the beginning of the target state) up to speech time and holds indefinitely ever after. I argue here that the definition and the nature of the target state as it stands in the sub-atomic analysis poses a challenge for the distinct semantic representation of the logical form of DAs. This is because the nature of the target state as it stands fails to distinguish the logical form of DAs under (87b) from that given by the perfective under (88b).

A further complication for the subatomic analysis comes from the assumption that the consequent resultant state of DAs is pragmatically implicated. Mughazy (2004) argues that DAs especially those derived from inchoative verbs involve quantification over two types of state: a target state and a resultant state. While the former is semantically asserted as each DA must entail a target state, the latter is pragmatically given in that it can be cancelled and does not necessarily assert the existence of the resultant state at speech time. One argument Mughazy (2004) provides in favor of this claim comes from contradictory conjunctions where any sentence with a DA can be followed by a conjoined continuation that cancels the resultant state of the DA without yielding ungrammaticality as shown in (89) and (90). Mughazy (2004) substantiated his claim based on data taken from Mitchell and El-Hassan (1994) who discussed DAs in Egyptian Arabic and contrasted them to those in JA (see section 2.2.2). Mughazy (2004:186-187) provides the following examples as taken from Mitchell and El-Hassan (1994).

(89) 3ali metgawez sarah we mTala'-ha.
Ali get married-DA Sarah and divorce-DA-her
'Ali has married Sarah and divorced her.'

(90) 3ali laabis el-badla we ‘ale3-ha.
Ali put on-DA the suit and take off-DA-it
‘Ali has put on the suit and took it off.’

Mughazy (2004) claims that the examples provided by Mitchell and El-Hassan are ‘non-contradictory’ conjunctions and therefore used them to support his claim regarding the pragmatic nature of the resultant state of DAs in Egyptian Arabic. Interestingly enough, the above examples (89) and (90) were provided by Mitchell and El-Hassan (1994) to show exactly the opposite claim: Mitchell and El-Hassan (1994:78) comment on sentence (90) “in both Egypt and JA the sentence *labis elbadla* ‘He is wearing the suit’ refers to him having put on the suit at an earlier time, but, in Egypt only, the sentence also implied that he has not taken it off since”. Mitchell and El-Hassan (1994: 78) further argue that the same sentence “is perfectly good Jordanian Arabic but to an Egypt is a non-sequitur”. The same problem also applies to sentence (89): Mitchell (1978: 245-246) comments that it “would be extensible in Jordan by … *wi mTallegha* ‘and he has (since) divorced her’ which would be inadmissible in Egypt, where the corresponding sentence has it that Sameer is still married to his cousin”. The above observations made by Mitchell and El-Hassan (1994) and Mitchell (1978) are also confirmed by the intuition of Egyptian Arabic speakers.

Mughazy (2004) claims that DAs that are derived from inchoative verbs entail sentences with corresponding perfective forms. The source of entailment comes from the assumption that both structures encode a resultant state that does not necessarily hold at speech time. Examples (91) and (92) are illustrative.

(91) 3ali waa’e3 3ala el-‘arz.
Ali fall-DA on the-floor
‘Ali has fallen on the floor.’

(92) 3ali wi'i3 3ala el-'arz.
Ali fall-PERF on the-floor
'Ali fell on the floor.'

According to Mughazy (2004), sentence (91) with the DA *waa'e3* 'fall$_{(DA)}$' entails sentence (92) with the perfective form *wi'i3* 'fell'. The source of entailment comes from the fact that neither of which entails a current relevant state holding at speech time (i.e. Ali being on the floor at speech time). However, the assumption that DAs sentences entail those with the perfective form is inadequate. Sentence (93) has the DA *dhaayib* 'melt$_{(DA)}$' which is derived from an inchoative verb. Sentence (94) has the perfective form *dhaab* 'melted'; therefore we would assume that both forms invite entailment to each other. However, the two forms do not entail each other as can be shown by the unacceptability of (93) under cancellation test which targets the resultant state of the DA, and the acceptability of (94) which survives the contradiction.

(93) eth-thalj dhaayib # bs (radd) jaamid/ jamad.
the-snow melt-DA # but (later) freeze-DA/ freeze-PERF
'The snow has melted but froze.'

(94) eth-thalj dhaab bs jamad.
the-snow melt-PERF but freeze-PERF
'The snow melted but froze.'

The same fact holds for the contrast between the DA and perfective forms of other telic verbs. For example, the DAs *faatiH* 'open$_{(DA)}$' asserts the resultant state that the shop is open as shown by the unacceptability of the utterance in (95) where the sentence with the DA is continued with a contradictory statement that negates the resultant state of the shop being open. However, in (96) no such contradiction is obtained with the perfective form of the verb which indicates that the resultant state reading is only pragmatically implicated. If we assume, as

Mughazy (2004) claims, that both forms entail each other, then we would erroneously predict that both sentences should yield either true or false truth values. The fact that (95) is not acceptable while (96) is acceptable undermines the entailment argument that Mughazy (2004) advocates.

(95) sami faatiH el-maHal # bs mssakru-h.
Sami open-DA the-shop # but close-DA-it
'Sami has opened the shop but closed it (the shop is open but closed).'

(96) sami fataH el-maHal bs sakaru-h.
Sami open-PERF.3.SG.MASC the-shop but close-PERF
'Sami opened the shop but closed it.'

In addition, the subatomic analysis fails to explain why the alleged entailment relation between DAs and perfective fail in this context:

(97)

(a) majdi faateH el-baab, bs mumkin 'aHmad elli fataHuh.
Majdi open-DA the-door, but may Ahmad who PERF-open.3SG.MASC-it
'Majdi has opened the door but probably Ahmad is the one who opened it.'

(b) majdi fataH el-baab,# bs mumkin 'aHmad elli fataHuh.
Majdi PERF-open the-door, # but may ahmad who PERF-open.3SG.MASC-it
'Majdi has opened the door but Ahmad is the one who opened it.'

(c) majdi mumkin elli fataH el-baab.
Majdi may who open-PERF the-door
'Probably, it is Majdi who opened the door.'

The fact that sentence (97a) survives under cancellation which asserts that somebody else other than *Majdi* might have opened the door clearly indicates that the DA involves a modal component in its semantics that allows for this contradiction to hold (I provide a detailed analysis of the modal component argument of DAs in chapter 4, however for the sake of my argument here it is sufficient to claim that DA in the above context involves a modal reading). Therefore and based on this I argue that (97a) entails (97c) which expresses a modal reading due to the

presence of the modal *mumkin* ‘might’. However (97b) yields anomaly which indicates that the perfective involves a realis (non-modal) reading that cannot be challenged. Therefore no entailment relation can be established between (97b) and (97c). If (97a) entails (97c) and (97b) does not entail (97c), then by logical entailment, it is necessarily the case that (97a) does not entail (97b). Again, the subatomic analysis would erroneously predict that both sentences (97a and b) would entail each other, which is not the case here.

One further challenge to the subatomic analysis proposed by Mughazy (2004) comes from the quantificational property of past temporal adverbials. It is argued that the past temporal adverbials are licensed as modifiers of the underlying onset event that binds the target state. Therefore, in a sentence like (84a and b), repeated here as (98a and b), the past adverbial *men‘usboo3* ‘a week ago’ modifies the underlying onset event ‘sending the letter’ as can be shown in the logical form under (98b) where the argument ‘a week ago’ binds the event variable (e).

(98)

(a) 3ali delwa’ti baa3it eg-gawaab men ‘usboo3.
Ali now send-DA the-letter from week
‘Ali is now in a state of having sent the letter a week ago.’

(b) ∃s ∃e [sending (e) Agent (e, Ali) & Patient(e, the letter) & **A week ago (e)** & Having sent the letter (s) & Theme (s, Ali) & Now (s) & ONSET (e,s)]

However, I argue that this logical form as it stands is insufficient to account for sentences such as (99a) where the past adverbial *embareH* ‘yesterday’ does not modify the onset event variable as would be predicted by Mughazy’s analysis given in (98b); rather it modifies the state variable as can be shown by the acceptability of the continuation which asserts that the time at which the underlying onset event took place (i.e. parking the car) holds at the day earlier than yesterday and *not* at yesterday.

(99)

(a) majdi saaf es-sayarah 3ala baab ed-daar embareH, bs hwwa
Majdi park-DA the-car by the -house gate yesterday but he
safha awal embareH.
park-PERF.3SG.MASC the day before
'Majdi's car was parked at the house gate yesterday, but he parked it there the day before.'

(b) # ∃s ∃e [Parking(e) Agent (e, Majdi) & Patient(e, the car) & **Yesterday (e)** &
Having parked the car (s) & Theme (s, Majdi) & Now (s) & ONSET (e,s)]

The logical form in (99b), as it is predicted by the subatomic analysis, does not capture the semantics of (99a) where the past adverbial *embareH* 'yesterday' modifies the state of the car being parked prior to speech time rather than the event of car parking. The logical form in (99b) erroneously predicts that the past adverbial quantifies over the event variable and not the state variable which yields a misrepresentation of the semantic of (99a). Therefore, I propose a modification of the semantic representation of (99b):

(100) ∃s ∃e [Parking(e) Agent (e, Majdi) & Patient(e, the car) & **Yesterday (RS)** & the car is parked (RS)& Having parked the car (TS) & Theme (TS, Majdi) & Now (TS) & ONSET ($i_{(\text{the day before, TS})}$, e)].

There are three major modifications I propose in the logical form under (100): first, the quantificational force of the past adverbial shifts from an event variable to a state variable. Second, the incorporation of another variable that is the resultant state variable (RS) as contrasted to the target state variable (TS) which is maintained under (100). Third, the incorporation of the index variable (i) which functions as a coreference variable that binds the *actual* time interval of the onset event (i.e.*'awwal 'embareH* 'the day before yesterday') and at the same time marks the initial point of the target state (TS). I propose the following representation of this index variable:

(101) $_{i}$ = [ACTUAL TIME $_{(\text{ONSET EVENT})}$….[TS]]

The representation given in (101) indicates that the index variable includes the time at which the onset event took place and the initial point of the TS. The index variable (*i*) in sentence (99a) coreferences or binds the actual time interval at which the onset event took place. That is, it binds the past adverbial *awal embareH* 'the day before yesterday'. It also marks the initial point of the TS (i.e. having parked the car) which holds true at speech time as Mughazy (2004) claims. Note that the TS argument with its present default reading as claimed by the subatomic account is maintained under the logical forms (100) and (101).

Based on the above mentioned discussion, I argue that a sentence such as (102) below, where the DA is used with a past adverbial, is ambiguous between two readings contra to Mughazy's analysis: (a) the past adverbial '*embareH* 'yesterday' modifies the onset event as predicted by the subatomic analysis under (102a); (b) another reading arises where the past adverbial quantifies over the RS variable as predicted by the modified logical form proposed as demonstrated in (102b).

(102) Majdi saaf es-sayarah 3ala baa bed-daar embareH.
Majdi park-DA the-car by the house gate yesterday
'Majdi had/has parked the car yesterday.'

(a) ∃s ∃e [Parking (e) Agent (e, Majdi) & Patient (e, the car) & **Yesterday (e)** & Having parked the car (s) & Theme (s, Majdi) & Now (s) & ONSET (e,s)]

(b) ∃s ∃e [Parking(e) Agent (e, Majdi) & Patient(e, the car) & **Yesterday (RS)** & the car is parked (RS)& Having parked the car (TS) & Theme (TS, Majdi) & Now (TS) & ONSET ($i_{(\text{actual time, TS})}$, e)].

In sum, I have presented in this section the main claims of the subatomic approach. The studies discussed here provide useful insights about the nature of quantificational force encoded in DAs semantics especially those related to the existence of two variables: a state and event

variables. Moreover, the subatomic analysis is the most appealing in that it highlights the significance of the DAs to the temporal and aspectual system in Arabic, which is one of the aspects that will be pursued in the current work where the evidential proposal will be used to revisit temporal relations in JA. I have also argued against the subatomic analysis claim regarding the semi-imperfective nature of DAs, the nature of the resultant state, the validity of the logical form proposed for DAs and the quantificational properties of time adverbials. Similar to other previous works, the subatomic analysis does not account for the evidential nature of DAs discussed in the previous sections.

2.3 Previous Studies on Evidentiality in Arabic

I have already argued at the beginning of this chapter that studies on evidentiality in Arabic and Semitic languages are very scarce due to the belief that evidentiality does not exist as a category in Semitology. Here I present all the studies I am aware of that discussed evidentiality in Arabic and Semitic languages. Only two studies touch upon this phenomenon in Semitic languages, Al-haisoni et al. (2012) and Isaksson (2000).

Al-haisoni et al. (2012) provided a purely descriptive study of evidentiality in standard Arabic (SA). The description of evidentiality markers in this study is based on Chaf's (1986) classification of evidential markers in English: degree of reliability markers, belief markers, inference, hearsay and general expectation markers. The study provided lists of predications mainly verbal predicates that assign evidentiality in SA based on this classification. These predicates include: the perfect form of the verbs and another category of verbs called in SA *Danna w 'axawatuha* 'to suppose and its sisters'. It is claimed that this category of verbs marks evidentiality in SA and it is further divided into two sub-categorizations: *af3aal elquluub* 'verbs

of hearts' and *'af3aal 'atHaweel* 'verbs of conversion'. The first subcategory (*af3aal elquluub* 'verbs of hearts') is further divided also into *'af3aal alyaqeen* 'verbs of complete truthfulness' and *'af3aal al-rujHaan* ' verbs of potential truthfulness'. It is argued by Al-haisoni et al. that the former verb group is used to mark a high-degree of certainty, while the latter is used to indicate a lesser degree of certainty.

The study further argues that Arabic uses direct and indirect perception verbs as in English to indicate direct and indirect evidentiality. These verbs include *yara* 'see' and *ysma3* 'hear' to express direct evidentiality and predicates such as *yuqaal* 'it is said' to mark indirect hearsay evidence. Finally, it is argued that the past tense or the perfect form is used to indicate evidentiality in Arabic where the speaker uses this form to assert a high degree of certainty.

Al-haisoni's study is a very concise albeit purely descriptive study of evidentiality in SA. The study does not provide any detailed semantic analysis of those evidential markers and how these markers contribute to the evidentiality-modality semantic interface in Arabic. The study provides no evidence that these markers encode evidentiality other than at the lexical level.

Isaksson (2000) provided a tentative survey of evidentiality in Arabic and classical Hebrew. His study is mainly concerned with a description of reportive, inferential and direct evidentiality in these two Semitic languages. He argues that in these languages evidentiality is specified by auxiliary particles. For example, Isaksson (2000) reports that there are some particles in Hebrew that trigger different types of evidentiality including the particles *ulay* 'perhaps' and *hinne* 'behold' both of which can be followed by perfect or nominal clauses. For example, the particle *hinne* 'behold' invites direct and inferential evidential reading in classical Hebrew as argued by Isaksson (2000). In (103), the particle *hinne* 'behold' is followed by a nominal clause and is argued to express an inferential evidential reading.

(103) way-y-iqas Pharaoh w-hinne Xelom.
and-he-woke up Pharaoh and-behold-dream
'Then Pharaoh woke up (and realized) it was a dream.'

Isaksson (2000) argues that the particle *hinne* with the nominal complement *Xelom* 'dream' triggers an inferential reading based on the interpretation that Pharaoh woke up and realized (i.e. drew a conclusion or inference) that he had a dream based on observable evidence. The same particle when followed by nominal clause can also be used to express direct evidentiality as in (104).

(104) wa-aqum ba-b-boqer l-heniq et-b-ni w-hinne met.
and-I-went up in-morning for-nursing ACC-son-my and-behold he-was-dead
'I got up in the morning to nurse my son and behold: he was dead.'

In this sentence the particle *hinne* 'behold' triggers direct evidentiality where it directs the attention to the observable direct sensory fact: her son being dead.

In addition, Isaksson (2000) discussed some evidentiality markers in some Arabic dialects, spoken and classical. Based on data taken from Ingham (1986 and 1994), Isaksson (2000) provided some examples of what he believed to be markers of evidentiality, these include: active participles as markers of reportive readings, the particle *ka'anna* 'as/like' and the particle *tigil* 'you say' as markers of inferentiality. Furthermore, he argues that the perfective can be used to indicate inferential and reportive evidential interpretations in classical Arabic (CA) and Modern Standard Arabic (MSA). For example in (105) below, the perfective form *akalta* 'ate' is used to trigger an inferential reading where the student in this sentence makes an inference that his teacher has already eaten treacle based on an observable traces of *dibsan* 'treacle' on the shirt of the teacher (Isaksson 2000: 394-395).

(105) qala lahu ba3zu talameethe-hi: ya sayyidi akalta debsan.
say-PERF to-him some student-PL-his oh sir eat-PERF treacle
'One of his students said to him: Sir, you have been eating treacle.'

Isaksson (2000:397) concludes his study by claiming that in Arabic and Hebrew "there are no internal tendencies towards a grammaticalization of the evidential categories. Such readings are instead frequently determined by auxiliary particles".

Isaksson's study is only descriptive in nature. It is mainly concerned with describing the evidential markers in Arabic and Hebrew without providing a semantic investigation or providing evidence for the evidential readings of these markers. Furthermore, the claim that these languages do not exhibit a grammatical category of evidentiality is inadequate. I argue in chapter 4 that the participle morphology is the hallmark of the evidential category in JA. Contra to Isaksson (2000), the fact that there exists a separate morphological paradigm of participles that distinguishes it from other predicates and that this morphological structure exhibits evidential semantics supports my claim regarding the grammaticalization of the evidential category in JA. According to Isaksson (2000), the perfective has acquired a secondary meaning which is related to evidential readings (i.e. reportive and inferential indirect evidentiality). This does not mean however, that the perfective has become an evidential because the primary meaning of perfective is rather different from evidential DAs. In other words, the perfective form expresses evidentiality only as a semantic extension of the semantics of perfective and not as its core meaning. Forms such as the perfective, which expresses evidentiality only as an overtone meaning, is subsumed under 'evidentiality strategies' as claimed by Aikhenvald (2004). Evidentiality strategies are forms that denote evidential readings only as a semantic extension or overtone meaning not as their core meaning. These include categories and forms like perfective, perfect, passive and other forms. If we assume that the evidential readings in Arabic are only

semantically implicated as an overtone use of another structure such as the perfective as argued by Isaksson (2000), then one might argue by the same token that DAs express evidentiality only as a semantic extension or semantic overtone. I present three main counterarguments to this claim. First, If this claim is on the right track and evidentiality (especially inferential evidential reading) is implicated semantically as an overtone of the perfect aspectual reading of DAs, then we would assume that a perfect reading (mainly the resultant state reading) of the perfective form of the verb should also trigger a similar evidential reading. However, this assumption is incorrect due to the fact that perfective violates the two core requirements of indirect evidentiality as will be discussed later: the requirement of indirect evidence and the requirement of inference (i.e. a modal component). Second, DAs not only denote a perfect aspectual interpretation but also a futurate reading. Any claim that the evidential reading is only specified by perfect semantics should also explain how and why such a reading (i.e. futurate) is also asserted in DAs semantics, whether it is related to the DAs evidential readings or not. Third, although I discuss DAs as the main structure under investigation, I will refer also to another type of participle structure in Arabic, the 'passive participle'. I will argue that passive participles bear resemblance to DAs in that it shows an evidential semantics as well. I take the argument that passive participles denote an evidential reading as evidence to support my claim regarding the grammaticalization of an evidential category in JA. In other words, I argue that the fact that evidentiality is expressed by two forms that exhibit participle morphology clearly shows that participles are the hallmark of evidentiality in JA and that evidentiality is expressed grammatically by these two forms and not as a semantic extension or overtone as it is the case with the perfective form as claimed by Isaksson (2000).

2.4 Conclusion

Previous approaches to DAs are centrally concerned with providing explanation to the varied temporal and aspectual interpretations licensed by DAs. All these approaches prove problematic because none of these approaches accounts for the evidential interpretations encoded by DAs as proposed in the current work.

Studies on evidentiality in Arabic and Semitology are very scarce. The reason behind this fact is a long held belief that evidentiality as a category does not actually exist in Semitic languages. The two studies on evidentiality in Arabic and Hebrew reviewed here do not provide a comprehensive and detailed semantic analysis of evidentiality in Semitic languages. The current work is the first attempt to account for evidentiality not only in Arabic but in Semitology in general as will be discussed in chapter 4.

Chapter Three

Deverbal Agentives in Jordanian Arabic: An Alternative Morphosyntactic View

3.1 Introduction

This chapter discusses the morphosyntactic properties of DAs in JA. I attempt to defend an alternative perspective of the conventional 'verbal vs non-verbal' view of predication in Arabic in general and in JA in particular. The motivation for this alternative view comes from the fact that the conventional view fails to account for the mixed and intermediate behavior of DAs which exhibit both non-verbal and verbal properties.

This chapter is organized as follows. In section two I present the morphological template of DAs. Section three shows how DAs exhibit a mixed morphosyntactic behavior of verbal and non-verbal properties. Section four discusses the non-verbal analysis of DAs and investigates the implications of the arguments against this analysis on previous classifications of DAs that have been proposed in the literature, specifically the nominal and adjectival classifications. In section five I discuss the verbal properties of DAs and present arguments against the verbal analysis of DAs. In section six, I propose an alternative view of predication in JA. Section seven concludes the chapter.

3.2 Morphological Template of DAs

DAs have a morphological form that distinguishes them from the rest of the verbal predicates in JA, the perfective and the imperfective forms. Table (1) below presents some morphological templates of DAs. The first row represents tri-consonantal verb stems. The rows that are below represent some templates of verbal roots that include more than three root

consonants, four consonants and more or a three consonantal root with a long vowel; (Adapted from Mughazy 2004: 24).

Table (1) Morphological Templates of DAs

Verb Form	Example	Gloss	DA form	Example	Gloss
CaCaC	katab	write	CaaCiC	kaatib	write (DA)
CaCCaC	darrab	train	mCCaCiC	mddarib	train (DA)
CCaCCaC	tkallam	speak	miCCaCCiC	mitkallim	speak (DA)
CaaCaC	sharak	participate	mCaaCiC	mshaarik	participate (DA)
CiCCaCaC	‘intaqad	criticize	miCCaCiC	mintaqid	criticize (DA)

As Table (1) shows, the morphological template of DAs derived from a tri-consonantal root, as shown in the first row, is established by inserting the long vowel *aa* after the first consonant and a short *i* before the final consonant. The morphological template of DA derived from a root that has more than three consonants (quadric and more) is established by inserting the prefix *m* or *mi* in initial position and the short vowel *i* before the last consonant.

3.3 DAs as a Mixed Category

Active participles (APs) in Arabic are a mixed category that exhibit both verbal and non-verbal (i.e. nominal and adjectival) properties. Some APs function as nominal predicates as in (1), while some others function as adjectival predicates as in (2).

(1) ‘axuuy bishtaghel 3aamil.
brother-my IMPERF-work.3SG.MASC worker-AP
‘My brother’s job is worker.’

(2) el-mawDuu3 lessa ghaamiD benesbeh eli.
the-subject.SG.MASC still mysterious-AP.SG.MASC with regard to-me
‘The subject is still mysterious to me.’

Sentence (1) has the AP *3aamil* 'worker' in an object position that denotes a nominal function. In (2) the AP *ghaamiD* 'mysterious' is used in a post-nominal position (i.e. as a predicate adjective) where it modifies the head noun of the clause *el-mawDuu3* 'the subject' and agrees with it in terms of gender and number. There is a third function of APs where they exhibit a verbal function. These APs are the focus of the current work and are referred to as deverbal agentives (DAs) since they exhibit verbal properties as in (3).

(3) majdi kaasir el-kaaseh.
Majdi break-DA the-glass
'Majdi has broken the glass.'

The DA *kaasir* 'break $_{(DA)}$' in (3) exhibits verbal properties in that it denotes an event and a resultative state. It also bears resemblance to verbs in terms of distributional properties in that it occupies a verbal position in (3) where the deletion of the DA makes the sentence ungrammatical. All three functions of APs (i.e. the nominal, the adjectival and the deverbal) have the same morphological template as shown in Table (1) in the previous section.

The fact that APs have mixed verbal and non-verbal properties has led to the assumption that DAs can be classified as either non-verbal predicates (i.e. nominal, adjectival and complex adjectival predicates) or verbal predicates. In the following sections, I discuss these non-verbal and verbal analyses and provide counterarguments to each of them.

3.4 The Non-Verbal Analysis of DAs

There is a long held view in the literature of Arabic that DAs are non-verbal predicates and thus are subsumed under verbless sentences, also known in Arabic as nominal or copular sentences (Bakir 1980, Fehri 1993, Eisele 1999, Jelinek 1981, 2002 among others). Verbless

sentences are formed by a subject or a topic followed by a non-verbal predicate including a noun as in (1a), an adjective (1b), a prepositional phrase (1c) or a DA as in (1d).

(1)

(a) majdi m3allem.
Majdi teacher
'Majdi is a teacher.'

(b) majdi mabSoot.
Majdi happy
'Majdi is happy.'

(c) majdi fii el-maktabeh.
Majdi in the-library
'Majdi is in the library.'

(d) majdi naayim.
Majdi sleep-DA
'Majdi has fallen asleep.'

Verbless sentences as those in (1) have been assumed to encode a default present stative reading. These non-verbal predicates allow present adverbials without the need of an overt copular verb such as *kaan*'was/were'. However, when used with past adverbials, the use of the overt copular verb *kaan* 'was/were' is necessary as in (2a) otherwise the sentence is ungrammatical as demonstrated in (2b).

(2)

(a) majdi kaan fii el-beit embareH.
Majdi was in the-house yesterday
'Majdi was in the house yesterday.'

(b)* majdi fii el-beit embareH.
Majdi in the-house yesterday
'Majdi in the house yesterday.'

I argue that the claim that DAs are subsumed under non-verbal predicates is not empirically motivated. In the remainder of this section, I provide counterarguments to this non-verbal analysis. The argument against the non-verbal analysis is structured as follows: in sub-section one I discuss stativity vs agentivity diagnostics. In sub-section two, I examine the contrast between stage-level vs individual-level predicates. Sub-section three discusses some other morphosyntactic diagnostics against the non-verbal analysis of DAs including word order and interaction of DAs and verbless sentences with copular verbs. In sub-section four and five, I investigate the implications of the arguments established in the previous sub-sections on the nominal and adjectival classifications of DAs that have been proposed in the literature in Arabic in general and in JA in particular.

3.4.1 Stativity vs Agentivity Diagnostics

One of the most fundamental features of verbless sentences in Arabic is that they are stative in nature. Sentences (1a-d), repeated here as (3a-d) indicate a pure stative reading: the state of Majdi being a teacher (3a), the state of Majdi being happy (3b) and the state of Majdi being in the library (3c).

(3)

(a) majdi m3allem.
Majdi teacher
'Majdi is a teacher.'

(b) majdi mabSoot.
Majdi happy
'Majdi is happy.'

(c) majdi fii el-maktabeh.
Majdi in the-library
'Majdi is in the library.'

DAs are also assumed to be verbless sentences and denote a state reading as well. In (1d), repeated as (4), the sentence with a DA expresses a state reading: the state of Majdi having fallen asleep.

(4) majdi naayim.
Majdi sleep-DA
'Majdi has fallen asleep.'

One piece of evidence that DAs denote a stative reading comes from their behavior in perception verb complements (Mughazy 2004). In (5a) with the perfective form of the verb *waggaf* 'stood up', the speaker saw the event of Majdi standing up as supported by the fact that the sentence licenses the event-denoting adverbial *bsur3a* 'quickly'. Sentence (5b) with the DA *waagif* 'stand up $_{(DA)}$', on the other hand, denotes a state reading where the speaker saw Majdi in the state of standing up. The stative reading is supported by the fact that the sentence becomes unacceptable if the event-denoting adverbial *bsur3a* 'quickly' is used.

(5)

(a) 'ana shefit majdi waggaf bsur3a.
I see-PERF.1SG.MASC Majdi stand-PERF.3SG.MASC quickly
'I saw Majdi when he stood up quickly.'

(b)* 'ana shefit majdi waagif bsur3a.
I see-PERF.1SG.MASC Majdi stand-DA quickly
'I saw Majdi in the state of standing up quickly.'

In addition, DAs express a result-state reading that is semantically asserted. In sentence (6) the DA *faateH* 'open$_{(DA)}$'denotes a resultative state reading where the result state is semantically asserted as evident by the fact that the sentence is unacceptable under the cancellation test.

(6) majdi faatiH el-maHal# bs msakr-uh.
Majdi open-DA the-store # but close-DA-it
'Majdi is in the state of having opened the store but he is in the state of having closed it.'

However, while it is true that DAs express a state reading similar to non-verbal predicates, they are different from verbless sentences in that they also have an eventive reading. In other words, one stark difference between verbless sentences and DAs is that the former are pure statives in nature while the latter are stative and eventive. One major difference between the sate denoted in verbless sentences and that denoted by DAs is that the state is not a result of a preceding event in the former while it is in the latter. This contrast is clearly manifested by the difference between the state in sentences in (3) where copular sentences express a pure stative reading with no event entailed, and the result-state denoted by DAs in (6) where the result state 'the store being open' is semantically entailed by the existence of a *preceding event* 'opening the store' i.e. the result-state 'being open' is true iff there is an entailing pre-existing event (opening).

Moreover, non-verbal predicates induce a homogenous or static state i.e. unchanging throughout their duration. However, DAs indicate a rather heterogonous and dynamic or change of a state reading which is a property of non-stative predicates. One piece of evidence comes from the different readings both structures denote under the sub-interval property which has always been taken as a defining feature of pure stative predicates (Partee 1984, Herweg 1991, Smith 1997 among others). The sub-interval property is defined in model-theoretic semantics as reflected in an entailment pattern as given formally under (7) (adapted from Smith 1997: 32).

(7) Sub-interval property: When a state holds for an interval T, it holds for every sub-interval t of that interval T.

The definition given under (7) comprises an entailment pattern given as: any sub-interval t (which is a sub-interval of the interval T) entails T.

In sentence (8a) below, the non-verbal predicate denotes a static and homogenous state reading: the state of Majdi being sick spans over the interval T (i.e. for three days) and that there is no moment throughout this interval T where Majdi is not sick. In other words, if we assume that Majdi was sick for three days spanning from Saturday till Monday, then it follows by logical entailment that any sub-interval t (say Sunday) entails the whole interval T as supported by the acceptability of (8b): If Majdi was sick for three days (from Saturday till Monday), then it is true that Majdi was sick on Sunday. However no such logical entailment arises in the case of the DA in (9a-b) as shown in (9c). If we assume that the event of writing the letter took three hours (from 1 o'clock till 4), then it does not follow that Majdi wrote the letter at 2. In other words, if Majdi wrote the letter in three hours (from 1 till 4), it is not true that he wrote it at 2 or was writing it at 2.

(8)

(a) majdi mariiD el-thalath teyaam elmaDyaat.
Majdi sick the three day-PL the-last
'Madi has been sick for the last three days.'

(b) majdi kaan mariiD el'aHad.
Majdi was sick Sunday
'Madi was sick on Sunday.'

(c) Sentence (a) → (entails) sentence (b)

(9)

(a) majdi kaatib er-resaleh fii thalath sa3aat.
Majdi write-DA the-letter in three hour-PL
'Majdi has written the letter in three hours.'

(b) majdi kaatib/kaan biktib (fi) er-resaleh esaa3a thentein.
Majdi write-DA /was IMPERF-write (in) the-letter o'clock two
'Majdi has written/was writing the letter at two o'clock.'

(c) Sentence (a) $\neg \rightarrow$ (does not entail) sentence (b)

The distinction in state readings between DAs and verbless sentences as pointed out above is also present in the logical definition of time adverbials. The time adverbials with verbless sentences include a universal quantificational character as given in (10a and b). However, DAs, especially those derived from non-stative verbal stems, have an existential quantificational force as illustrated in (11a and b).

(10)

(a) majdi kaan mariiD el-'sbuu3 elmaaDii.
Majdi was sick the-week the-past
'Madi was sick last week.'

(b) $\exists$T (T<now & LAST WEEK(T) & $\forall$t(IN (T,t) $\longrightarrow$ Sick (m) at t)
There is a past time T which is last week, such that for every time t which is in T, Majdi was sick at t.

(11)

(a) majdi jaai 3ala ed-daar el-'sbuu3 el-maaDii.
Majdi come-DA to the-home the-week the-last
'Madi had come home last week.'

(b) $\exists$T (LAST WEEK(T) & T<now & $\exists$t(IN (T,t) $\longrightarrow$ come (m) at t)
There is a past time T which is last week, such that at some time t which is in T, Majdi came home at t.

The universal and existential quantificational contrast here corresponds to the homogeneity vs heterogeneity distinction discussed under (8) and (9) above. The universal quantifier implicates that the state denoted by verbless sentences in (10) is homogenous in that it

is true in every sub-interval t of the whole interval T (last week): The state of Majdi being sick is true at every day last week. This contrasts with the existential quantifier in (11), where DA is used, in which the interval T (last week) contains some time (t) at which Majdi came home. This interpretation does not necessarily assert that such a result-state (i.e. Majdi being home) was true at all sub-intervals of T because it might be the case that Majdi stayed home for some time at T (last week) then left afterwards.

Another argument in support of the fact that DAs, contra verbless sentences, involve eventive reading comes from their temporal interpretations in (past) complement clauses. When stative predicates are used in subordinate clauses, they usually denote an overlapping reading with the event in the main clause. However, non-stative predicates are not interpreted as such. Rather, they denote a past-shifted reading where the event in the subordinate clause occurred at an interval prior to the one in the main clause. The former reading (i.e. the overlapping reading) corresponds to the behavior of verbless sentences suggesting that they are stative as in (12a and b); whereas the latter (shifted-reading) corresponds to DAs (especially those derived from verbal root whose lexical aspect is accomplishment or achievement) suggesting that they are non-stative as in (13a and b).

(12)

(a) sami gaal ennuh majdi fii ed-daar.
Sami said that Majdi in the-house
'Sami said that Majdi was home.'

(b) ----------/////said/////---------TU (Time of Utterance)---------
{at home}

(13)

(a) sami gaal ennuh majdi kaatib er-resaleh.
Sami said that Majdi write-DA the-letter
'Sami said that Majdi had written the letter.'

(b) --------write (DA)----------////said////---------TU(Time of Utterance)---------

In (12a), the verbless sentence indicates an overlapping reading where the state of Majdi being home overlaps the event of saying in the main clause as demonstrated in (12b). However, the DA in (13a) asserts a shifted reading where the occurrence of the writing is prior to the event of saying in the main clause as shown in (13b).

The contrast between the overlapping and shifted readings of verbless sentences and DAs respectively is also found in narrative contexts (Kamp and Rohrer 1983, Smith 1999, among others). The argument here is that statives do not advance the narrative context while non-statives do. In (14) the non-verbal predicate *kaayen z3laan* 'was angry' has an overlapping reading with the other event (entering the library). This contrasts with the interpretation in (15) where the event of borrowing the book denoted by the DA *mesta3eer* 'borrow$_{(DA)}$' preceded the event of entering the library i.e. a past shifted-reading.

(14)

(a) sami faat el-maktabeh. kaayen za3laan
Sami enter-PERF.3SG.MASC the library. Was angry
'Sami entered the library. He was angry.'

(b) ----------///entered///---------TU(Time of Utterance)---------
{angry}

(15)

(a) sami faat el-maktabeh. kaayen mesta3eer min-ha ktaab
Sami enter-PERF the-library. was borrow-DA from-it book
'Sami entered the library. He had already borrowed a book from there'

(b) --------borrow(DA)----------////enter///---------TU(Time of Utterance)---------

Another major distinction between verbless sentences and DAs resides in their sensitivity to agentivity. As stative predicates, all verbless sentences yield non-agentive interpretations [-Agentive]. This fact is supported by their failure to pass agentivity diagnostics as I will demonstrate shortly. DAs, on the other hand, exhibit a dual agentive nature i.e. they show agentive and non-agentive behavior [-/+ Agentive]. This dual nature follows naturally from their dual eventive vs stative nature [+stative / +eventive] as discussed above. First I will show how DAs are characterized by the [-agentive] property and then proceed to discuss the behavior of DAs and verbless sentences under agentivity diagnostics.

Agentivity refers to the argument that is responsible for bringing about an event. There are at least three main features subsumed under agentivity: causation, control and volition (Dowty 1975 among others). Causation has been argued as the most salient feature of agentive contexts, whereas volitionality and control are extra properties that are embraced by animate causers only (Arche 2006). DAs can sometimes be characterized as [-agentive]. Consider (16) where the DA *waagif* 'stand up$_{(DA)}$' is embedded under the perception verb *shefit* 'saw'. Here the DA expresses a non-agentive reading as exemplified by two facts. First, in (16a) the DA does not license the agentive-oriented adverb *shwai* 'slowly'. Second, in (16b) the DA survives the contradictory statement which states that it is possible that someone else caused him to fall, suggesting that Majdi in this sentence is [-agentive] otherwise the sentence should be unacceptable as is the case with the perfective form of the verb in (16c) where Majdi is [+agentive].

(16)

(a)* shefit majdi waagif shwai shwai.
see-PERF Majdi stand-DA slowly slowly
'I saw Majdi standing up very slowly.'

(b) shefit majdi waagif bs mumkin waHad thani elli waggaf-uh.
see-PERF Majdi stand-DA but may one other who stand-PERF-him
'I saw Majdi standing up, but maybe someone else stood him up.'

(c) shefit majdi wagaf # bs mumkin waHad thani elli waggaf-uh.
see-PERF Majdi stand-PERF# but may one other who stand-PERF-him
'I saw Majdi stand up, but maybe someone else stood him up.'

As pointed out earlier, causation and volition are one of the major properties of animate agents. However, not all animate agents are real causers. The argument *el-baibii* 'the baby' in the sentences under (17) is an animate, yet it is not agentive [-causer, -volition]. Only the DA *ghaasil* 'wash$_{(DA)}$' is appropriate with this non-agentive subject as demonstrated in (17a) and not the perfective form of the verb *ghasal* 'washed' in (17c). This fact is supported by the acceptability of sentence (17b) where the DA *ghaasil* 'wash$_{(DA}$' survives the contradictory statement which asserts that someone else washed the baby's face for him unlike the perfective in (17d).

(17)

(a) shefit el-baibii ghaasil wejhuh.
see-PERF the-baby wash-DA face-his
'I saw the baby's face washed.'

(b) shefit el-baibii ghaasil wejhuh bs ummuh elli ghasalatlu
see-PERF the-baby wash-DA face-his but mother-his who wash-PERF-for-him
'I saw the baby's face washed, but his mother washed it for him.'

(c)* shefit el-baibii ghasal wejhuh.
see-PERF the-baby wash-PERF face-his
'I saw the baby wash his face.'

(d)* shefit el-baibii ghasal wejhuh bs ummuh elli
see-PERF the-baby wash-PERF face-his but mother-his who
ghasalatlu.
wash-PERF-for- him
'I saw the baby wash his face, but his mother washed it for him.'

The aforementioned discussion asserts that DAs yield non-agentive interpretations [-agentive]. However, unlike non-verbal predicates, DAs also show an agentive interpretation [+agentive]. This is supported by the fact that DAs, especially those derived from accomplishment and activity verbal base, survive agentivity diagnostics as contrasted to non-verbal predicates which fail these tests. One piece of evidence comes from agent-oriented adverbials. In (18a) the DA *Saaf* 'park$_{(DA)}$' licenses the agent-oriented adverb *3amadan* 'deliberately'; whereas non-verbal predicates, which are canonically stative in nature, are unacceptable with this adverb as exemplified in (18b and c).

(18)

(a) majdi Saaf es-sayarah 3a baab ed-daar 3amadan.
Majdi park-DA the-car on door the-house deliberately
'Majdi has parked the car at the house gate deliberately.'

(b)* majdi mariiD 3amadan.
Majdi sick deliberately
'Majdi is sick deliberately.'

(c)* majdi m3alem 3amadan.
Majdi teacher deliberately
'Majdi is a teacher deliberately.'

Furthermore, unlike non-verbal predicates (19a and b), DAs are allowed in pseudo-cleft contexts with *elli Saar* 'what happened' as shown in (19c).

(19)

(a)* elli Saar enuh majdi Taweel.
What happened that Majdi tall
'What happened is that Majdi is tall.'

(b)* elli Saar enuh majdi m3alem.
What happened that Majdi teacher
'What happened is that Majdi is a teacher.'

(c) elli Saar enuh majdi kaatib er-resaleh.
What happened that Majdi write-DA the-letter
'What happened is that Majdi has written the letter.'

Unlike non-verbal predicates, DAs survive imperative contexts. JA exhibits some particles with imperative nuance such as the particle *huh*! I call these particles 'imperative particles' since they switch the reading of the sentence into an imperative reading. These particles are also used in contexts where the speaker commands the addressee to do something with a warning tone. The imperfective verb *bitratbi* 'clean' denotes a typical imperfective reading that is habitual reading 'Sarah cleans up her room everyday' as exemplified by sentence (20).

(20) 'enti betratbi ghurfetki kul yoom, 'ana ba3ref.
You-FEM IMPERF-clean.2nd.FEM room-your every day, I IMPERF-know
'You clean up your room every day, I know that.'

When the imperative particle *huh*! is used with the imperfective verb in (20) above, the reading switches from an imperfective to an imperative reading with a warning nuance as illustrated in (21).

(21) betratbi ghurfetki huh!
IMPERF-clean.2SING.FEM room-your IMPER
'Clean up your room, ok!'

DAs are allowed in these imperative contexts, while verbless sentences are not as illustrated in (22 a) and (22b and c) respectively.

(22)
(a)* betkuun m3alem huh!
Be teacher IMPER
'Be a teacher.'

(b)* betkuun mabSuut huh!
Be happy IMPER
'Be happy.'

(c) betkuun mrratib ghuruftak huh!
Be clean-DA room-your IMPER
Lit: your room must be clean
'You clean up your room, ok !'

Finally, DAs are allowed in infinitival complements that induce agentive readings (i.e. non-stative) such as 'it was very kind of you/very bold of you/very cunning of you to INF' as in (23c). This contrasts with verbless sentences which are not allowed in such contexts due to their stative nature as expected, as in sentences (23a and b).

(23)

(a)*/?? kanat xuTwah jaree'a minak enak m3alem.
was step bold from-you that-you teacher
'It was very brave of you that you are a teacher.'

(b)* kanat xuTwah jaree'a minak enak mariiD.
was step bold from-you that-you sick
'It was very brave of you that you are sick.'

(c) kanat xuTwah jaree'a minak enak maxeth haDa el-mawqef.
was step bold from-you that-you take-DA this the-stand
'It was very brave of you to take this stand.'

In sum, the abovementioned discussion shows that DAs have a distinct behavior from verbless sentences in terms of stativity and agentivity diagnostics. Unlike verbless sentences which are typically characterized by [+stative, -agentive], DAs exhibit a dual nature in that they are [+stative/+eventive] and [+/-agentive].

3.4.2 Individual vs Stage Level Predicates

Individual level predicates (IL) are defined as those predicates that ascribe properties to individuals (Carlson 1977). They are always contrasted with stage-level predicates (SL) which characterize a spatial and temporal representations of individuals (i.e. stages) as argued by Carlson (1977). Sentence (24a) exemplifies an IL while (24b) a SL.

(24)

(a) John is short.

(b) John is at home.

The opposition between IL and SL predicates is of interest here due to the fact that languages tend to make a distinction between these two types of predicates using verbless sentences. As pointed out earlier, DAs are assumed to belong to verbless sentences; it would be interesting therefore to see how DAs correspond to this dichotomist IL vs SL view of predication and whether they pattern with the verbless sentences in this regard or not.

The discussion in this section leads to the conclusion that DAs are better accounted for as SL since they exhibit all the features of SL. The other types of verbless sentences, on the other hand, show a split behavior in that each type of verbless sentence such as nominal predicates can be characterized as IL or SL. This conclusion is based on an array of diagnostics of IL/SL that are attested in the literature (Carlson 1977, Chierchia 1995, Kratzer 1995, Raposa and Uriagareka 1995, Higginbotham and Ramchand 1996, Becker 2000, Arche 2006 among others). The conclusion drawn in this section adds more appealing evidence to support the claim that DAs are distinct from non-verbal predicates.

Carlson (1977) argues that the distinction between IL and SL predicates resides in the fact that the former employ permanent property while the latter express temporary properties as exemplified in (24a) and (24b) respectively. A similar observation has been made by Chierchia (1995) who argues that IL predicates display inherent generic properties in that they denote tangentially stable properties; whereas SL predicates express transient properties. These facts can be extended to predicates in JA. Verbless sentences in JA namely those with nominal and adjectival predicates show a split nature in that they can denote a temporary property and therefore behave as SL (25a and b), or expressing a permanent property and hence characterized as IL (25c and d). Verbless sentences with prepositional phrases and DAs show only a SL reading as illustrated in (26a and b) respectively.

(25)

(a) majdi mariiD.
Majdi sick
'Majdi is sick.'

(b) majdi m3alem.
Majdi teacher
'Majdi is a teacher.'

(c) majdi 3yuun-uh zurug.
Majdi eye-PL-his blue-PL
'Majdi's ayes are blue'

(d) majdi Taweel.
Majdi tall
'Majdi is tall.'

(26)

(a) majdi fii ed-daar.
Majdi in the-house
'Majdi is at home.'

(b) majdi laabis 'awaa3eeh ej-jdaad.
Majdi wear-DA cloth-PL-his the-new
'Majdi has put on his new clothes.'

Chierchia (1995) provides more characteristics of the IL predicates as follows (I only use the most relevant ones here): (a) they are not allowed in locative constructions, (b) they are not allowed as complements of perception verbs, (c) in some contexts, they denote universal or generic readings and (d) they denote an aspectually stative reading. Regarding feature (a), DAs especially those derived from non-stative verbal roots allow locative adverbials as in (27a), those derived from stative roots are not allowed as in (27b). Similarly, some verbless sentences do not allow locative adverbials as shown in (27c-e), while others do.[1]

(27)

(a) majdi metxabii fii el-ghurfah.
Majdi hide-DA in the-room
'Majdi has hid himself in the room.'

(b)* majdi Haab el-bent fii el-ghurfah.
Majdi love-DA the-girl in the-room
'Majdi has loved the girl in the room.'

(c)* majdi m3alem fii el-ghurfah.
Majdi teacher in the-room
'Majdi is a teacher in the room.'

(d)* majdi 3yuun-uh zurug fii ed-daar.
Majdi eye-PL-his blue-PL in the-house
'Majdi's ayes are blue in the house.'

DAs, not derived from stative verbal roots, are allowed in perception verbs complements as in (28a) while those derived from stative roots are not (28b). Similarly, some verbless sentences are not allowed in these contexts as in (28c and d) while others are allowed as in (28e).

[1] See Kratzer (1988), (1995) and Arche (2006) for further examples of copular clauses allowing locative adverbials.

(28)

(a) ‘ana shefit majdi metxabii fii el-ghurfah.
I see-PERF Majdi hide-DA in the-room
‘ I saw that Majdi has hidden himself in the room.’

(b)* ‘ana shefit majdi Haab el-bent fii el-ghurfah.
I see-PERF Majdi love-DA the-girl in the-room
‘I saw that Majdi has loved the girl in the room.’

(c)* ‘ana shefit majdi m3alem.
I see-PERF Majdi teacher
‘I saw that Majdi a teacher.’

(d)* ‘ana shefit majdi Taweel.
I see-PERF Majdi tall
‘I saw Majdi tall.’

(e) ‘ana shefit majdi fii ed-daar.
I see-PERF Majdi in the-house
‘I saw Majdi in the house.’

Regarding feature (c), verbless sentences entertain the ability to denote generic or universal readings; this contrasts with DAs where no universal or generic reading can be expressed (Note here that the ability of verbless sentences to assign generic reading does not necessarily mean that it is the only reading available with these structures; rather it is one of the readings these structures allow). In (29a and b), the verbless sentence expresses a generic/universal reading; whereas the DA in (29c) expresses a result-state reading i.e. the snow being shoveled without any implication for a generic reading.

(29)

(a) el-Huut min eth-thaddiyaat.
The-whale from the-mammals
‘Whales are mammals.’ (Generic/Universal)

(b) el-‘awlaad agwaa min el-banaat.
The-boy-PL stronger than the-girl-PL
‘Boys are stronger than girls.’ (Generic/Universal)

(c) el-‘awlaad jaarfiin eth-thalj.
The-boy-PL shovel-DA the-snow
‘The boys have shoveled the snow.’ (Result-state)

DAs show a stark difference from verbless sentences in feature (d). The distinction lies in the fact that the former denotes a result state which comes about as a result of a preceding event, while the latter denotes a pure stative reading without any implication of an existing event of any form. This contrast is clearly manifested by the difference between the two states under (30) and (31). The verbless sentences in (30) express a pure stative reading with no event entailed: the state of Majdi being a teacher (30a), the state of Majdi being happy (30b), and the state of Majdi being at home (30c). The sentence with DA (31a), on the other hand, denotes a result state which comes about as a result of a preceding event: the result state of ‘the store being open’ is semantically entailed by the existence of a preceding event ‘opening the store’. In other words, the result-state ‘being open’ is true iff there is an entailing pre-existing event ‘opening’ as illustrated by the unacceptability of (31b) with the cancellation test negating the fact that there has been a preceding event i.e. opening the store of the current result state.

(30)

(a) majdi m3allem.
Majdi teacher
‘Majdi is a teacher.’

(b) majdi mabSoot.
Majdi happy
‘Majdi is happy.’

(c) majdi fii ed-daar.
Majdi in the-house
‘Majdi is in the house.’

(31)

(a) majdi faatiH el-maHal.
Majdi open-DA the-store
'Majdi has opened the store.'

(b) majdi faatiH el-maHal# bs el-maHal maa enfataH
Majdi open-DA the-store # but the-store not open-PERF-passive
'Majdi has opened the store but he did not open it.'

The fact that DAs deviate from being purely stative, which is one of the typical properties of IL predicates as pointed out by Chierchia (1995) above, clearly indicates that DAs pattern with SL predicates rather than IL. Further evidence in support of this conclusion comes from the syntactic treatment of IL/SL predicates proposed by Kratzer (1995). Under her analysis, Kratzer (1995) claims that IL and SL predicates differ in their way of predication: IL are predicated to individuals; while SL are predicated to an eventive variable as proposed by Davidson (1967).

The crucial distinction between the two predicates according to Kratzer (1995) then is that SL predicates project an eventive argument in their structure while IL predicates do not. In Kratzer's analysis, this fact gives rise to a distinction in their argument structure which is the base of the difference between IL and SL.

I argue that the distinction between IL and SL as proposed by Kratzer (1995) is also extended to verbless sentences and DAs in JA. In other words, DAs pattern with SL predicates in that they show an eventive argument in their structure; whereas verbless sentences do not and therefore pattern with IL predicates. One piece of evidence comes from the ability of DAs to allow locative and temporal adverbials which is a characteristic of eventive structures as in sentences under (32). However, verbless sentences do not allow these adverbials due to the lack of an eventive argument in their structure as in (33).

(32)

(a) majdi naayem fii elghurfah.
Majdi sleep-DA in the-room
'Majdi has fallen asleep in the room.'

(b) majdi jaai embareH.
Majdi come-DA yesterday
'Majdi had come yesterday.'

(c) majdi jaai hasa.
Majdi come-DA now
'Majdi has come now.'

(d) majdi jaai bukrah.
Majdi come-DA tomorrow
'Majdi is coming tomorrow.'

(33)

(a)* majdi m3alem fii el-ghurfah.
Majdi teacher in the-room
'Majdi is a teacher in the room.'

(b)* majdi m3alem gabil dageega.
Majdi teacher before minute
'Majdi is a teacher a minute ago.'

Another piece of evidence that DAs have eventive arguments is that DAs, as in (32b, c and d) above, license all temporal adverbials without the need of an overt copula i.e. the copula *kaan* 'was/were' or *ykoon* 'be'. This observation contrasts with verbless sentences as in (34a and b) where the overt copular verb *kaan* 'was/were' is needed to license the past temporal adverbial *embareH* 'yesterday'.

(34)

(a)* 'ana mariiD embareH.
I sick yesterday
'I am sick yesterday.'

(b) ‘ana kunt mariiD embareH.
I was sick yesterday
‘I was sick yesterday.’

Additionally, DAs express varied aspectual and temporal readings: a perfect result state reading in (35a) and a futurate reading in (35b). I argue that these readings are licensed because of the presence of the eventive argument in their syntax following Kratzer (1995). However, verbless sentences only denote pure stative readings and not varied aspectual and temporal readings due to the absence of this eventive component as explained earlier.

(35)
(a) majdi gaaTef ez-zeitoon.
Majdi pick-DA the-olive-PL
‘Majdi has picked the olives.’

(b) majdi msaafer bukrah.
Majdi travel-DA tomorrow
‘Majdi is going to travel tomorrow.’

To conclude, DAs pattern with SL predicates. This finding contrasts with the other types of verbless sentences which exhibit a split nature in that they pattern with SL in some contexts and IL predicates in others.

3.4.3 Morphsyntactic Diagnostics

The previous two sections have already presented counterarguments against the claim that DAs are non-verbal predicates (verbless sentences). Further support also comes from their morphosyntactic properties with regards to word order and interaction with the copular verbs *kaan* ‘was/were’ and *ykoon* ‘be’ as discussed below.

Arabic employs two basic types of word order: SVO and VSO. In general, verbal sentences, where the perfective and imperfective forms of the verb used, display the two types as evident in (36a and b).

(36)

(a) sami Hal el-wajib.
Sami do-PERF.3SG.MASC the-homework
'Sami did the homework.'

(b) Hal sami el-wajib.
do-PERF.3SG.MASC Sami the-homework
'Sami did the homework.'

DAs bear resemblance to verbal predicates rather than verbless sentences in this regard. DAs allow the two word orders as evident by the acceptability of (37a and b) where SVO and VSO word orders are attested respectively. In contrast, verbless sentences only allow SVO (38a), as shown by the unacceptability of (38b) where the predicate *m3alem* 'teacher' precedes the subject (topic) 'Sami'.

(37)

(a) 'ana saam3-ak, 'eHk-i.
I hear-DA-you, talk-IMPER-you
'I hear you, talk!'

(b) saam3-ak 'ana, 'eHk-i.
hear-DA-you I, talk-IMPER-you
'I hear you, talk!'

(38)

(a) majdi m3alem.
Majdi teacher
'Majdi is a teacher.'

(b)* m3alem majdi.
teacher Majdi
'Majdi is a teacher.'

A similar observation has been made by Boneh (2005) for Syrian Arabic. Consider (39) where the verbless sentence is ungrammatical with VSO word order.

(39)* mariiD sami.
sick Sami
'Sami is sick.' (Boneh 2005: 12)

Additionally, subjects can be dropped with DAs while they cannot be dropped in verbless sentences (Boneh 2005). Consider (40a) where DA predicates tolerate a covert subject; this is not the case with verbless sentences as in (40b).

(40)
(a) Taabix mansaf.
cook-DA mansaf
'(He/I/You) has/have cooked mansaf.'

(b)* m3alem.
teacher
'(Sami is) teacher.'

The use of the copular verbs *kaan* 'was/were' and *ykoon* 'be' is another diagnostic where the DAs and verbless sentences contrast. I argue that the copular verbs *kaan* 'was/were' and *ykoon* 'be' show different functions in both structures. This is evident from the fact that copula verbs only play a temporal function with verbless sentences: they locate Topic-Time (TT) (after Klein 1994) in relation to TU to denote temporal readings; therefore in (41a), *kaan* 'was' locates TT prior to TU to the indicate past tense reading. However, with DAs copular verbs play the same role (i.e. temporal role) while indicating another role that is a 'disambiguating role' where the use of the copular verb neutralizes the ambiguity that accompanies with DAs. Sometimes, DAs are ambiguous between the futurate and the perfect aspectual (i.e. result state) interpretations as evident in (42a). While it is true that the use of the copular verbs *kaan* 'was' and *yakoon* 'be' establish the tense reading of the sentence as 'past' (42b) and 'future' (42c),

they also neutralize the reading to a perfect aspectual (i.e. result state) reading to the exclusion of the futurate reading as illustrated by the unacceptability of (42b and c) under futurate reading.

(41)

(a) majdi m3alem.
Majdi teacher
'Majdi is a teacher.'

(b) majdi kaan m3alem
Majdi was teacher
'Majdi was a teacher.'

(42)

(a) majdi jaai.
Majdi come-DA
Result-state reading: Majdi has come (He is home now).
Futurate Reading: Majdi is going to come.

(b) majdi kaan jaai.
Majdi was come-DA
Result-state reading: Majdi had come.
#Futurate Reading: Majdi is going to come.

(c) majdi biykoon jaai.
Majdi be come-DA
Result-state reading: Majdi will have come.
#Futurate Reading: Majdi is going to come.

In sum, DAs not only differ from verbless sentences in agentivity/stativity, IL vs SL predicates but also in terms of word order and their interaction with copular verbs.

3.4.4 The Nominal Classification

Under the non-verbal analysis, there have been two major classifications of DAs in Arabic, the nominal classification (Bolus 1965, Qafisheh 1968, Gadallah 2000, among others) and the adjectival classification (Kremers 2003, Mughazy 2004, Al-Agarbeh 2011 among others). In the next two sections I discuss the implications of the counterarguments for the non-

verbal analysis established in sections 3.4.1, 3.4.2 and 3.4.3 for these two classifications. I start with the nominal classification. I argue that DAs are not nominal predicates. For the sake of this argument, I differentiate between two types of nominals: non-event nominals and event nominals (Grimshaw 1990). Each type will be discussed separately below.

3.4.4.1 DAs as Non-Event Nominals

I use the term non-event nominals to refer to non-derived and non-eventive nominals i.e. nominals that are not derived from verbal roots nor have arguments or event structures. These non-event nominals include: basic and pure nominals such as door, window, book etc…and simplex-event nominals (Grimshaw 1990). According to Grimshaw (1990), simplex-event nominals are non-derived nouns that refer to events but lack the argument and event structure that are found with event-nominals (event nominal predicates are discussed in section 3.4.4.2). Simplex event nouns include nouns such as journey, event, action, race, fight etc…. These nouns bear a resemblance to basic and pure nouns in many regards: both noun types are non-derived forms and both lack event and argument structures. Hence, they are subsumed under the same category here, the non-event nominals.

One might argue that the morphosyntactic behavior of DAs is analogous to non-event nominals. However, I only present one counterargument which I take as sufficient enough to rule out the non-event nominal analysis. My argument comes from the definiteness property of nominal predicates in Arabic. Definiteness is a denominating feature of nominals including non-event nominals that sets them apart from other non-nominals (i.e. verbal predicates). In Arabic, all non-event nominals can be either definite or non-definite as shown in the pairs of sentences (43 and 44) and (45 and 46).

(43) majdi shaaf el-filim elli enta jebt-uh.
Majdi see-PERF.3SG.MASC the-movie which you bring-it
'Majdi saw the movie which you brought.'

(44) majdi shaaf filim wathaa'eqii 3an en-nabataat embareH.
Majdi see.PERF.3SG.MASC movie documentary about the- plants yesterday
'Majdi saw a documantry movie about plants yesterday.'

(45) sami shaarak fee es-sbaag.
Sami participate-PERF.3SG.MASC in the race
'Sami has participated in the race.'

(46) sami sharaak fee sbaag el-thaHieh.
Sami participate-PERF.3SG.MASC in race the-city
'Sami has participated in a city race.'

Sentences (43 and 44) include the pure nominal *filim* 'movie'. In (43) the pure nominal *el-filim* 'the movie' is definite as it is used with the definite article *el* 'the'; whereas the same noun can be indefinite as it is the case in (44). Sentences (45 and 46) include the simplex-event nominal *sbaag* 'race'. In (45) the simplex-event noun is definite while it is indefinite in (46). However, DAs are only grammatical when they are indefinite as shown by the grammaticality of (47); and the ungrammaticality of (48) where the DA *Saayim* 'fast $_{(DA)}$' is used with the definite article *el* 'the'.

(47) 'ana Saayim bukrah.
I fast-DA tomorrow
'I am fasting/going to fast tomorrow.'

(48)* 'ana el-Saayim bukrah.
I the-fast-DA tomorrow
'I am the fasting/going to fast tomorrow.'

Since, definiteness is a denominating feature of all nominals in Arabic including non-event nominals, I count the definiteness property as a sufficient argument against the non-event nominal classification of DAs.

3.4.4.2 DAs as Event Nominals

In this section I take a closer look at the properties of event-nominals as described by Grimshaw (1990) and investigate whether they apply to DAs. This investigation sheds more light on the striking distinction between verbal and nominal properties of DAs and how this distinction can be accounted for. It also shows that despite the fact that DAs show morphosyntactic behavior that is similar to event nominals especially complex-event nominals such as *masader* 'verbal nouns' in Arabic, they still exhibit a stark contrast to event nominals with regard to other properties including definiteness and distributional properties which in turn corroborate the morphosyntactic status of DAs as a distinct category. First, I briefly introduce Grimshaw's notions of event-nominals then I apply the diagnostics on DAs.

Grimshaw (1990) observed a range of striking differences between two major types of nominals: the first type is the derived nominals i.e. nominals that are derived from verbal base such as 'examination' which is derived from the verb 'examine'. These nominals are also called 'deverbal nominals' since they are derived from verbs. The other type is the non-derived nominals i.e. nominals that are not derived from verbs such as the noun 'car'. In order to capture the differences between these two types of nominals, Grimshaw (1990) introduces the notion of argument-taking vs non-argument taking nominals. Based on this criterion, Grimshaw distinguishes between two types of nominals. The first type is concerned with nominals with event reading and argument structure (also called 'complex-event nominals' in Grimshaw's terminology). The second type is those nominals that lack argument structure; those include 'result nominals' and 'simplex-event nominals'. The distinction between result nominals and simplex-event nominals lies in the derivational nature of each one; while the former is a derived nominal, the latter is not. Table (2) below summarizes the three types of nominals under

Grimshaw's notion of nominalization with regards to argument-taking property and derivational nature.

Table (2) Grimshaw's Classification of Nominals

Nominal Type	Derivational Nature	Argument-taking Property
1- Complex-Event Nominals	Derived Nominals	Argument-taking nominals
2- Result Nominals	Derived Nominals	Non-argument taking nominals
3- Simplex-Event Nominals	Non-Derived Nominals	Non-argument taking nominals

I have already discussed the relation between DAs and the non-derived nominals including pure and simplex-event nominals in the previous sub-section. In the remainder of this sub-section I focus on the derived nominals (deverbal nominals) which include the complex-event and result nominals.

The distinction between the two types of derived nominals (complex-event and result nominals) is often obscured by a consistent ambiguity in their interpretations. For instance, the derived noun 'examination' is ambiguous between two different readings: a concrete object reading where the word examination refers to an 'exam' and an event-based reading where the same noun refers to the event of examining someone (i.e. examination event). The former reading is captured by a result nominal, while the latter by a complex-event nominal.

Grimshaw's account of derived nominals hinges on the assumption that the event component of the complex-event nominals is correlated with the obligatoriness requirement for an object argument. Consider, for instance, the role of the *of-phrase*, which occurs post-nominally, for the acceptability of the utterance in (49) below (Grimshaw 1990: 49). The significance of this *of-phrase* lies in its selectional property: it selects for an object argument

complement of the derived nominal, thus denoting an event reading since only events can select for object arguments as their themes or patients. When the deverbal nominal 'assignment' in (49a) combines with the *of-phrase*, it can only denote an event-based reading. The event-based reading is supported by the acceptability of the predicate 'took a long time' which diagnoses an event reading and the unacceptability of the predicate 'was on the table' which emphasizes a result reading. However, when the same noun is not followed by the post-nominal *of-phrase*, only the result reading is allowed as it is clear by the acceptability of the predicate 'was on the table' as contrasted to 'took a long time' which makes the utterance ungrammatical.

(49)

(a) The assignment of unsolvable problems (took a long time) / (*was on the table).

(b) The assignment (*took a long time) / (was on the table).

As the sentences in (49) show, the presence and the absence of the object argument structure is the property that distinguishes event from result nominals. If the argument structure is present, then the deverbal nominal receives a complex event reading where it denotes an event with structure argument. On the other hand, if the argument structure is absent, then the deverbal nominal has a result nominal reading where it denotes an object and lacks argument structure. In order to distinguish between complex event and result nominals, Grimshaw established some diagnostics listed in Table (3) below.

Table (3) Grimshaw's Diagnostics of Complex Event and Result Nominals

Diagnostic	Complex Event Nominal	Result Nominal
1- Argument Obligatoriness	Yes	No
2- Event Reading	Yes	No
3- Agent-Oriented Modifiers	Yes	No
4- Subject Status	Argument	Possessor
5- Implicit Argument Control	Yes	No
6- Aspectual Modifiers	Yes	No
7- Modified by 'a', 'one', 'that'	No	Yes
8- Count/Mass Nouns and Pluralization	Appear in Mass Nouns and may not be pluralized	Appear in Count Nouns and may be pluralized
9- Predication	May not appear as predicate	Can appear as predicate

I use the diagnostics presented in Table (3) to test whether DAs can be classified as result nominals. The results of these diagnostics clearly suggest that DAs are not result nominals. I first summarize the findings of these diagnostics in Table (4) below then I proceed to discuss these diagnostics and their results with illustrative examples.

Table (4) DAs and Result Nominals

Diagnostic	DAs	Result Nominal
1- Argument Obligatoriness	Yes	No
2- Event Reading	Yes	No
3- Agent-Oriented Modifiers	Yes	No
4- Subject Status	Argument	Possessor
5- Implicit Argument Control	Yes	No
6- Aspectual Modifiers	Yes	No
7- Modified by 'a','one', 'the', 'that'	No	Yes
8- Count/Mass Nouns and Pluralization	Do not appear in Mass or Count Nouns and cannot be pluralized	Appear in Count Nouns and may be pluralized
9- Predication	May not appear as predicate	Can appear as predicate

a- Diagnostics (1) Argument Obligatoriness and (2) Event Reading:

(50)

(a) sami memtaHen el-Tullaab lemudet saa3a.
Sami exam-DA the-student-PL for hour
'Sami has examined the students for an hour.'

(b) The assignment *(took a long time). (Grimshaw 1990: 49)

(c) sami 'emtaHen el-Tullaab lemudet saa3a.
Sami exam-PERF.3SG.MASC the-student-PL for hour
'Sami has examined the students for an hour.'

Sentence (50a) has the DA *memtaHen* 'exam$_{(DA)}$' which licenses the object argument structure *el-Tullab* 'the students'. The selection of the argument structure by the DA obtains due to the fact that the DA maintains the same underlying structure of the verbal base from which it is derived as shown in (50c) where the verbal form *emtaHan* 'examined' selects for object argument *el-Tullab* 'the students'. Furthermore, sentence (50a) indicates an eventive reading as it

licenses the event temporal adverbial *lemudet sa3a* ‘for an hour’. However, the presence of argument structure in the case of the derived result nominal ‘assignment’ is not obligatory as shown in (50b). Also, the sentence is unacceptable when used with the event-denoting predicate ‘took a long time’, hence the absence of the event reading.

b- Diagnostic (3) Agent-Oriented Modifiers

(51)

(a) sami memtaHen el-Tullaab 3an gasd.
Sami exam-DA the-student-PL on purpose
‘Sami has examined the students on purpose.’

(b) * The instructor’s intentional examination took a long time. (Grimshaw 1990: 51)

The DA *memtaHen* ‘exam$_{(DA)}$’ licenses the agent-oriented modifier *3an gasd* ‘on purpose’ as shown by the acceptability of (51a). However, no such case arises with the derived result nominal ‘examination’ in (51b).

c- Diagnostic (4) Subject Status

(52)

(a) sami kaatib er-resaleh bsur3a.
Sami write-DA the-letter fast
‘Sami has written the letter fast.’

(b) * The instructor’s examination took a long time.

(c) * The instructor’s intentional examination took a long time. (Grimshaw 1990: 51)

Sentence (52a) with the DA is felicitous only when ‘Sami’ is construed as a subject of the DA predicate not as a possessor. This is supported by the licensing of the event-denoting adverbial *bsur3a* ‘fast’ which invites an agent-like rather than a possessor-like interpretation. Sentence

(52b) on the other hand, is acceptable only when the 'instructor' is interpreted as 'the owner' of the examination. In other words, (52b) is only felicitous under a possessor-like rather than subject-like interpretation as shown by the unacceptability of the agent-oriented modifier 'intentional' in (52c) which induces an agent-like rather than a possessor-like interpretation.

d- Diagnostic (5) Implicit Argument Control

(53)

(a) sami kaatib er-resaleh mshaan yb3athha.
Sami write-DA the-letter in order to send-INF-it
'Sami has written the letter in order to send it.'

(b) The examination of the patient in order to determine ….

(c)* The exam in order to determine …

(Examples (b) and (c) are taken from Grimshaw 1990: 58)

This diagnostic is concerned with control structure of infinitival purpose clause i.e. 'in order to' followed by the infinitive form of the verb. Grimshaw (1990) argues that the event structure of the nominal with a complex event reading is what licenses the purpose control clause. This is exemplified by sentences in (53) which assert that the purpose clause is only allowed when the derived nominal expresses a complex event reading as in (53b), but not when the same derived nominal denotes a result reading as in (53c). The DA *kaatib* 'write $_{(DA)}$' in (53a) is analogous to the complex event nominal in (53b) in that it also licenses the control phrase suggesting that DAs comprise an event and argument structure unlike result nominals.

e. Diagnostic (6) Aspectual Modifiers:

(54)

(a) sami memtaHen el-Tullaab lemudet saa3a.
Sami exam-DA the-student-PL for hour
'Sami has examined the students for an hour.'

(b) Only observation (*for several weeks) determines….

DAs show another distinct behavior from result nominals in terms of licensing aspectual modifiers. If a derived nominal allows modification by time-span or durative adverbials such as *for X,* it clearly indicates that it has an event structure since only events allow these adverbials. Sentence (54a) with the DA *memtaHen* 'exam$_{(DA)}$' grammatically licenses the durative and event-denoting adverbial *lemudet sa3a* 'for an hour' indicating that it has an event structure which is not the case with the derived result nominal 'observation' in (54b) where the durative adverbial is not allowed according to Grimshaw (1990).

f. Diagnostic (7) Modified by 'a', 'one', 'that':

(55)

(a)* huwaa el-kaatib er-resaleh.
he the write-DA the-letter
'He the has written the letter.'

(b) huwaa kaatib er-resaleh.
he write-DA the-letter
'He has written the letter.'

(c) They studied the/an/one/that assignment. (Grimshaw 1990: 54)

DAs are grammatical only when they are used without definite markers as exemplified in (55b), hence the ungrammaticality of (55a) where the DA *kaatib* 'write$_{(DA)}$' is marked for

definiteness. Result nominal 'assignment', on the other hand, is allowed with both definite and indefinite markers as shown in (55c).

g. Diagnostic (8) Count/Mass Nouns and Pluralization:

(56)

(a) el-ban-aat 3aml-aat keik.
the-girl-PL do.DA-SPL cake
'The girls have made cake.'

(b)* el-ban-aat 3ummal keik.
the-girl-PL do.IPL cake
'The girls have made cake.'

(c) The assignments were long. (Grimshaw 1990: 54)

Before discussing examples in (56), there is one remark that needs to be clarified regarding pluralization of DAs. As shown earlier the active participles can have three different functions: nominal, adjectival and deverbal. All these different functions have the same morphological template as shown in Table (1). As far as pluralization is concerned, I distinguish between two forms of plural. The first form is the internal plural form (IPL) which is the plural marker of active participles with nominal function; it is also known as the 'broken plural' form. The second form is the suffixal plural form (SPL) which marks plurality in the case of deverbal active participles (Boneh 2005). In JA this suffixal plural form can inflect for either masculine or feminine; the former is expressed by the plural suffix *-iin* while the latter by the suffix *-aat*. Examples (57-61) are illustrative.

(57) el-bint 3aamleh keik.
the-girl do-DA cake
'The girl has made cake.'

(58) el-ban-aat 3aaml-aat keik.
the-gir-PL do-DA-**SPL** cake
'The girls have made cake.'

(59)* el-banaat 3ummal keik.
the-gir-PL do-DA-**IPL** cake
'The girls have made cake.'

(60) haDa bisthaghel 3aamel.
This IMPERF-work.3SG.MASC worker-SG
'This one works as a worker.'

(61) haDuul bisthaghlu 3ummal.
These IMPERF-work.3SG.MASC.PL worker-**IPL**
'These (ones/people) work as workers.'

Sentence (57) has the DA *3aamleh* 'do$_{(DA)}$' (with *deverbal* reading) and the singular/feminine subject *el-bint* 'the girl'. The DA agrees with its subject 'the girl' in terms of gender and number by showing singular and feminine inflectional agreement markings. However, in (58) the same DA has a plural subject *el-banaat* 'the girls' and therefore agrees with its subject by showing feminine but this time a suffixal plural marking (SPL) *–aat* and not an internal plural form (IPL) which makes the sentence ungrammatical as shown in (59). In sentence (60), the active participle *3aamel* 'worker' has a *nominal* function where it refers to the 'person who works', therefore, when it is pluralized as in (61) an internal plural form (IPL) is used rather than SPL which is only used with *deverbal* reading (58). A similar observation has been made by Mughazy (2004) and Boneh (2005) about Egyptian and Syrian Arabic respectively as shown in examples (62a and b) and (63a and b).

(62)
(a) henne kutaab hal-ktaab.
they writer-**IPL** this-books
'They are the writers of this book.'

(b) henne kaatb-iin hal-ktab.
they write-DA-**SPL** this-book
'They have written this book.'
(Syrian Arabic, Boneh 2005: 13)

(63)

(a) el-wilaad 3amliin el-waagib.
the-boys do-DA-**SPL** the-homework
'The boys have done the homework.'

(b) humma 3ummal fi maSna3 el-Hadeed.
they worker-**IPL** in factory the-steel
'They are workers in the steel factory.'
(Egyptian Arabic, Mughazy 2004:27-28)

Based on the aforementioned discussion, it is clear now why sentence (56b) is ungrammatical while (56a) is acceptable: the DA in (56a and b) is used with a *deverbal reading* where only the SPL is allowed to mark plurality and not IPL which is used to mark nominal pluralization (i.e. broken plural marker), hence the acceptability of (56a) with SPL and the unacceptability of (56b) with IPL. Contra to DAs, result derived nominal 'assignment' is allowed with nominal pluralization as shown by the acceptability of (56c).

h. Diagnostic (9) Predication

(64)

(a)* kaan haDa majdi kaatib er-resaleh.
was that Majdi write-DA the-letter
'That was Majdi has written the letter.'

(b) That was the/an assignment.

Another property of the derived result nominal, according to Grimshaw, is their ability to occur as predicate or with equational *be* as shown by the acceptability of sentence (64b). However, this is not the case with the DAs as it is clear by the unacceptability of (64a).

In sum, the results of the diagnostics discussed above show that DAs contrast with result nominal and therefore cannot be classified as such.

The other type of the derived event nominal according to Grimshaw's classification is the complex-event nominal (CEN). As shown earlier, CENs involve an event structure in their semantics and therefore they license argument structure such as object arguments. These derived nominals retain the event and argument structure of the underlying verb and therefore have some verb-like properties that distinguish them from other types of derived nominals. These facts also obtain for DAs since DAs project an event structure and retain verb-like properties that distinguish them from other types of active participles (i.e. nominal and adjectival active participles).

At first sight, one might claim that DAs seem to be a typical instance of CENs since both forms bear event structure and retain verb-like properties and the fact that they have analogous behavior with regards to Grimshaw's diagnostics as illustrated in Table (5) below. I put this claim to the test by examining the properties of CENs as described by Grimshaw (1990) and testing whether they are applicable to DAs in JA. To this end, I contrast the behavior of DAs with deverbal nouns in Arabic, also known as *masader* which have been recently accounted for as CENs in the sense of Grimshaw (1990) as shown by Kremers (2003). I therefore view *masader* (i.e. deverbal nouns) as an exemplifying structure of CENs in Arabic and use them as a diagnostic probe to test whether DAs can be categorized as CENs or not.

I first lay out the findings in Table (5) and then proceed to discuss these diagnostics with illustrative examples from MSA and JA.

Table (5) DAs and Masader (CENs)

Diagnose	DAs	Masader (CENs)
1- Argument Obligatoriness	Yes	Yes
2- Event Reading	Yes	Yes
3- Subject Status	Argument	Argument
4- Implicit Argument Control	Yes	Yes
5- Aspectual Modifiers	Yes	Yes
6- Modified by 'a', 'one', 'that'	No	Yes
7- Pluralization	No	No
8- Predication	Cannot appear as predicate	May or may not appear as predicate

a- Diagnostics (1) Predication and (2) Event Reading

(65)

(a) sami memtaHen el-Tullaab (lemudet saa3a).
Sami exam-DA the-student-PL (for hour)
'Sami has examined the students for an hour.'

(b) sami 'emtaHen el-Tullaab lemudet saa3a.
Sami exam-PERF.3SG.MASC the-student-PL for hour
'Sami has examined the students for an hour.'

(c) tamma 'e3terafuhu bi l-dhanb-i.
happened confessing-his with the-crime-GEN
'He came to confess his crime.' (MSA, Fassi Fehri 1993: 236)

(d) 'ana maa baHeb el-3etaab.
I not IMPERF-like.1SING the-complaining
'I do not like complaining.'

(e) 'ana maa baHeb 'a3atib.
I not IMPERF-like.1SING complain-INF
'I do not like to complain.'

Sentence (65a) has the DA *memtaHen* 'exam$_{(DA)}$' and licenses the object argument *el-Tullab* 'the students'. The selection of the object argument by the DA obtains due to the fact that the DA maintains the same underlying structure of the verbal base from which it is derived as shown in (65b) where the verbal form *emtaHan* 'examined' selects for object argument *el-Tullab* 'the students'. Furthermore, the DA occurs in the position of a verb and indicates an event reading as it licenses the event temporal adverbial *lemudet sa3a* 'for an hour'. The same facts hold for the masdar *e3teraaf* 'confessing' in MSA (65c) and *3etaab* 'complaining' in JA in (65d). These two verbal nouns induce an event reading and retain the argument structure of their verbal base.

One supporting piece of evidence comes from the fact that these two verbal nouns occur in the position of a verb. In other words, in order for verbal nouns to be able to occur in a verbal position, they *must* retain the verb's event and argument structure in their morphosyntactic configuration. For instance, the masdar *e3teraaf* 'confessing' in sentence (65c) occurs in the position of a verbal complement of the light verb *tamma* 'to come to happen' in MSA. This light verb is usually used to express non-true passives in that it takes a complex event nominal, in this case the masdar *e3teraaf* 'confessing', as subject (cf. Holes 1995, Kremers 2003). The masdar *3etaab* 'complaining' in (65d) occurs also in a verbal position i.e. as a sub-clause complement of the verb *baHeb* 'like'. The masdar must comprise an event and argument structure in order for it to be licensed in this verbal position as shown by (65e) where the sub-clause complement is occupied by the infinitival verb *'a3atib* 'complain'. The fact that (65d) is grammatical clearly shows that the masdar *3etaab* 'complaining' comprises an event and argument structure otherwise the sentence should be unacceptable.

b- Diagnostic (3) Subject Status

(66)

(a) sami memtaHen el-Tullaab.
Sami exam-DA the-student-PL
'Sami has examined the students.'

(b) graayet sami lal-qur'aan kuwaiseh.
recite-CEN Sami to-the-quran good
'Sami's reciting/recitation of Quran is good.'

Sentence (66a) with the DA *memtaHen* 'exam$_{(DA)}$' and (66b) with the masdar *grayyeh* 'reciting/recitation' are felicitous only when 'Sami' is construed as a subject and not as a possessor. This can be supported by the fact that both the DA *kaatib* 'write$_{(DA)}$' in (67a) and the masdar *el-grayyeh* 'studying/reading' in (67b) license agent-oriented and event-denoting modifiers such as *bsur3a*'fast', hence inviting subject-like rather than possessor-like reading.

(67)

(a) sami kaatib er-resaleh bsur3a.
Sami write-DA the-letter fast
'Sami has written the letter fast.'

(b) le-grayyeh bsur3a mush kwaiseh.
the-studying fast not good
'Studying fast is not good.'

c- Diagnostic (4) Implicit Argument Control

(68)

(a) sami kaatib er-resaleh mshaan yb3athha.
Sami write-DA the-letter in order to send-INF-it
'Sami has written the letter in order to send it.'

(b) ed-deraseh mshaan tet3allam aHasan men ed-deraseh mshaan tHaSel waDeefeh.
the-study-CEN to learn better from the-studying to get job
'Studying to learn is better that studying to get only a job.'

(c) qera'at-u-ka el-jareeddata li fahmi es-sayasat-i
read-CEN-NOM-your the-paper-ACC for understanding-GEN the-politics-GEN
ed-dawliyat-i.
the-international-GEN
'Your reading the paper in order to understand the international politics.'
(Kremers 2003: 132)

This diagnostic is concerned with control structure of infinitival purpose clause (i.e. 'in order to' followed by the infinitive form of the verb). According to Grimshaw, the purpose clause is only allowed when the derived nominal expresses a complex event reading (i.e. comprising event and argument structure). The DA *kaatib* 'write $_{(DA)}$' in (68a) is analogous to the masdar *deraseh* 'studying' in (68b) and *qera'a* 'reading' in (68c) in that they all license the control phrase suggesting that DAs are similar to masader in this regard.

d. Diagnostic (5) Aspectual Modifiers

(69)

(a) sami memtaHen el-Tullaab lemudet saa3a.
Sami exam-DA the-student-PL for hour
'Sami has examined the students for an hour.'

(b) wallah 'ana baguul deraseh lemudet sit sa3aat kaafi.
By God I say study-CEN for six hours enough
'Honestly, studying for six hours is enough.'

DAs show another behavior that is similar to masader in terms of licensing aspectual modifiers. If a derived nominal allows modification by time-span or durative adverbials such as *for X,* it clearly indicates that it has an event structure since only events allow these adverbials. Sentence (69a) with the DA *memtaHen* 'exam$_{(DA)}$' grammatically licenses the durative and event-denoting adverbial *lemudet sa3a* 'for an hour' indicating that it has an event structure

which is similar to the case with the masdar *deraseh* ‘studying’ in (69b) where the durative adverbial is also allowed.

e. Diagnostic (6) Modified by ‘a’, ‘one’, ‘that’

(70)

(a) Hawala zaydun (*haDa) l-i3teraaf.
try-PERF.3SG.MASC Zayd (*this) the-confessing
‘Zayd tried to confess.’ (MSA, Fassi 1993: 236)

(b) kaan (*haDa) majdi kaatib er-resaleh.
was (that) Majdi write-DA the-letter
‘It was Majdi that had written the letter.’

In (70a and b) the DA and the masdar do not allow the demonstrative *haDa* ’that’. Note here the demonstrative is not acceptable as a complementizer for the clause with the DA *kaatib* ‘write$_{(DA)}$’ in (70b) while it is allowed if it specifies the subject ‘Majdi’.

f. Diagnostic (7) Pluralization

(71)

(a)* el-banaat 3ummal keik.
the-gir-PL do-DA-**IPL** cake
‘The girls have made cake.’

(b)* ‘ana baHeb rukuub-aat el-xeil.
I IMPER-like.1SG riding-S**PL** the-horses
‘I like ridings horses.’

One more property of CENs masader is that they do not allow nominal pluralization as exemplified by the unacceptability of sentence (71b) where the masdar *rukuub* ‘riding’ is pluralized as *rukuubaat* ‘ridings’. This is a robust property of DAs in Arabic as well, as shown by the unacceptability of (71a).

g. Diagnostic (8) Predication

(72)

(a) kaan haDa eftetaaH el-‘ulumbiaad er-rasmmi.
was that opening the-olympic the-official
‘That was the official opening of Olympics.’

(b)* kaan haDa majdi faateH el-baab.
was that Majdi open-DA the-door
‘That was Majdi has opened the door.’

DAs differ from masader in that they, unlike masader, cannot occur as predicates or with equational *be* as shown by the unacceptability of (72b). However, masader can occur in such position as shown by the acceptability of (72a). While it is true that CENs usually do not occur in predicate positions as argued by Grimshaw (1990), masader seem to be able to license predicate positions as shown in (72a) above, (see Kremers 2003 for further discussion).

At first sight, the aforementioned discussion indicates that DAs and masader pattern together as CENs. However, I argue that DAs cannot be categorized as CENs despite these similarities. I base my argument on two distinguishing and denominating features of CENs in Arabic: definiteness and their distribution in the sentence.

Definiteness is a distinguishing property of non-verbal categories in Arabic which sets them apart from the verbal category. It is a denominating property of all nominal classifications in Arabic: non-event nominals (i.e. pure and simplex-event nominals) and event-nominals (i.e. result and complex-event nominals). In Arabic, as we have seen earlier, Masader are argued to be complex-event nominals and therefore undergo the condition of marking definiteness, which is a robust property of all masader in Arabic as in (73a and b) where the masader *el-grayyeh* ‘the studying’ and *el-‘3teraaf* ‘the confessing’ are marked with the definite article *el* ‘the’.

(73)

(a) sami beHeb **el-grayyeh** bakkeer.
Sami IMPERF-like.3SG.MASC **the-study-CEN** early
'Sami likes studying early.'

(b) **'el-'3teraaf** bi -thanb faDeelih.
the-confessing-CEN in guilt virtue
'Confessing the crime is a virtue.'

If DAs are categorized as CENs as masader, they should undergo the same condition of marking definitensess. However, this is not the case with DAs since they always need to be indefinite as shown by the ungrammaticality of (74a and b) where DAs are marked with the definite article *el* 'the'.

(74)

(a)* sami el-naayem.
Sami the-sleep-DA
'Sami the has fallen asleep.'

(b)* sami el-jaay.
Sami the-come-DA
'Sami the is going to come.'

Another argument against the claim that DAs are CENs comes from the distributional property of CEN masader. Masader in Arabic have the distribution of nouns in that they appear in all of the typical positions of nominals: subject, object, complement of prepositions and adjuncts. Examples (75a-d) are illustrative.

(75)

(a) el-taddrees weddu taHDeer mutawaaSil.
the-teaching need prepare-CEN constant
'Teaching needs constant preparation.'

(b) 'ana benesbeh elli baHeb et-taddrees.
I with regards to-me IMPERF-like.3SG.MASC the-teach-CEN
'I myself like teaching.'

(c) geddeesh btuSruf sa3a 3ala et-taddrees kull yoom.
how many IMPERF-spend.3SG.MASC hour on the-teach-CEN every day
'How many hours do you spend on teaching every day?'

(d) eT-Tullab wagafu 'eHteraman la-l-'ustaadh.
the-student-PL stand-PERF.3PL.MASC respect-CEN to-the-teacher
'The students stood up in respect to their teacher.'

In (75a) the masadr *et-taddrees* 'the teaching' is used as the subject of the verb *weddu* 'need' and in (75b) the same masdar is used in object position (the object of the verb *baHeb*'like'). In (75c) the masdar is used as a prepositional complement and in (75d) it is used as an adjunct. However, DAs do not distribute as nouns; rather they only occur in verbal positions as shown in (76a-c).

(76)

(a) 'adam Haab el-bent.
'adam love-DA the-girl
'Adam has fallen in love with the girl.'

(b) 'adam biHaab el-bent.
'adam IMPERF-love.3SG.MASC the-girl
'Adam is in love with the girl.'

(c) 'adam Hab el-bent.
'adam love-PERF.3SG.MASC the-girl
'Adam fell in love with the girl.'

In (76a), the DA *Haab* 'love $_{(DA)}$' occurs in the verb position of the sentence. This can be supported by sentences (76b and c) where the DA *Haab* 'love $_{(DA)}$' can be substituted by the imperfective and perfective forms of the verbs respectively.

In sum, despite the fact that DAs pattern with masader in almost all the diagnostics discussed in Grimshaw (1990), DAs still show a contrastive behavior to CEN masader with

regard to definiteness and nominal distributional properties which are denominating features of all nominals in Arabic.

3.4.5 The Adjectival Classification

The second major classification under the non-verbal analysis is the claim that DAs are adjectival predicates. First, I review the major studies that advocate for the adjectival analysis. Then, I provide critique and counterargument for this analysis.

3.4.5.1 Previous Studies (Kremers 2003, Mughazy 2004, and Al-Agarbeh 2011)

In an attempt to categorize DAs, Mughazy (2004) claims that DAs belong to the category of adjectives. He argues that DAs are complex adjectival predicates. The motivation for this analysis according to Mughazy (2204) comes from the fact that the state denoted by DAs is different from that denoted by simple adjectives in that the former expresses a state that comes about as a result of a preceding underlying event while the latter has no such restriction.

Mughazy (2004) provided some evidence to support his adjectival analysis. First, he argues that DAs bear morphosyntactic similarity to simple adjectives in that both forms must be indefinite when used as predicates as exemplified by sentences (77a and b). When both forms are definite as in (77c and d), the sentences become ungrammatical. (Examples are taken from Mughazy 2004: 51)

(77)

(a) el-3araybiyya gidiida.
the-car-FEM new-FEM
'The car is new.'

(b) mona misafra.
Mona travel-DA-FEM
'Mona is travelling.'

(c)* el-3araybiyya eg-gidiida.
the-car-FEM the-new-FEM
'The car is the new.'

(d)* mona el-misafra.
Mona the-travel-DA-FEM
'Mona is the travelling.'

Second, Mughazy (2004) claims that DAs and simple adjectives are the only categories that can be used as predicates in circumstantial clauses in Arabic as in (78a and b).

(78)

(a) 3ali rawwaH za3laan.
Ali went home unhappy
'Ali went home unhappy.'

(b) 3ali rawwaH Haasis b-el-weHdda.
Ali went home feel.DA with-the-loneliness
'Ali went home feeling lonely.'

(Mughazy 2004: 52)

Mughazy (2004) claims that the major argument in support of the adjectival analysis comes from the fact that DAs can be used in comparative and superlative contexts in which only adjectival predicates are licensed. Examples (79a and b) are illustrative (Mughazy 2004: 53).

(79)

(a) al-kinaaya-t-u 'astaru li-l-3ayb.
the-metaphore-FEM.NOM conceal-DA-NOM for-the-uncomely
'Metaphors are better at concealing what is uncomely.'

(b) 'Hna 'a'dar min-ak 3ala Hal el-mushkila di.
we become able to-DA from-you on solving the-problem this
'We are better able to solve this problem than you.'

In short, Mughazy (2004) takes the aforementioned discussion as sufficient evidence to claim that DAs belong to the adjectival category.

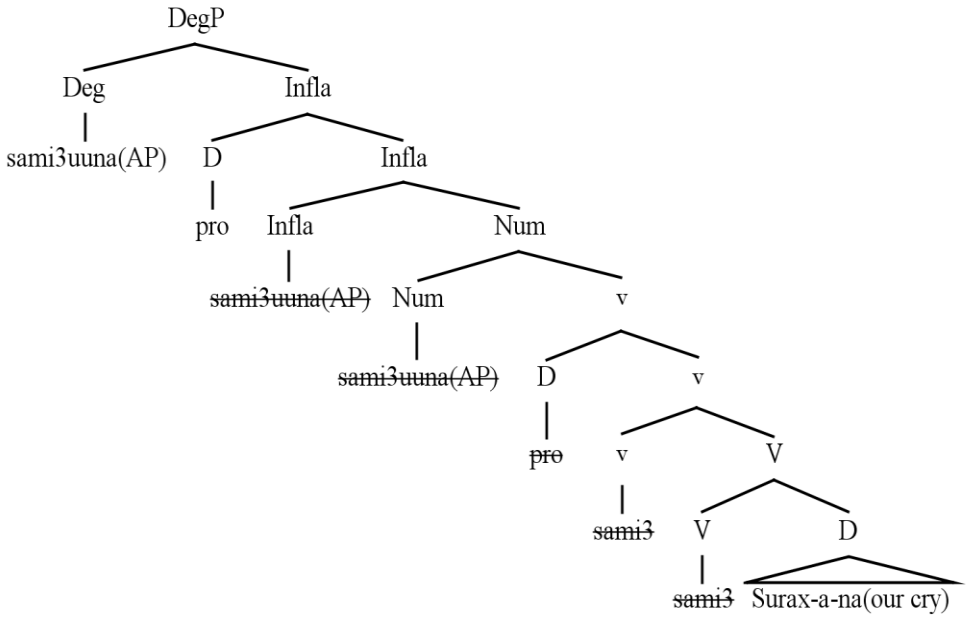
Kremers (2003) proposed a syntactic analysis for the two types of participles in Arabic: verbal participles and non-verbal participles (i.e. nominal and adjectival participles). Following Fassi (1993), he postulates that participles (active and passive participles) start out as verbs but at some point in the derivation an *adjectival head* projects in replacement of the verbal one. The fact that participles start out as verbs account for their verbal use and the switch of the head projection from verb to adjective should account for their non-verbal function. For instance, the the active participle *sami3uuna* 'hear$_{(AP)}$' in (80a) is used verbally due to the fact that it assigns accusative case to the complement object *Suraaxana* 'our cry'.

(80)

(a) hal 'antum sami3-uuna Surax-a-na?
Q you-PL hear-AP-PL.NOM cry-ACC-our
'Do you hear our cry?' (Kremers 2003:145)

According to Kremers' analysis, what licenses the assignment of accusative case marking in (80a) is the verbal head as shown in the tree diagram under (80b) below.

80(b):



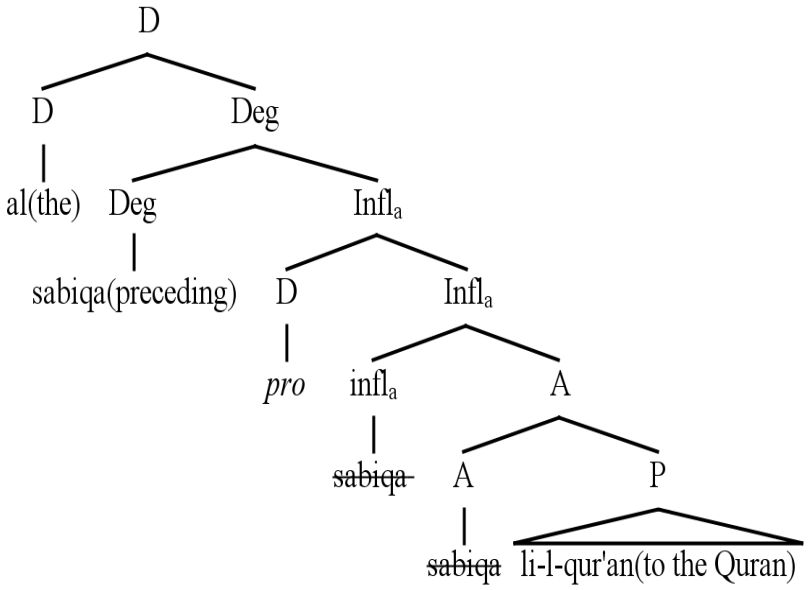
Kremers (2003) proposes the same syntactic configuration in (80b) to non-verbal participles as well. He argues that the structure of non-verbal participles phrases (i.e. nominal participles) can be derived by switching from the verbal head which projects at first stage of the derivation and licenses the verbal use of participles (i.e. assigning accusative case) to an *adjectival head* which licenses the non-verbal function of participles (i.e. assigning genitive case) as it is the case with the non-verbal participle *alsabiqatu* 'the preceding' which assigns a genitive case to the complement *qur'an* 'the holy book of Quran' as shown in (81a and b):

(81)

(a) al-kutubu l-muqadasat-u l-sabiqat-u li-lqur'an-i.
the-books-NOM the-holy-NOM the-preceding-NOM to-the-Quran-GEN
'The holy books that preceded the Quran.'

(Kremers 2003: 145)

(b):



In the spirit of Abney (1987), Kremers (2003) argues that participle phrases project the functional head *Deg* which stands for degree head. According to Abney, *Deg* head is the equivalent for the adjectival head (i.e. A head). This functional head is also considered as the hub of the comparative and superlative constructions according to Kremers' analysis. Therefore, he claims that participles constructions bear several similarities to adjectival phrases as exemplified in (80b and 81b). The motivation of his claim comes from the assumption that both participles and adjectives agree with their internal DegP-subject, which is assumed to be *pro* in the case of participles, in gender and number and with the head noun of the whole DP in case and definiteness. Consider (82).

(82) ra'aytu mra'-at-an jamil-an
I-saw woman-FEM-ACC.INDEF beautiful-MASC-ACC.INDEF
wajh-u-ha.
face-MASC-NOM-her
'I saw a women with a beautiful face.' (Kremers 2003:100)

According to Kremers (2003), the participle phrase such as the one given in (81a) above is similar to the adjectival phrase in (82). Both the participle *al-sabiqatu* 'the preceding' in (81a) and the adjective *jamilan* 'beautiful' in (82) agree with its internal Deg-subject in gender and number: *al-sabiqatu* 'the preceding' agrees with *pro* which always takes masculine singular marking; and *jamilan* 'beautiful' agrees with the subject of the DegP which is inflected for masculine singular marking. Both the participles and the adjective also agree with the head noun of the whole DP in case and definiteness: *al-sabiqatu* 'the preceding' is definite and assigned nominative case which is similar to the head noun *al-kutubu* 'the books' ; and the adjective *jamilan* 'beautiful' is indefinite and assigned accusative case agreeing with the head noun *'emra'atan* 'woman'.

The adjectival classification has also been extended to DAs in JA as proposed by Al-Agarbeh (2011). In her analysis of verbal vs non-verbal predication in JA, Al-Agarbeh (2011) argues that DAs pattern with adjectives. The motivation of her argument is based on three assumptions. First, she argues that DAs in JA pattern with adjectives in their agreement pattern rather than with nouns. More specifically, DAs and adjectives show a binary number agreement system: singular or plural unlike nouns which show a ternary system by the addition of the dual marking as shown in (83a and b). Second, according to her analysis DAs do not show person agreement with their subject similarly to non-verbal predicates including adjectives which only show number and gender agreement. Third, she argues that DAs, as is the case with all non-verbal predicates, inflect for definiteness since they can take the prefix *il-* 'the' which marks definiteness in Arabic as exemplified in (83a and b) where the DA *waqif* 'stand$_{(DA)}$' is grammatically used with the definite article *il-* 'the'.

(83) (Adjective) (DAs)

(a) il-muhandis-**tein** il-mariiD-**at/** il-waqif-**at.**
the-engineer-DL.FEM the-sick-plf/ the-standing-PL.FEM
'The sick standing engineers.'

(Adjective) (DAs)

(b) il-muhandis-**ein** il-mariiD-**iin/** il-waqif-**iin.**
the-engineer-DL.MASC the-sick-plm/ the-standing-PL.MASC
'The sick standing engineers.'

(Al-Agarbeh 2011: 76)

Al-Agarbeh (2011) provides a basic classification of predicates in JA: verbal predicates including perfective, imperfective, non-finite and imperative and non-verbal predicates including nouns, adjectives, participles and nominalized structures. She also adds the modal particles including modals and the future particle *raH* 'will/(be) going to'. The verbal vs non-verbal classification defended by Al-Agarbeh (2011) is analogous with the conventional dichotomist view of predication in Arabic where predicates are classified as either verbal or non-verbal. Her classification of predicates is based on the agreement features exhibited by each class: predicates showing full agreement (i.e. person, number and gender) are subsumed under verbal predicates; predicates exhibiting partial agreement (i.e. number and gender only) are classified as non-verbal predicates; modal particles, on the other hand, show no agreement at all. According to her analysis, DAs are subsumed under non-verbal predicates since they show partial agreement i.e. number and gender and not person.

3.4.5.2 Against an Adjectival Classification of DAs

I argue that the analysis that DAs are adjectival predicates is based on a weak footing. One major argument in favor of categorizing DAs as adjectives is that DAs and predicate adjectives pattern alike. A similar observation has been made by Fassi (1993) who advocates an

adjectival categorization of APs in Arabic. Fassi (1993) argues that both APs and adjectival predicates have similar distributions in the sense that both can be used as predicates in verbless sentences (see Fassi 1993 for detailed discussion). Perhaps the motivation for considering DAs as adjectives based on the predication argument comes from the view that predicative adjectives bear verb-like properties in that they denote a temporary rather than permanent state as it is the case with attributive adjectives (Bolinger 1967 and Bhat 1994). This makes predicative adjectives behave like DAs since DAs denote a temporary rather than permanent state. In fact, predicative adjectives do not retain verb-like properties in all contexts since they sometimes can be ambiguous between a modifying function (i.e. permanent state modification) and a predication function (i.e. verbal-like property in that they denote temporary state similar to verbs) as can be seen in the sentence *Majdi mas'uul* 'Majdi is responsible' where the predicative adjective *mas'uul* 'responsible' is ambiguous between a permanent state reading 'trustworthy' corresponding to modifying function and a temporary state reading 'to be blamed' corresponding to predicative verb-like function. Therefore the argument that predicative adjectives and DAs pattern alike is not accurate in all contexts.

Furthermore and along the same lines, Mughazy (2004) claims that DAs bear a morphosyntactic similarity to simple adjectives because both forms must be indefinite when used as predicates as exemplified by sentences (77a and b) above. I argue that this claim is neither a necessary nor a sufficient condition for categorizing DAs as adjectival predicates since nominals must be indefinite when used as predicates as well (84a and b). The nominal *m3allim* 'teacher' is used indefinitely in (84a) similarly to the adjectival predicate *gidiida* 'new' in (77a) above. The sentence is ungrammatical with a definite nominal predicate (84b).

(84)

(a) sami m3allim.
Sami teacher
'Sami is a teacher.'

(b)* sami el-m3allim.
Sami the teacher
'Sami is the teacher.'

Second, Mughazy (2004) claims that DAs are adjectival predicates since both forms are the only categories that can be used as predicates in circumstantial clauses in Arabic as in (78a and b) above. Again, this observation has also been used by Fassi (1993) to support his adjectival analysis of DAs in Arabic (Fassi 1993: 187). Contra to Fassi (1993) and Mughazy (2004), such an observation is not complete. This is shown by the fact that adjectival predicates are not the only forms that can be used as predicates in circumstantial sentences in Arabic. In fact many forms can be used in these contexts including imperfective as in (85), and passive participles (PPs) as in (86).

(85) 3ali rawwaH bebkii.
Ali went home IMPERF-cry.3SG.MASC
'Ali went home crying.'

(86) 3ali rawwaH maktool.
Ali went home beat-PP
'Ali went home beaten.'

Mughazy (2004) claims that the major argument in support of the adjectival analysis comes from the fact that DAs can be used in comparative and superlative contexts in which only adjectival predicates are licensed as shown in (79a and b) above. However, this argument is based on a very limited set of data. In fact, the only permissible DA structure in comparative contexts is the dynamic modal *gaadir* 'can/be able to' as shown in sentence (79b) earlier. No

other DA forms are attested in these contexts, not only in JA but in most dialect of Arabic as well. Consider sentences (87a-d) where the DA forms are used in comparative (COMP) and superlative (SUPR) contexts, yet the utterances yield ungrammaticality.

(87)

(a)* sami ‘aakal li-tufaaHa min-ak.
Sami eat-COMP to-the-apple than-you
‘Sami is more eating to the apple than you.’

(b)* sami aftaH la-l-baab minak.
Sami open-COMP to-the-door than-you
‘Sami is more opening to the door than you.’

(c)* sami ‘aakal waHad fii eS-Saf.
Sami eat-SUPR one in the-class
‘Sami is most eating one in the class.’

(d)* sami aftaH waHad la-l-baab.
Sami open-SUPR one to-the-door
‘Sami is most opening one of the door.’

If DA forms are used as adjectival predicates, sentences in (87) should be acceptable. However, in (87a and b) the DA forms *maakil* ‘eat $_{(DA)}$’ and *faatiH* ‘open$_{(DA)}$’are used in comparative contexts respectively, yet the sentences are ill-formed. The same fact obtains for sentences (87c and d) where the same DA forms are used in superlative contexts. It is these contexts, comparative and superlative, that have been presented as the strongest argument in favor of the adjectival analysis.

Similarly, I argue that Kremers’ adjectival analysis of APs in Arabic is lacking and cannot be extended to Arabic dialects including JA. As pointed out earlier, Kremers (2003) contends that APs project a Deg-head (equivalent to adjective head). If Kremers’ account is on the right track, then APs should obey one of the typical properties of adjectives, that is their ability to license degree modifiers indicating that adjectival predicates are gradable as shown in

(88a) where the adjective *Taweel* 'tall' licenses the degree modifier *jiddan* 'very'. However, the AP *naafi3un* 'help $_{(AP)}$' in (88b) does not license degree modifiers as shown by the unacceptability of the sentence; Example (88b) is taken from Fassi (1993:197).

(88)

(a) 3amr-un Taweel-un jidd-an.
3amr-NOM tall-NOM very-ACC
'3amr is very tall.'

(b)* zayd-un naafi3-un 'abaa-hu jidd-an.
Zayd-NOM help-AP-NOM father-his very-ACC
'Zayd is very helping his father.'

I argue that the observation made by Al-Agarbeh (2011) regarding the adjectival status of DAs is not substantially motivated either. The claim that DAs are non-verbal predicates since they, similar to adjectives, license the definite article *al-* 'the' as shown in (83a and b) above is lacking. I argue that when DAs are used with the definite marker *al-* 'the', the definite marker is not used canonically to express a definite article *the*, rather it is used as a *relative pronoun* that exhibits the same form as that of the definite article (Mughazy 2004). This type of *al-* is referred to in Arabic grammar as *al almawsuula* 'relative pronoun *al-*'. Therefore, unlike non-verbal predicates in Arabic as in (89c) where *al* is used as a definite article 'the' with the noun *el-3amarah* 'the building' and the adjective *el-Taweeleh* 'the tall', sentences (83a and b), repeated here as (89a and b) on the other hand, are acceptable only under the reading where the prefix *al-* is used to express a relative pronoun *elli* 'who' rather than a definite article 'the'. Therefore the claim that DAs are non-verbal predicates, mainly adjectival, because they allow the definite article as claimed by Al-Agarbeh (2011) is invalid.

(89)

(a) il-muhandis-tein il-waqif-at.
the-engineer-DL.FEM who-standing-PL.FEM
Lit: il-muhandis-tein **elli** waqif-at
'The engineers who are standing.'

(b) il-muhandis-ein il-waqif-iin.
the-engineer-DL.MASC who-standing-PL.MASC
Lit: il-muhandis-ein **elli** waqif-iin
'The engineers who are standing.'

(c) el-3amarah el-Taweeleh.
The-building the-tall
'The tall building.'

The strong correlation between DAs and adjectives arises as a result of several empirical observations including the view that adjectives and verbs (or verb-like predicates as DAs in this case) can be grouped together into one class of predicates (Kenaan 1979). Some of the findings supporting this claim might be related to the observation that adjectives are similar to verbs in denoting the features of objects and that they are relational in nature which enables them to function as predicates (Bhat 1994). However, there exist several fundamental differences between the two categories that override these similarities. One major distinction between them is related to their dependency status. In other words, adjectives are dependent in that they are subordinated to their head nouns as their primary function is the modification of nouns. DAs, on the other hand, are independent and serve as the nuclei of the utterance. Their primary function, unlike adjectives, is to denote an event and a resultant state that comes about as a result of such an event. For example, the adjective *mariiD* 'sick' in (90) is bound to its head noun Sami: it modifies the reference of its head noun Sami, whereas the DA *mssakir* 'close$_{(DA)}$' in (91) does not modify the head noun Sami; rather it denotes the event of closing the window with a

resultant state i.e. a window that is closed where Sami is viewed as a participant and not as a modified head noun as in (90).

(90) sami mariiD.
Sami sick
'Sami is sick.'

(91) sami mssakir esh-shubaak.
Sami close-DA the-window
'Sami has closed the widow.'

In addition, one of the primary differentiating characteristics between DAs and adjectives is related to their temporal status. Adjectives denote a permanent state while DAs express a temporary transient state (Givon 1984, Thompson 1988, and Bhat 1994 among others). Since adjectives are part of noun phrases and noun phrases introduce participants that are characterized by being more time-stable in nature, adjectives then should comply with this requirement and consequently denote a prototypically permanent state. DAs, on the other hand, being more verbal-like predicates, denote temporary and transient situations: actions, processes and events that undergo a change of state and are characterized by being more time-limited in nature. Consider sentence (92a) where the adjective *gaSeer* 'short' denotes a permanent state of Majdi, while the DA in (92b) denotes a change of state (i.e. being closed to being opened) and a contingent state that holds true at some TT (Topic Time after Klein 1994) but may not hold at some others (i.e. the window is open at a specific TT but not necessarily open at some other TTs).

(92)
(a) majdi gaSeer.
Majdi short
'Majdi is short.'

(b) ‘esh-shubaak faatiH.
the-window open.DA
‘The window is open.’

A similar observation has been made by Fassi (1993) who argues that adjectives are stative while DAs are dynamic in nature (i.e. non-stative in Fassi’s terms). He argues that pure stative roots only yield adjectives and not DAs. For example the stative root *krm* ‘be generous’ can only be used to derive an adjective *kariim* ‘generous’ and not an active participle *kaariim*. However, active participles can only be derived from dynamic roots such as *‘aakil* ‘eat$_{(AP)}$’ but cannot be used to derive adjectives such as *‘akiil* (Fassi 1993: 178). Therefore, Fassi (1993) proposes the following schematic presentation of the rule governing the derivation of active participles as presented in (93a) and adjectives (93b).

(93)
(a) e ⟶ s

(b) s ⟶ s (Fassi 1993:179)

When adjectives are used in the function of predication (i.e. predicate adjectives), they tend to manifest some of the verbal features, which as noun modifiers they were unable to manifest. One of those verb-like characteristics is their ability to denote a temporary state rather than a permanent state which is the default reading of attributive adjectives in general (Bolinger 1967 and Bhat 1994). The temporary-denoting feature of predicative adjectives is similar to DAs behavior as pointed out earlier. For example when the adjective *mufeedeh* ‘handy’ occurs predicatively, it denotes a temporary state as in (94a); whereas the same adjective denotes rather a permanent property if used attributively as in (94b).

(94)

(a) el-‘adawaat mufeedeh.
the-tool-PL handy
‘The tools are handy.’

(b) el-‘adawaat el-mufeedeh Daruurieh.
the-tool-PL the-handy necessary
‘The handy tools are necessary.’

Despite the fact that adjectives, similar to DAs, exhibit some verb-like properties, they still stand in sharp contrast with DAs. For instance, unlike DAs, adjectives do not allow any complements and other increments such as particles or clitics. Consider the following examples:

(95)

(a) bent-ha el-Taweeleh Helweh.
daughter-her the-tall beautiful
‘Her tall daughter is beautiful.’

(b)* bent el-Taweeleh-tha Helweh.
daughter the-tall-her beautiful
‘Her tall daughter is beautiful.’

(c) el-kutub le-ktheereh elli fii el-xazaneh la-muna.
the-book-PL the-many which in the-closet to-Muna
‘The group of books, which are in the closet, belong to Muna.’

(96)

(a) majdi maxetdh-ha.
Majdi take-DA-it
‘Majdi took it.’

(b) majdi Haat ez-zetuun-aat fii el-3aSayeh 3ala el-‘arD.
Majdi pick-DA the-olive-PL with the-stick on the-floor
‘Majdi has picked the olive with the stick dropping them on the floor.’

Sentence (95b) is unacceptable since the adjective *Tweeleh* ‘tall’ is used with the possessive cliticized pronoun *ha* ‘her’; the only way for the sentence to be acceptable is to cliticize the pronoun with the head noun *bent* ‘daughter’ (95a). However, cliticized pronouns are

perfectly acceptable with DAs as shown by the grammaticality of (96a) where the object cliticized pronoun *ha* 'it' is allowed with the DA *maxetdh* 'take$_{(DA)}$'. Moreover, DAs allow complement arguments: in (96b) the DA *Haat* grammatically selects for the instrument complement 'with the stick' and the locative adverbial complement 'on the floor'. However, sentence (95c) is felicitous only when the relative clause complement 'which are in the closet' is used as modifier to the head noun *el-kutub* 'the books' not the adjective *el-ktheereh* 'the many'.

Another distinction between DAs and adjectives with respect to verb-like properties is the ability of the former to manifest aspectual readings and license temporal and manner adverbials which is not the case with the latter. Examples (97a-c) and (98a-c) are illustrative.

(97)

(a) majdi kaatib er-resaleh (embareH).
Majdi write-DA the-letter (yesterday)
'Majdi has written the letter.'

(b) majdi Saayim bukrah.
Majdi fast-DA tomorrow
'Majdi is going to fast tomorrow.'

(c) majdi mraaji3 el-maadeh bsur3a.
Majdi review-DA the-course fast
'Majdi has reviewed the course fast.'

(98)

(a) majdi mariiD.
Majdi sick
'Majdi is sick.'

(b)* majdi mariiD embareH.
Majdi sick yesterday
'Majdi is sick yesterday.'

(c)* majdi mariiD bsur3a.
Majdi sick fast
'Majdi is sick fast.'

In (97a and b) the DAs *kaatib* 'write$_{(DA)}$' and *Saayem* 'fast$_{(DA)}$' denote resultant state and futurate readings respectively. However, sentence (98a) with the adjective *mariiD* 'sick' is felicitous only under a stative reading. The same DAs *kaatib* 'write$_{(DA)}$' and *Saayem* 'fast$_{(DA)}$' in (97a and b) also grammatically allow different temporal adverbs '*embareH* 'yesterday' and *bukrah* 'tomorrow' respectively; whereas the adjective *mariiD* 'sick' is not allowed with these adverbials as shown by the unacceptability of the utterance in (98b). Furthermore, DA *mraaji3* 'review$_{(DA)}$' in (97c) grammatically licenses the manner adverbial *bsur3a* 'fast'; in contrast, the adjective in (98c) cannot take manner adverbials.

DAs and adjectives differ markedly in terms of case assignment in MSA. DAs have the ability to assign accusative case to their complements due to the presence of intrinsic verb component in their syntax as pointed out many times earlier (Fassi 1993 and Kremers 2003 among others). Adjectives, on the other hand, lack this property and therefore fail again to comply with another differentiating characteristic of verbal and verb-like predicates such as DAs in this case. Thus, although the DA *muqruu* 'feed generously$_{(DA)}$' in (99a) grammatically assigns accusative case to its object *al-z̲ayfa* 'the guest', the adjective *Hasant* 'pretty' fails to do so as shown by the unacceptability of (99b).

(99)

(a) 'antum muqr-uu az̲-z̲ayf-a.
you feed generously-DA-NOM the-guest-ACC
'You generously feed the guests.'

(b)* hend-un Hasanat-u al-wajh-a.
Hend-NOM pretty-NOM the-face-ACC
'Hend's face is pretty.'

Also, both forms show distinct behavior with respect to genitive case assignment. That is, DAs, when used deverbally, fail to assign genitive case unless the preposition *li* 'of ' is used

which licenses the genitive case assignment when DAs are used in the construct state. Adjectives, on the other hand, are genitive case assigners. The construction in (100a), in which the object of the DA *maaniH* 'give$_{(DA)}$' is assigned a genitive case, is ill-formed. However, the complement of the adjective *Hasanatu* 'pretty' is grammatically assigned genitive case (100b); examples taken from Fassi (1993:199).

(100)

(a)* zayd-un maaniH-u l-maal-i.
Zayd-NOM give-DA-nom the-money-GEN
'Zayd is giving of the money.'

(b) hend-un Hasanat-u al-wajh-i.
Hend-NOM pretty-NOM the-face-GEN
'Hend's face is pretty.'

In summary, I have argued with evidence that DAs are not adjectival predicates. I have further argued that the previous analyses which support this claim are not robustly attested either.

3.5 The Verbal Analysis of DAs

Active participles (APs) in Semitic languages are known for their ambiguity between verbal and non-verbal uses. Consider for instance the active participle (AP) *kaatib* 'writer' in JA in (101) where it has both nominal and verbal interpretations. The same facts hold for the APs in Hebrew (also known as Benoni) where, for example, the AP *šomer* 'guard' is ambiguous between nominal and verbal readings as in (102).

(101) hwwa kaatib le-ktaab.
He write-AP the-book
Nominal: He is the writer of the book.
Verbal: He has written the book. (JA)

(102) Dani šomer.
Dani guard-AP
Nominal: Dani is a guard.
Verbal: Dani guards/is guarding. (Hebrew, Shlonsky 1997:27)

One way of teasing apart the nominal and the verbal occurrence of APs in both languages is the marking of definiteness. For example, the addition of the definite article *el* 'the' in Arabic and *ha* 'the' in Hebrew to the AP forms forces a nominal reading as shown in (103) and (104) respectively.

(103) huwwa el-kaatib.
He the-write-AP
Nominal: 'He is the writer.' (JA)

(104) Dani haya ha- šomer.
Dani be-past the-guard-AP
Nominal: 'Dani was a guard.' (Hebrew, Shlonsky 1997:27)

Also, the presence of a complement that is preceded by the preposition *la* 'of/to' in Arabic and *šel* 'of' forces a nominal reading as well, as exemplified in (105) and (106).

(105) huwwa el-kaatib lahaDa-liktaab mush sami.
He the-write-AP of this-book not Sami
Nominal: He is the writer of the book not Sami. (JA)

(106) Dani šomer šel ha-nasi.
Dani guard-AP of the-president
Nominal: Dani is the president's guard. (Hebrew, Shlonsky 1997:27)

Deverbal active participles (DAPs) behave similar to verbs in that they do not allow definite markings as in (107 and 108).

(107)* sami el-naayem.
Sami the-sleep-DA
'Sami the has fallen asleep.'

(108)* sami el-jaay.
Sami the-come-DA
'Sami the is going to come.'

(109)* sami el-binaam bakkeer.
Sami the-IMPERF-sleep.3SG.MASC early
'Sami the sleeps early.

(110)* sami el-naam bakkeer.
Sami the-sleep-PERF.3SG.MASC early
'Sami the slept early.

The DAs *naayem* 'sleep$_{(DA)}$' in (107) and *jay* 'come$_{(DA)}$' in (108) are ungrammatical when marked by the definite article *el* 'the'. The same pattern applies to verbs in JA as shown in (109) and (110) where the imperfective and perfective form of the verb yield unacceptable utterances when marked with definiteness.

Another difference between the nominal and verbal uses of APs is strongly reminiscent of the event and argument structure of verbal use of APs. Deverbal APs invariably retain the argument structure of their underlying verbal roots. In (111), the deverbal AP *Haaris* 'guard' obligatorily selects for an object argument structure complement *el-3amarah* 'the building' which in turn induces an ambiguity between verbal and nominal interpretations. However, in the absence of the object complement, the same AP in (112) can only be taken as nominal.

(111) majdi Haaris el-3amarah.
Majdi guard-AP the-building
'Majdi has guarded/is the guard of the building.'

(112) majdi Haaris.
Majdi guard-AP
'Majdi is a guard.'

Another verb-like property of DAs is that, as mentioned earlier, they license control structure of infinitival purpose clause (i.e. 'in order to' followed by the infinitive form of the

verb). According to Grimshaw (1990), the purpose clause is only allowed when the structure at issue expresses an event reading (i.e. comprising event and argument structure). The DA *kaatib* 'write $_{(DA)}$' in (113) licenses the control phrase *mshaan + INF* ' in order to + INF ' suggesting that DAs bear resemblance to verbs such as the perfective form of the verb in (114) where the perfective form *katab* 'wrote' licenses the control phrase as well.

(113) sami kaatib er-resaleh mshaan yb3athha.
Sami write-DA the-letter in order to send-INF-it
'Sami has written the letter in order to send it.'

(114) sami katab er-resaleh mshaan yb3athha.
Sami write-PERF.3SG.MASC the-letter in order to send-INF-it
'Sami wrote the letter in order to send it.'

DAs show another similar behavior to verbs in that they also license aspectual modifiers. If a DA allows modification by time-span or durative adverbials such as *for X*, it clearly indicates that it has an event structure since only events allow these adverbials. Sentence (115) with the DA *memtaHen* 'exam$_{(DA)}$' grammatically licenses the durative and event-denoting adverbial *lemudet sa3a* 'for an hour' indicating that it has a verb-like properties which is similar to the case with the imperfective verbal predicate *bidrrus* 'study' in (116) where the durative adverbial *xames sa3aat* 'for five hours' is also allowed.

(115) sami memtaHen el-Tullaab lemudet saa3a.
Sami exam-DA the-student-PL for hour
'Sami has examined the students for an hour.'

(116) sami biddrus xames sa3aat kull yoom.
Sami IMPERF-study.3SG.MASC five hour-PL every day
'Sami studies for five hours every day.'

In addition, DAs have the distribution of verbs. They appear in the position where imperfective and perfective verbs appear. Examples (117-119) are illustrative.

(117) ‘adam Haab el-bent.
Adam love-DA the-girl
‘Adam has fallen in love with the girl.’

(118) ‘adam biHaab el-bent.
Adam IMPERF-love.3SG.MASC the-girl
‘Adam is in love with the girl.’

(119) ‘adam Hab el-bent.
Adam love-PERF.3SG.MASC the-girl
‘Adam fell in love with the girl.’

In (117), the DA *Haab* ‘love $_{(DA)}$’ occurs in the verb position of the sentence. This can be supported by sentences (118 and 119) where the DA *Haab* ‘love $_{(DA)}$’ is replaced by the imperfective and perfective forms of the verbs respectively.

I have already shown that APs bear ambiguity between nominal and verbal uses as in example (101) above, where the AP *kaatib* ‘writer/has written’ is ambiguous between a nominal reading ‘writer of the book’ and a verbal reading ‘has written the book’. Note here that this ambiguity only occurs with masculine singular agreement. When the AP is inflected for feminine singular or for plural, it becomes easy to distinguish the verbal from the nominal use (Boneh 2005). Examples (120-123) are illustrative.

(120) hiyyeh kaatbeh hal-ktaab.
she write-DA the-book
‘She has written the book.’

(121) hiyyeh kaatb-it hal-ktaab.
she write-DA-FEM the-book
‘She is the writer of the book.’ (Boneh 2005:13 / Cowell 1964: 265)

(122) haDuul el-shabaab Hurras el-benaayeh.
these the-young guard-DA-IPL the-building
'These young men are the guards of the building.'

(123) haDuul el-shabaab Hars-iin el-benaayeh.
these the-young guard-DA-SPL the-building
'These young men have guarded the building.'

In (120 and 121), the AP form is inflected for the feminine singular marking, in (120) the AP functions as a verb whereas in (121) the AP expresses a nominal function. In other words the ambiguity is lifted with feminine inflection. The same fact obtains for pluralization. In (122) the AP *Hurras* 'guards' is inflected for internal plural marking (IPL) which is used to form a nominal broken plural, hence the AP expresses a nominal function. However, in (123), the AP *Harsiin* 'have guarded' is inflected for suffixal plural marking (SPL) *-iin* which marks plurality when APs are used verbally and therefore expresses a verbal usage. It is worth mentioning here that sometimes the suffixal plural marking (SPL) which marks plurality when APs are used verbally can also express pluralization when APs are used as nominals. However, when this happens, the morphological formation of the nominal APs and that of the verbal APs should markedely differ as exemplified with sentences (124) and (125).

(124) haDuul lewlaad **mumathel-iin** fee el-masraHieyeh.
these the-boys act-AP-IPL in the-play
'These boys are actors in the play.'

(125) haDuul lewlaad **mathel-iin** fee el-masraHieyeh.
these the-boys act-AP-IPL in the-play
'These boys act in the play.'

In (124 and 125) the APs are inflected for plurality using the same SPL marker *iin*, yet the AP in (124) is used nominally while the one in (125) is used verbally. The reason of this

contrast is that both forms exhibit a distinct AP morphological formation: in (124) the nominal AP is formed with the prefix *mu-* while the verbal AP in (125) by the prefix *m-*.

At first sight, the aforementioned discussion seems to support the claim that DAs are verbs. However, a closer look at the morphosyntactic behavior of DAs, namely the property of person agreement, calls for a reconsideration of this claim. The property of person agreement is a denominating feature of the verbal category in Arabic which distinguishes it from non-verbal categories where only number and gender agreement is marked to the exclusion of person. The fact that DAs violate this typical feature of verbs in Arabic clearly suggests that DAs cannot be categorized as a verbal category (Mughazy 2004 and Boneh 2004, 2005). The person agreement feature is manifested in the discussion below in two regards: subject-verb agreement vs negation.

Standard Arabic allows two basic word orders in declarative sentences with two types of subject-verb agreement. In the SVO word order, the verb obligatorily has full subject agreement i.e. the verb agrees with the subject in all the features of person, number and gender. In sentences with the VSO word order, the verb agrees with subject in terms of person and gender but not in terms of number. The same agreement facts extend to JA. Examples (126 and 127) are illustrative.

(126)

(a) el-banaat shafaan el-filim.
the-girl-PL see-PERF.3PL.FEM the-movie
'The girls saw the movie.'

(b)* el-banaat shafat el-filim.
the-girl-PL see-PERF.3SG.FEM the-movie
'The girls saw the movie.

(127)

(a) shafaan el-banaat el-filim.
see-PERF.3PL.FEM the-girl-PL the-movie
'The girls saw the movie.'

(b) shafat el-banaat el-filim.
see-PERF.3SG.FEM the-girl-PL the-movie
'The girls saw the movie.'

Sentences in (126) present the SVO word order. The verb in these examples exhibits full agreement with its subject in all of the features (i.e. person, gender, and number). The examples in (127), on the other hand, represent the VSO word order, and indicate that the verb shows partial agreement with its subject (i.e. in terms of person and gender) and not in terms of number. In other words, despite the type of agreement established between the subject and verb, verbs always agree with their subjects in terms of person. However, DAs agree with their subjects only in terms of number and gender but not in terms of person as exemplified by the sentences under (128).

(128)

(a) huwwa Saayim.
He fast.DA-SING.MASC
'He is fasting.'

(b) humma Saayim-iin.
They fast.DA-PL.MASC
'They are fasting.'

(c) hieyeh Saayim-eh.
She fast.DA-SING.FEM
'She is fasting.'

(d) henneh Saayim-aat.
They fast.DA-PL.FEM
'They are fasting.'

(e) ‘ana Saayim.
I fast.DA-SING.MASC
‘I am fasting.’

(f) ‘enta Saayim.
You fast.DA-SING.MASC
‘You are fasting.’

Sentences (128a-d) exhibit masculine/feminine vs singular/plural inflections. Each one of these features is marked by a distinct inflectional morphology: ø for Singular masculine as in (a), *-iin* for plural masculine as in (b), *-eh* for singular feminine as in (c) and *–aat* for plural feminine as in (d). Sentences (128a, e and f), on the other hand, show different person pronouns: (a) has the third person pronoun, (e) has the first person pronoun and (f) has the second person pronoun, yet no person inflection is marked on the DA form.

The other argument against viewing DAs as verbs comes from sentential negation (Mughazy 2004, Boneh 2005, 2010 among others). This argument is also related to the person-agreement feature. JA exhibits two ways of expressing sentential negation: verbal negation and predicate negation (Benmamoun 2000). The former is used with verbal sentences and expressed by the use of the proclitic *ma*. The latter is used in verbless sentences and is expressed by the use of pronouns of negation (*mu*, *mi*, *mumma*, etc…) Consider these examples:

(129)

(a) majdi ma Hal el-wajib.
Majdi not do-PERF.3SING.MASC the-homework
‘Majdi did not do the homework.’

(b) majdi 3adatan ma biHell el-wajib.
Majdi often not IMPERF- do.3SING.MASC the-homework
‘Majdi does not do the homework often.’

(130)

(a) majdi mu m3alem.
Majdi not-he teacher.SING.MASC
'Majdi is not a teacher.'

(b) sarah mi m3almeh.
Sarah not-she teacher.SING.FEM
'Sarah is not a teacher.'

(c) 'ana mana m3alem.
I not-me teacher.SG.MASC
'I am not a teacher.'

The sentences in (129a and b) show verbal sentential negation where the perfective and imperfective forms of the verb are negated by the negative operator *ma* respectively. Sentences (130a-c), on the other hand, show non-verbal negation where the pronoun negation particles *mu*, *mi* and *mana* are used to negate verbless sentences.

These forms of sentential negation are sensitive to the person agreement feature (Benmamoun 2000). In other words, when person agreement is present as with verbal sentences, the negative operator *ma* is used. When person agreement is absent, on the other hand, as with verbless sentences where only number and gender agreement is established, the pronouns of negation are used. The use of the negation pronouns compensates for the loss of the person agreement inflection on the topic and its predicate in non-verbal sentences (See Benmamoun 2000 and Hoyt 2007 for further discussion). Unlike verbal forms where the negative operator *ma* is used, DAs are negated by negation pronouns similar to non-verbal predicates as exemplified by the following sentences:

(131)

(a) huwwa mu naayim.
He not-he sleep-DA-SING.MASC
'He has not fallen asleep.'

(b) ‘ana mana naayim.
I not-me sleep-DA-SING.MASC
‘I have not fallen asleep.’

(c) ‘ent ment naayim.
You not-you sleep-DA-SING.MASC
‘You have not fallen asleep.’

The sentences in (131) show that DAs are negated using the non-verbal negation markers. The use of the verbal negative operator *ma* yields the sentences ungrammatical.

The verbal and non-verbal categories are not the only categories that do not accommodate DAs; other categories do not as well. For example, modals in JA do not show agreement with their subjects while DAs show agreement in terms of gender and number as discussed earlier. The modals *laazim* ‘must’ and *mumkin* ‘may’ which express deontic and epistemic interpretations respectively do not establish agreement with their subject as shown in (132a-f), whereas DA *Saayim* ‘$\text{fast}_{(DA)}$’ as in (128a-d) above show agreement with its subject in terms of gender and number.

(132)

(a) sarah laazim t-rooH 3ala el-madraseh.
Sarah must INF.3SG-FEM.go to the school
‘Sarah must go to school.’

(b) el- Tulaab laazim y-lbas-uu el-zai el-muwaHaad.
The- student-PL must INF-3.wear.MASC.PL the form the unified
‘The students must wear a uniform.’

(c) laazim t- gaddem el-‘emtiHaan.
Must INF-2SG.MASC-take the exam
‘You must take the exam.’

(d) sami laazim y-rooH 3ala el-madraseh.
Sami must INF.3SG-MAS.go to the school
‘Sami must go to school.’

(e) sarah mummkin bi-t-Hib hadh-i el-fawakeh.
Sarah may IMPERF.3SG.FEM-like this-FEM the- fruit
'Sarah may like this fruit.'

(f) mummkin sami bi-sma3 musiqaa.
May Sami IMPERF.3SG.MASC-listen music
'Sami might be listening to music.'

(g) mummkin bi- drus -uu fii el-maktabeh.
May IMPERF-study.3PL.MASC in the-library
'They might be studying at the library.'

DAs differ from adverbs as well. The primary function of adverbs is to modify verbs and adjectives as exemplified in (133a and b) where the adverb *biguwwah* 'with force' and *ktheer* 'very much/a lot' modify the event of opening the door and the status of the taste of the ice cream respectively. However, this is not the case with DAs as shown repeatedly earlier.

(133)
(a) majdi fataH el-baab bi-guwwah.
Majdi open-PERF.3SG.MASC the-door with force
'Majdi opened the door forcefully.'

(b) el-'ays kreem zaaki ktheer.
The-ice cream tasty very much
'The ice cream is very much tasty.'

Furthermore, DAs differ from the category of pseudo-verbs. Pseudo-verbs can be "nominal or existential phrases that have a partial verbal syntactic nature. These constructions are used semantically to convey a verbal meaning, often possessive or existential in nature" (Brustad 2000:153). They pattern like verbs in that they mark person agreement and select the verbal predicate negative marker *ma* 'not'. Examples (134a and b) are illustrative.

(134)

(a) ma 3end-i mushkeleh.
not there-1SING.MASC problem
'I have no problem.'

(b) ma 3end-u mushkeleh.
not there-3SING.MASC problem
'He has no problem.'

Sentences (134a and b) have a pseudo-verb construction *3end-I /3end-u* 'I have/he has'. This construction describes an existential meaning that corresponds to 'there is no problem'. As can be seen in (134a and b), *3end-i /3end-u* 'I have/he has', pattern like verbs in that they mark person agreement and they are negated with the verbal predicate negative operator *ma* 'not'. Note here that the use of non-verbal negative markers makes the sentences ungrammatical. However, DAs in JA do not have the same features in the sense that no DA in JA expresses possessive or existential interpretations. Furthermore, DAs lack person agreement and do not use verbal negative markers for negation as discussed earlier.

In sum, I take the fact that DAs lack person agreement, which is an obligatory feature of the verbal category in Arabic, as a sufficient argument against classifying them as verbs. I also argued that DAs cannot be accommodated by other categories such as modals, adverbs or pseudo-verbs. In the next section I provide an alternative view of predication in JA to capture the intermediate morphosyntactic status of DAs predicates along with the verbal and non-verbal predicates.

3.6 Predication in JA: An Alternative View

I argued in the previous sections that DAs exhibit a mixed morphosyntactic status of verbal and non-verbal properties. There are many arguments to support the claim that DAs do not belong to the verbal predicates, especially the fact that DAs violate person agreement which is an obligatory feature of the verbal predicates in Arabic that distinguishes them from non-verbal predicates. Moreover, DAs cannot be accounted for by the non-verbal analysis either. I have shown that DAs differ from the non-verbal predicates of nouns and adjectives especially with regards to the definiteness property. Definiteness is a distinguishing property of non-verbal predicates in Arabic which set them apart from verbal predicates. Table (6) below summarizes the distinguishing features of verbal vs non-verbal predicates in JA and show how DAs have a mixed behavior of both.

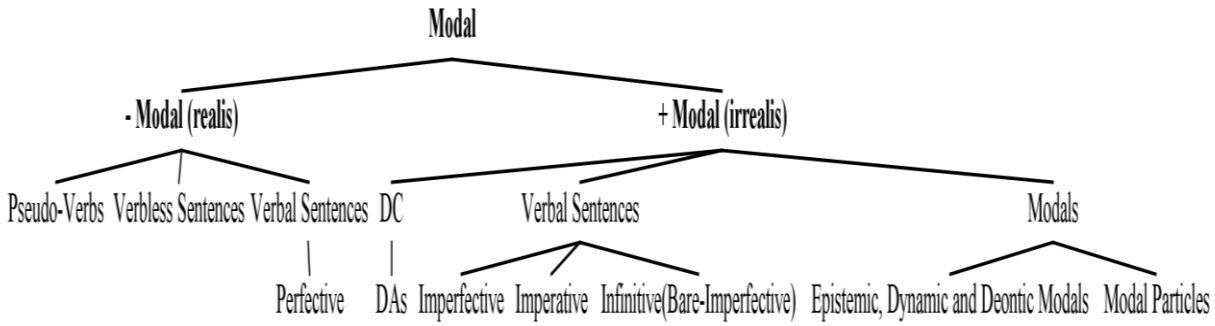
Table (6) Three-way Classification of Predicates in JA (first version)

Feature	Verbal Predicates	Non-verbal Predicates	DAs
1. Person Agreement	+	-	-
2. Definiteness	-	+	-

Table (6) shows that the features of [-Person, -Definiteness] of DAs corroborate their morphosyntactic status as a distinct type of predication in JA that set them apart from verbal and non-verbal predicates which are characterized by [+Person, -Definiteness] and [-Person, +Definiteness] respectively. I take this fact as a major challenge to the conventional dichotomist 'verbal and non-verbal' view of predication in Arabic in general and in JA in particular. This view has long been observed as the basis of predicates classification in Arabic. Yet, the fact that this view fails to account for DAs as shown calls for a reconsideration of predication in JA.

Therefore and to this end, I propose an alternative view of predication in JA where predicates are not classified on verbal vs non-verbal basis, rather, they are classified on modal (irrealis) vs non-modal (realis) basis. I present this alternative view in figure (1).

Figure (1) Alternative View of Predication in JA (first version):



As demonstrated in figure (1), predication in JA is alternatively classified based on modal vs non-modal rather than verbal vs non-verbal dichotomy. While the latter fails to discern the morphosyntactic nature of some predicates such as DAs, the former has the advantage point to account for all predicates in JA including DAs. I assume that the modal vs non-modal view has a predictive force in that any predicate in JA can be accounted for as such. Figure (1) includes all predicates in JA as discussed in Al-Agarbeh (2011). In her analysis, as shown earlier, she assumes that predicates in JA are classified into verbal and non-verbal based on their agreement (person and definiteness) specifications: verbal predicates have the features [+person, -definite], whereas non-verbal predicates have the features [-person, +definite]. In other words, she adopts verbal and non-verbal dichotomy to account for predication in JA. She further claims that DAs in JA belong to non-verbal predicates based on their agreement properties i.e. lack person

agreement and inflect for definiteness which are characteristics of non-verbal predicates. However, despite the intuitive appeal of Al-Agarbeh's analysis, I argued that DAs do not belong to non-verbal predicates in that they lack the definiteness property as discussed in Table (6). The failure of non-verbal predicates along with verbal predicate to account for DAs undermines the claim for taking the verbal vs non-verbal distinction as the base of predicates classification in JA. Alternatively, I assume that the modal vs non-modal view is more appealing since it recaptures all predicates in JA discussed in Al-Agarbeh's and accounts for DAs as well.

In this alternative view of predication I subsumed DAs under 'Distinct Category' (DC). However, I propose a new category for DAs in JA which I call the 'evidential category'. My motivation for proposing this category comes from the analysis pursued in this work where DAs are accounted for as evidential predicates. I provide a body of evidence to support this proposal in chapter 4. I provide further evidence in support of the evidential category based on the behavior of another participle construction in JA, passive participles (PPs). I argue that PPs bear a similar morphosyntactic behavior to DAs: they lack person agreement and definiteness. Consider sentence (135).

(135) biguul-u enuh enteh masjuun.
say-they that you prison-SG.MASC-PP
'They say that you have been imprisoned.'

Sentence (135) has the PP *masjuun* 'prisoned' which agrees with its subject only in terms of gender and number but not in person. Furthermore, PPs resemble DAs in their sensitivity to definiteness. In other words, when PPs are used with the definite marker *al-* 'the', the definite marker is not used canonically to express a definite article *the*, rather it is used as a relative pronoun that has the same form as that of the definite article. This type of *al-* is referred to in

Arabic grammar as *al almawsuula* ‘relative pronoun al-’ as discussed earlier. Therefore, unlike non-verbal structures in Arabic where *al-* is used as a definite article, sentences (136a and b) are acceptable only under the reading where the prefix *al-* is used to express a relative pronoun *elli* ‘who’ rather than a definite article ‘the’.

(136)

(a) biguul-u enuh huwwa el-masjuun.
say-they that he who-prison- SG.MASC-PP
Lit: biguul-u enuh huwwa **elli** masjuun
‘They say that he is the one who has been imprisoned.’

(b) biguul-u enuh enteh el-masjuun.
say-they that you who-prison- SG.MASC-PP
Lit: biguul-u enuh enteh **elli** masjuun
‘They say that you are the one who has been imprisoned.’

The same facts also hold for PPs in MSA. In (137a and b), the PP *al-maluumu* ‘to be blamed’ agrees with its subject in terms of number and gender but not in person. Sentence (137c), for instance, has the PP *al-mamlu’ata* ‘filled’; the sentence is acceptable only under the reading where the prefix *al-* is used to express a relative pronoun *allati* ‘which’ rather than a definite article ‘the’.

(137)

(a) huwwa al-maluum-u 3ala fe3l-i dhalik-a.
He who-blame-SG.MASC-PP on doing-GEN that-ACC
‘He is to blame for doing so.’

(b) ‘anta al-maluum-u 3ala fe3l-i dhalik-a.
You who-blame-SG.MASC-PP on doing-GEN that-ACC
‘You are to blame for doing so.’

(c) ra’ayt-u al-3arabat-a al-mamlu’at-a qashaan.
see-PERF-I the-carriage-ACC which-fill-PP-ACC hay
Lit: ra’ayt-u al-3arabat-a **allati** mule’at qashaan.
‘I saw the carriage which was filled with hay.’

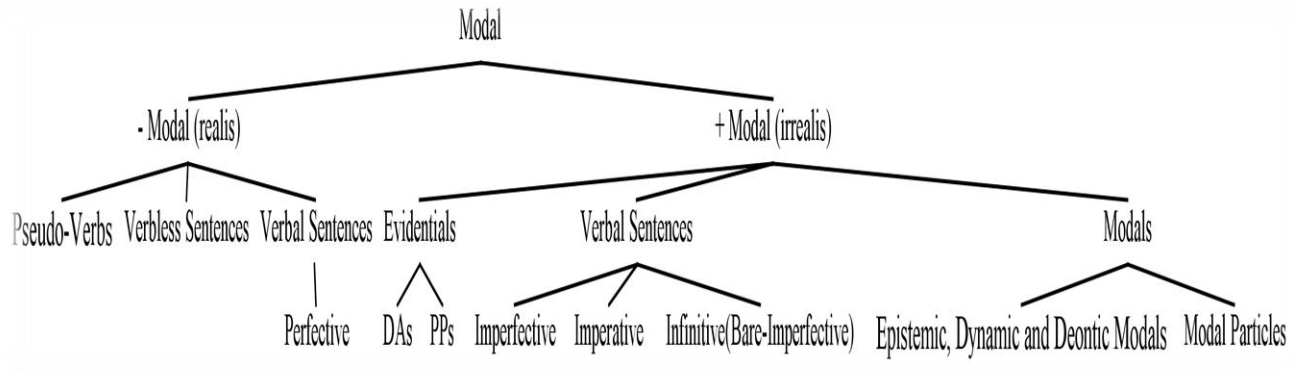
These facts show that the morphosyntactic behavior of PPs resembles that of DAs. I argue in chapter 4 that passive participles (PPs) have an evidential reading similar to DAs as well. The evidential and the similar morphosyntactic behavior of DAs and PPs provide further support for the existence of a separate *evidential category* that contrasts with the verbal and non-verbal categories in JA. Given this fact, I revise Table (6), repeated here as Table (7), where I subsume DAs and PPs under evidential predicates.

Table (7) Three-way Classification of Predicates in JA (final version)

Feature	Verbal Predicates	Non-verbal Predicates	Evidential Predicates [DAs and PPs]
1. Person Agreement	+	-	-
2. Definiteness	-	+	-

The alternative view of predication proposed in Figure (1), repeated here as Figure (2), is thus revised where the evidential category is now incorporated with DAs and PPs subsumed under it.

Figure (2) Alternative View of Predication in JA (final version):



3.7 Conclusion

In this chapter I investigated the mixed morphosyntactic behavior of DAs in JA. The intermediate behavior of DAs has been discussed under verbal and non-verbal analyses. I have shown that none of these analyses can account for the mixed morphosyntacic status of DAs in JA which exhibits verbal and non-verbal features.

First, I have provided arguments against the non-verbal analysis based on agentivity/stativity tests, IL vs SL predicates and morphosyntactic diagnostics including word order and interaction with copular verbs. I have discussed the implications of these counterarguments on the two major classifications of DAs which have been proposed in the literature under non-verbal analysis, specifically the nominal and adjectival classifications. I showed that DAs cannot be classified as nominal or adjectival.

I have also argued that DAs cannot be accounted for by verbal analysis either. The discussion concludes that DAs have the features [-Person, -Definiteness] which corroborate their morphosyntactic status as a distinct type of predication in JA that sets them apart from verbal and non-verbal predicates which are characterized by [+Person, -Definiteness] and [-Person, +Definiteness] respectively. Based on this fact, I showed that DAs constitute a major challenge to the 'verbal vs non-verbal' view of predication in Arabic in general and in JA in particular. In this regard, I proposed an alternative view of predication in JA based on the modal vs non-modal distinction. I subsumed DAs under the category of 'evidential predicates' and supported this claim by the behavior of PPs in JA which exhibits a similar evidential and morphosyntactic behavior.

I conclude that predicates in JA allow for three-way classifications (non-verbal, verbal and evidential predicates) instead of the two-way view (verbal and non-verbal predicates). The three-way classification is better accounted for by modal vs non-modal distinction instead of the conventional verbal and non-verbal distinction which only accounts for verbal and non-verbal predicates and leaves the evidential predicates (DAs and PPs) unaccounted for.

The evidential nature of DAs and how such category differs semantically from other type of predications discussed in this chapter such as perfective and imperfective verbal predicates will be the topic of the next chapter.

Chapter Four

Semantics of Deverbal Agentives: An Alternative Evidential Account

4.1 Introduction

This chapter provides an alternative evidential account for the semantics of DAs in JA. The current evidential proposal is grounded on an ample and diverse body of evidence which shows that the interpretation of DAs reflects the semantics of indirect evidentiality. This evidential analysis differs from all of the previous approaches cited in the literature on Arabic dialects where the central concern was only to account for the temporal interpretations of DAs as discussed in chapter two. The evidential account has its own contribution to Semitology as well since it brings into light the category of evidentiality which has been largely overlooked in the literature of Semitic languages. This is achieved by the fact that active and passive participle constructions in JA, a Semitic language, are argued to be the hallmark of indirect evidentiality. This provides compelling evidence that evidentiality exists as a separate category in Semitology contra to previous claims in the literature (Isaksson 2000, Aikhenvald 2004 and others).

The present chapter is structured as follows. In section 2, I provide my evidential proposal for the semantics of DAs. Section 3 provides an overview of the notion of evidentiality. In section 4 I discuss my indirect evidential proposal in details. This section provides a body of evidence for this proposal and is organized in the following sub-sections: sub-section 4.4.1 discusses the speaker oriented reading of DAs and their interaction with the habitual operator. Sub-section 4.4.2 addresses the indirect evidence requirement and the temporal specification of the indirect evidence essential for the establishment of the indirect evidential reading of DAs. Sub-section 4.4.3 and its subsequent sections provide extensive analysis of the inferential readings of DAs. Sub-section 4.4.4 summarizes the above sub-sections. In sub-section 4.4.5 and

its subsequent sections, I discuss the interaction of DAs and indirect evidential predicates in JA. Sub-section 4.4.6 investigates the mirative interpretations of DAs. In sub-section 4.4.7, I provide evidence for the indirect evidential reading of DAs based on the sensitivity of DAs to first person, 'first person effect'. Sub-sections 4.4.8 and 4.4.9 discuss the reported and futurate reading of DAs respectively. In section 4.5 I extend my indirect evidential proposal to passive participles (PPs) in JA. Section 4.6 remarks on evidentiality in Semitology. Finally, in section 4.7, I discuss one of the least studied areas of evidentiality, the interaction of evidentiality and temporal interpretation; where I propose that DAs assert an evidential relative tens; I use this proposal to remark on the temporal problem of DAs as discussed in chapter 2.

4.2 The Proposal

I propose that DAs are indirect evidentials. I base my proposal on a body of attested evidence that divides into two major arguments. First, DAs appear in contexts that satisfy the three core features of indirect evidentiality: speaker-dependency, indirect evidence and inferential reading. Second, DAs show most of the notable semantic features of indirect evidentiality which include the following: DAs pattern with indirect evidential predicates in JA; they show mirative interpretation; sensitivity to first person; they are appropriately used in hearsay reported contexts (reported evidentiality) and they have futurate evidential reading.

4.3 Evidentiality

4.3.1 Definition

The definition of evidentiality involves two important notions: the type of evidence and speaker's commitment towards the proposition expressed. Chafe and Nichole (1986:262) provide two types of definitions for evidential semantics corresponding to these two notions respectively: a narrow and a broad definition. The narrow definition of evidentiality is primarily concerned with the *source of information or knowledge* i.e. the evidence that information or knowledge is based upon. The broad sense, on the other hand, views evidentiality as encoding the *speaker's attitude* towards his or her knowledge of reality i.e. speaker's commitment towards the truth of the proposition s/he has made.

The source-based view of evidentiality (i.e. narrow definition) is based on the source of information upon which a speaker knows *P* (proposition). Jakobson (1971:135) for instance adopts this view of evidential meaning; he defines evidentiality as coding "the alleged source of information about narrated events". Along the same lines, Bybee (1985:185) views evidentiality as "markers that indicate something about source of information in the proposition". The same view has been advocated by Aikhenvald (2004:3) who describes evidentiality as "a linguistic category whose primary meaning is source of information". The following set of examples from Quechua (1a-c) illustrates the source-based view of evidentiality.

P = proposition and EV= evidential meaning

(1)

(a) pilar-qa t'anta-ta-n mikhu-rqa-n.
Pilar-TOP bread-ACC-mi eat-PAST1-3
P= 'Pilar ate bread.'
EV= Speaker saw that (Faller 2002:18)

(b) Lima-ta-n viaja-n.
Lima-ACC-mi travel-3
P= 'She travelled to Lima.'
EV= Speaker was told that P (Faller 2002:19)

(c) Mana-n muchila-y-pi-chu ka-sha-n.
not-mi backpack-1-LOC-NEG be-PROG-3
P= 'It is not in my backpack.'
EV= Speaker infers P (Faller 2002:19)

Examples (1a-c) mark the source of information the speaker bases his/her proposition upon. In (1a), the speaker *saw* Pilar eating the bread suggesting a sensory visual type of evidence or source of information. In (1b), on the other hand, speaker was *told* that she travelled to Lima; therefore indicating a reported or *hearsay* type of evidence. In (1c) the source of information is *inferential* in that the speaker infers P i.e. the source of information is based on *inference* made by the speaker (speaker has searched the backpack and *infers* that it is not there).

The broad sense of evidentiality encompasses a speaker's attitude towards P. In this regard, the broader sense of evidentiality falls under the domain of 'epistemic modality' since it subsumes notions related to probability, possibility, validity of propositions and speaker's commitment towards the truth of the proposition s/he has expressed; all these notions capture the meaning of epistemic modality. Under this definition, there have been some approaches in the literature that extend the notion of evidentiality to cover all aspects related to epistemological assessment (Givon 1982, Bybee 1985, Chafe and Nichole 1986, Friedman 1986, Palmer 1986, Traugott 1989, Hopper and Traugott 1993, Bybee and Fleischman 1995 among others). For instance, Palmer (1986) views evidentiality as a major type of epistemic modality. He describes the meaning of *epistemic* as "should apply not simply to modal systems that basically involve the notions of possibility and necessity, but to any modal system that indicates the degree of

commitment by the speaker to what he says" (Palmer 1986:51). Palmer's definition differs from the source-based view since it subsumes evidentiality under the rubric of epistemic modality. This epistemic-based view thus clearly acknowledges that encoding the source of information (i.e. narrow sense of evidentiality) can also describe the degree of the speaker's commitment towards what he says depending on the manner the speaker acquired this knowledge (Mushin 2001). A similar observation has been made by Givon (1982:24) who clearly describes evidentiality as "propositions that are asserted with relative confidence, are open to challenge by the hearer and thus acquire-or admit- evidentiality justification". Again, this definition subsumes evidentiality under the notion of epistemic modality.

Under the broad definition of evidentiality, the degree of speaker's commitment towards his proposition depends on the type of evidentiality used. In other words, if speaker witnessed the event or clearly experienced it by participating in it, then speaker most likely shows a high degree of certainty towards his propositions (i.e. he vouches for it); this is the case with *direct evidentials i.e. speaker witnesses the event*. However, if speaker did not witness the event or experience it by participating in it, then speakers most likely show a low degree of certainty towards their propositions (i.e. they do not vouch for it); this is the case with *indirect evidentials i.e. speaker does not witness the event; rather s/he infers it or hears about it* (Friedman 1986 and Mushin 2001). This contrast is illustrated in the following examples from Macedonian and Bulgarian (Mushin 2001: 20-21).

(2) Taa mesi leb.
3SG bake:**SP** bread
'She baked bread.' (I saw her do that /I vouch for it)

(3) Taa mesi**la** leb.
3SG bake:**L** bread
'She baked bread.' (I did not see her do that, I was told about it /I am not prepared to vouch for it)

Sentence (2) exemplifies a direct evidentiality where the speaker saw her baking the bread. The fact that speaker saw the baking event induces a high degree of certainty on the side of the speaker i.e. speaker vouches for the event. Sentence (3), on the other hand, describes an indirect evidentiality where the speaker did not see the baking event but rather was told about it. This evokes a lesser degree of the speaker's commitment towards the truth of his proposition in (3) i.e. speaker is not prepared to vouch for it.

While the definition of evidentiality varies between a narrow and a broad sense, there is nonetheless, a fundamental feature that needs to be present in the definition of evidentiality in either the broad or narrow sense, that is evidentials are always speaker-oriented. This feature of speaker dependency is reminiscent of the definition of evidentiality in general and to my proposal of DAs as indirect evidentials. To make this proposal more concrete, consider examples (4a-c). In (4a) the evidential implication is that the speaker saw a cat run (i.e. speaker has a direct sensory/visual evidence), and that this evidence belongs to the speaker and no one else (no one else saw the cat run). In (4b and c), the difference in evidential implication in these two sentences stems from the shift of speaker-anchoring: in (4b) it is the *speaker* who saw Sarah coming, whereas it is *Majdi* , not the speaker, who saw her coming in (4c).

(4)
(a) wesa u-tlis-A'i.
cat it-run-FIRSTH.PAST
'A cat ran.' (I saw it running) (Cherokee/Aikhenvald 2004: 26)

(b) ‘ana sheft sarah jaaieh.
I see-PERF Sarah coming
‘I saw Sarah coming.’

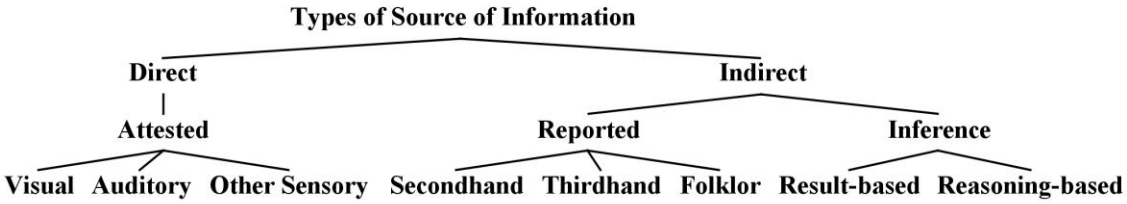
(c) majdi shaaf sarah jaaieh.
Majdi see-PERF Sarah coming
‘Majdi saw Sarah coming.’

To sum up, evidentiality involves three main notions: the type of evidence (source of information), speaker’s attitude towards the propositions (i.e. epistemic modal reading) and speaker-oriented reading. Next, I provide an overview of evidentiality classifications.

4.3.2 Evidentiality Classification

Perhaps the most well-known hierarchy of evidentiality types is proposed in Willett (1988), who provided a typological taxonomy of evidentiality based on 38 languages. Figure (1) presents Willett’s classification of evidentiality types.

Figure (1) Willett’s Classification of Evidentiality Types



As demonstrated in Figure (1), the major distinction of evidentiality depends on the type of evidence induced: direct versus indirect evidence. As shown in Figure (1), direct evidentiality refers to information acquired through direct evidence i.e. *sensory evidence* which might be visual, auditory or any other form of sensory evidence. Indirect evidentiality, on the other hand,

refers to information acquired through indirect evidence i.e. *inference or hearsay/report evidence*. Under indirect evidentiality the speaker did not perceive the event, rather s/he knows about the event through a *hearsay/report* or *inference* i.e. speaker infers the event or heard about it based on observable result or through hearsay. Willett (1988) distinguishes between the two types of evidence under inference as follows (Willett 1988:96):

(a) Inference from Result: the speaker infers the situation described from the observable evidence (that is from perception of the results of the causing event).

(b) Inference from reasoning: the speaker infers the situation described on the basis of intuition, logic, a dream, previous experience, or some other mental construct.

We can recapture and summarize the distinction between direct and indirect evidentials as discussed above, by applying the three major features of evidentiality as follows:

A. Direct Evidentiality

(a) Speaker-Dependency: it shows a speaker-oriented meaning.

(b) Type of Evidence: direct evidence i.e. speaker witnesses/perceives the event.

(c) Speaker's attitude towards proposition: information is attested by the speaker since s/he witnessed the event.

B. Indirect Evidentiality

(a) Speaker-Dependency: it shows a speaker-oriented meaning.

(b) Type of Evidence: indirect evidence i.e. speaker did not witness/perceive the event; rather s/he was told about it or inferred it.

(c) Speaker's attitude towards proposition: Information is not attested by the speaker since s/he did not witness the event.

The three major characteristics of indirect evidentiality as shown above will be the focus of the proposed evidential analysis of DAs as discussed in the next sections.

4.4 DAs as Indirect Evidentials

I propose an indirect evidential account for the semantics of DAs in JA. In the following sections I provide a body of evidence to support my proposal. I start with providing supportive evidence that DAs correspond to the three basic features of indirect evidentiality discussed earlier, repeated here for convenience:

(a) Speaker-Dependency: it shows a speaker-oriented meaning.

(b) Type of Evidence: indirect evidence i.e. speaker did not witness the event; rather s/he was told about it or inferred it.

(c) Speaker's attitude towards proposition: Information is not attested to speaker since s/he did not witness the event. I will discuss each one of these characteristics separately below.

4.4.1 Speaker-Dependency

I argue that DAs induce a speaker-oriented reading similar to evidentials. One piece of evidence to support this claim comes from their interpretation with habitual adverbs and their contrast to the habitual reading given by imperfectives. First I lay out the definition of habituality I adopt for the sake of my argument here; then I proceed to discuss the contrast in habitual reading between DAs and imperfective.

4.4.1.1 Habituality

Habituality is defined as an iteration of incidents of an event over a span of time (Verkuyl 1999). I adopt the definition of Arche (2006) who defines Habituality in terms of three notions: iteration, proportion and systematicity. Arche (2006) views habituality as a quantifier over multiple occasions (OCCs) of an eventuality. According to her analysis, habituality induces repeated and systematic incidents of an event. The meaning of habitual also involves the notion of proportion which she describes as "a certain proportion with respect to the number of times the action at stake is usually performed. In particular, it seems that when judging whether a habitual form is appropriate, some notion of 'average' regarding the number of occasions that an action is performed is taken into account" (Arche 2006:164). Based on this definition, a habitual quantifier involves a number of occasions that are considered as 'average'. This average ratio is determined by extra linguistic factors which are referred to as 'contextual norm parameter' (C). This contextual norm parameter' (C) can be the norms substantiated in a given society or a given norm. In other words, a given sentence denotes a habitual reading if the number of occasions in which the event is included is equal or approximately equal to the average ratio set by the contextual norm parameter' (C). For example, a sentence like (5) denotes a habitual reading iff we compare the number of occasions people usually smoke to the number of occasions Majdi does.

(5) majdi bedaxen.
Majdi IMPERF-smoke.3SG.MASC
'Majdi smokes.'

The semantic representation of the habitual reading of this sentence is given in (6); (Adapted from Arche 2006:166).

(6) Hab AB= Hab B $\left|A \cap B\right| \backsim C.\left|B\right|$
where Hab {habitual}, A {Majdi} and B {smoke}

The notation in (6) reads as: a certain event (i.e. smoke) can be considered as habitual iff the cardinality of occasions that someone (i.e. Majdi) performs it $\left|A \cap B\right|$ is equal or approximately equal to the cardinality of occasions the event of smoking takes place as determined by the C. parameter: $C.\left|B\right|$. This notion of proportion is essential to my argument regarding the difference in habitual reading between imperfectives and DAs in JA.

4.4.1.2 Speaker-Oriented Reading: Evidence from Habitual Operator

One of the attested features of imperfectives cross-linguistically is that they are usually used to express an habitual reading. The habitual reading is usually accompanied with an overt habitual adverb such as *always*, *often or every day*. The same fact extends to JA as in (7) below.

(7) majdi daayman bi-rkab baaS el-jaam3ah.
Majdi always IMPERF-ride.3SG.MASC bus the-university
'Majdi always rides the university bus.'

DAs can also be used to express an habitual reading in the presence of an habitual adverb as in (8).

(8) majdi daayman raakib baaS el-jaam3ah.
Majdi always ride-DA bus the-university
'Majdi always rides the university bus.'

At a first glance, sentences (7) and (8) have the same habitual reading expressed in (9).

(9) $Hab_{(always)}$ [$RIDE_{(e)}$ & $MAJDI_{(m,e)}$ & $UNIVERSITY\ BUS_{(e,m,)}$]
{It is the habit of Majdi to take the university bus}

However, I argue that sentence (8) with the DA shows a distinct behavior under an habitual reading in that DAs show an evidential reading i.e. an habitual reading from a *speaker oriented perspective.* One piece of evidence comes from the fact that an habitual reading involves a strong connection between the subject and the main predicate. In other words, the interpretation of habituals usually implicates that there is a close connection (i.e. non-accidental connection) between the subject and its predicate i.e. a subject-oriented reading (Greenberg 2002 and Hacquard 2006). Example (10) is illustrative:

(10) ‘eHnaa bi-nuTboox mansaf daayaman.
We IMPERF.cook.1.PL mansaf always
‘We always cook Mansaaf.’

Sentence (10) asserts that we always cook *Mansaaf* (a traditional dish in Jordan), but it also indicates that such a generalization is not accidental: we cook *Mansaaf* all the time in virtue of being Jordanians (it is part of our daily life routine or norm). In other words the habitual reading triggers a subject-oriented reading since it clearly establishes a strong connection between the subject and its predicate. This subject-oriented reading is evident under the contradictory entailment test as well (Bhatt 1999, Hacquard 2006). The logic of this test is as follows: if the habitual reading of a sentence is true in the real world then any continuation that asserts otherwise should yield unacceptability. By the same token, if the habitual reading of the sentence is not necessarily true in the real world, then the utterance should survive the contradiction. I apply this test on sentence (7) and (8) repeated here as (11) and (12) respectively.

(11) majdi daayman bi-rkab baaS el-jaam3a # bs mush ma3naatuh
Majdi always IMPERF-ride.3SG.MASC bus the-university # but not mean
ennu dayman bi-rkab baaS el-jaam3ah.
that always IMPERF-ride.3SG.MASC bus the-university
'Majdi always rides the university bus # but it does not mean he always rides the university bus.'

(12) majdi daayman raakib baaS el-jaam3ah bs mush ma3naatuh
Majdi always ride-DA bus the-university but not mean
ennu dayman bi-rkab baaS el-jaam3ah.
that always IMPERF-ride.3SG.MASC bus the-university
'(I always see) Majdi riding the university bus but it does not mean that he always rides the university bus (as a habit).'

Sentences (11 and 12) are continued with a contradictory statement negating the habitual reading in the original sentence i.e. it is *not* the habit of Majdi to take the university bus. Sentence (11) with the imperfective yields unacceptability under contradiction suggesting that the *habitual reading* asserted by the imperfective is true in the real world: imperfective asserts that 'it is *the habit* of Majdi to take the university bus' therefore we cannot assert the otherwise. Furthermore, the fact that (11) is anomalous clearly suggests that there is a strong relation between the subject and its predicate i.e. subject-oriented reading otherwise the sentence should be acceptable. However, sentence (12) with the DA is totally acceptable under this test. The fact that DA is acceptable clearly suggests that the *habitual reading* (i.e. it is the habit of Majdi to take the university bus) in (12) is not necessarily true in the real world. The question that might arise here is that if the habitual reading is not true in the real world then how can we account for the acceptability of (12)? In order to answer this question I propose that DAs denote an evidential semantics where the meaning is always anchored to the speaker i.e. expressing a speaker oriented meaning. Therefore I argue that (12) is true in a world different from the real world which I propose to call the *speaker's belief world (SBW).* We can now account for the

acceptability in (12) by proposing that the habitual reading of 'Majdi taking the bus' is perceived from the perspective of the *speaker* i.e. *speaker-oriented* reading rather than the perspective of *Majdi* i.e. *Subject-oriented* reading. In other words, the sentence is true only in the speaker's belief world and not necessarily in the real world as evident by its acceptability under the entailment test.

The intuition of JA speakers supports the evidential (i.e. speaker oriented) reading proposed for sentence (12). JA speakers intuit that sentence (12) can be restated as in (13) and (14):

(13) Among all/most of the times **I see** Majdi, he is on the university bus.

(14) **I always see** him riding the university bus.

The readings in (13) and (14) explain why (12) is acceptable under the entailment test: The fact that the **speaker always sees** Majdi riding the bus, does not necessarily mean that riding the bus is his iterated habit. Based on the above discussion, I propose the following semantic representation for sentences (11) and (12) as follows where I propose an Evidential Operator (EV) i.e. speaker's belief world (SBW) to account for (12).

(15) Always [RIDE(e) & MAJDI(m) & THE UNIVERSITY BUS(e,m)]

(16) Always [**EV** (RIDE(e) & MAJDI(m) & THE UNIVERSITY BUS(e,m))]

The semantic representation given in (15) corresponds to sentence (11) with the imperfective and reads as: it is always the case that Majdi rides the university bus. The one given in (16) corresponds to (12) with the DA and reads as: It is always the case that *I see* Majdi riding the university bus; whenever I see Majdi, I see him riding the university bus. In other words, (16)

states that: according to speaker's belief world (SBW) it is true that Majdi always rides the school bus. The speaker believes that riding the university bus is Majdi's habit: the fact that Majdi has this habit is true only in the SBW and might not necessarily be a true habit of Majdi in the real world as shown in the entailment test.

The contrast between the imperfective and the DA is also evident by the difference in sensitivity each form shows with regards to verifying instances (Krifke et al. 1995). The imperfective usually does not require a verifying instance as in (17a) where the imperfective is acceptable even when the 'event of grinding' has not taken place. However, sentence (17b) with the DA is acceptable only when the 'event of grinding' is verified.

(17)

(a) haDee el- meTHaneh bi-teTHan gameH.
This the- grinder IMPERF.3SG.FEM .grind wheat
'This machine grinds wheat.'

(b) haDee el- meTHaneh TaaHnih gameH.
This the- grinder grind-DA wheat
'This machine has ground wheat.'

The same fact obtains under the habitual reading. In (18a), the imperfective indicates a habitual reading; however, the habitual reading is true even when the event has never been accomplished. DAs, on the other hand, require the event to be accomplished under an habitual reading as evidenced by the unacceptability of (18b) where the continuation negates the fact that the event has not been accomplished.

(18)

(a) dayman binuTbux mjadara, bs 3umurna maa kamalna Tabix waHdeh.
Always IMPERF-cook.1PL mjadarah, but our life not finish cooking one
'We always cook Mjadarah, but we have never finished cooking one.'

(b) ‘eHna dayman Taabxiin mjadara, # bs 3umurna maa kamalna Tabix waHdeh.
We always cook-DA mjadarah,# but our life not finish cooking one
‘We have always cooked Mjadarah, but we have never finished cooking one.’

Another major argument in support of the evidential speaker-oriented reading of DAs comes from the distinction between subjective and objective evidence. Nuyts (2001) asserts that subjective evidence is speaker-dependent i.e. only the speaker knows the evidence; whereas objective evidence is accessible to a group of people. In other words, if DAs trigger a speaker-oriented reading, they should be felicitous only in the environment where subjective evidence is at issue. By the same token, non-evidential structures such as imperfectives should only allow objective evidence. Our assumption is born out in (19a and b). When objective evidence (that is known to a group of people) is asserted such as describing a universal fact as in (19a), only the imperfective is allowed, whereas the DA is not (19b). The only situation in which a sentence with a DA like (19b) is allowed is when subjective evidence is at issue: when the *speaker himself* has *found* or *discovered* that the sun rises in the east at the moment of speaking. In other words, (19a) with imperfective is only allowed under objective evidence reading while (19b) with a DA is acceptable only under the subjective evidence reading.

(19)

(a) esh-shams biTeTla3 min esh-sharg.
The-sun IMPERF-rise.3SG.FEM from the east
‘The sun rises in the east.’

(b) esh-shams Taal3ih min esh-sharg.
The-sun rise-DA from the east
‘[I have found/saw/noticed that] the sun rises in the east.’

Based on this discussion, let us now try to apply the semantic representation of the habitual reading I provided under (6) above on the habitual reading of imperfective and DAs in sentences (7) and (8), repeated here as (20) and (22) respectively:

A. Imperfective:

(20) majdi daayman bi-rkab baaS el-jaam3ah.
Majdi always IMPERF-ride.3SG.MASC bus the-university
'Majdi always rides the university bus.'

(21) Hab AB= Hab B $\left|A \cap B\right| \sim C.\left|B\right|$
where Hab {habitual}, A {Majdi} and B {ride the bus}

B. DAs

(22) majdi daayman raakib baaS el-jaam3ah.
Majdi always ride-DA bus the-university
'[I always see]Majdi riding the university bus.'

(23) Hab EV: All/Most $\left|SP \cap A\right| \subseteq \left|A \cap B\right|$
where EV {Evidential} Hab {habitual}, SP {Speaker}, A {Majdi} and B {ride the bus}

In the spirit of Arche (2006), I account for the habitual reading denoted by the imperfective using the notation in (21). The notation in (21) reads as: a certain event (i.e. riding the bus) can be considered as habitual iff the cardinality of occasions that someone (i.e. Majdi) performs it $\left|A \cap B\right|$ is equal or approximately equal to the cardinality of occasions the event of riding the bus takes place as determined by the C. parameter: $C.\left|B\right|$. However, the same notation does not suffice to account for (22) as I discussed earlier, therefore I propose the notation in (23) to account for the evidential behavior asserted by the DA under habitual reading in (22). Hence, (23) reads as: for all or most of the cardinality of occasions at which the *speaker sees* Majdi $\left|SP \cap A\right|$, he sees him riding the university bus $\left|A \cap B\right|$.

4.4.2 Indirect Evidence

In this sub-section I discuss the second feature of indirect evidential that is the indirect evidence requirement i.e. the speaker did not perceive the event. I also show that the requirement of indirect evidence of DAs is specified temporally.

4.4.2.1 Indirect Evidence: Event Not Perceived

I have already shown in section 4.3.2 that the major distinction of evidentiality depends on the type of evidence induced: direct and indirect evidence. Willett (1988: 96) defines direct evidence as "the speaker claims to have perceived the situation described" and indirect evidence as "the speaker claims to know of the situation described only through inference". In other words, with direct evidence, the speaker perceives the event at hand; whereas with indirect evidence the speaker does not perceive the event itself, rather s/he knows of the event based on an inference (i.e. observable result or reasoning) or a hearsay report (i.e. speaker was told about the event).

I argue that DAs assert an indirect evidence requirement similar to indirect evidentials i.e. the speaker did not perceive the event. One piece of evidence comes from the fact that DAs are acceptable under a cancelation test that negates seeing the event on the part of the speaker. However, perfectives are infelicitous in this context as shown in (24) and (25).

(24) ʻana sheft sami naagil el-'aghraaD bs maa sheftuh lama nagal-hen.
I saw Sami move-DA the-stuff but not see when move-them
ʻI saw Sami has moved the stuff but I did not see him when he moved them.'

(25) ‘ana sheft sami nagal el-’aghraaD # bs maa sheftuh lama nagal-hen.
I saw Sami PERF-move the-stuff # but not see when move-them
‘I saw Sami move the stuff but I did not see him when he moved them.’

In (24) the DA *naagil* ‘move$_{(DA)}$’ is used. The DA survives the cancelation test that negates seeing the event on the part of the speaker. In other words, in (24), what the speaker saw is the state of Sami having moved the stuff or the state of the stuff after being moved and not the event of moving itself. This contrasts with the perfective in (25) where the sentence is unacceptable when seeing the event is negated; this asserts that with the perfective the speaker saw the event of moving itself and not only the state that comes about as a result of this event.

Another piece of evidence comes from the fact that DAs are not acceptable in the contexts where the speaker perceives the event itself. However, both imperfective and perfective are acceptable when the speaker perceived the event. Let us examine the following situation:

(26) Context: Majdi is smoking outside while Sami is working on his laptop inside. Suddenly, Majdi sees two kids start to fight and Majdi is watching them. Sami hears the noise from inside and then asks Majdi who is still watching them fighting:

Sami: what is this noise outside?

Majdi: (a) fii wlaad thneen ga3deen bethawashu.
In kid-PL two IMPERF.PART IMPERF-fight.3PL.MASC
‘There are two kids fighting.’

(b)?? # fii wlaad thneen mithawashiin.
In kid-PL two fight-DA
‘There are two kids that have fought.’

In this context Majdi has direct visual access to the event of fighting in front of him. When he was asked by Sami about this event which he witnesses and is still taking place only

sentence (a) with the imperfective is acceptable and not (b) with the DA. This fact obtains for perfective as well. Consider the following context.

(27) Context: Majdi and Sami want to swim in the pool. Majdi goes outside to smoke a cigarette; while he is smoking outside, he sees the workers filling the pool with water. Majdi continues seeing them till they have finished. The moment they finished, Majdi tells Sami:

Majdi:

(a) hayumma 3abbu el-burkeh mai, bnegdar nesbaH.
Here-they fill-PERF.3PL.MASC the-pool water, can swim
'Here they filled the pool with water, we can swim.'

(b)??/# hayumma m3abbyiin el-burkeh mai, bnegdar nesbaH.
Here-they fill-DA the-pool water, can swim
'Here they have filled the pool with water, we can swim.'

In this context, Majdi witnesses the entire event of filling the pool with water. In order to describe this event for Sami, Majdi uses the perfective (a) rather than the DA (b). The only way for sentence (b) with the DA to be acceptable is in the context where Majdi goes outside to smoke and then found that the pool *had already been filled with water* i.e. he did not see the workers filling it, rather he sees the pool already filled with water.

In sum, the above discussion shows very clearly that contra to imperfectives and perfectives, DAs induce indirect evidence where the speaker did not perceive the event itself but only perceives a result of the event. Next I provide further support in favor of this argument where I show that the indirect evidence requirement with DA is specified temporally.

4.4.2.2 Indirect Evidence: Temporal Specification

Similar to Korean (Lee 2011) and Bulgarian (Smirnova 2012), I argue that evidential DAs in JA introduce a temporal contribution to the indirect evidence requirement: the indirect evidence is specified temporally rather than morphologically. In this regard, JA differs from other evidential languages where direct and indirect evidence is specified by separate morphemes. For example, in Turkish the direct and indirect evidence are specified morphologically (Şener 2011). In past events where the speaker has direct evidence the morpheme [-DI] is used; when indirect evidence obtains, the morpheme [-mIs] is used. Examples (28a and b) are illustrative.

(28)

(a) Ev kirmizi-y**di.**
house red-COP-past-DIR.EV-3SG
'Speaker has direct evidence that the house is red.'
(Direct Evidence/ Şener 2011: 10)

(b) Adam anla-**mis.**
man understand-past-INDIR.EV-3SG
'It was reported to the speaker that / speaker inferred that the man understood/has understood.'
(Indirect Evidence/ Şener 2011:11)

Similar examples are found in some other languages such as Tibetan (Garrett 2001), Quechua (Faller 2002), St'at'imcets (Matthewson et al. 2007) and others.

I argue that the indirect evidence induced by DAs is a result of two temporal relations: anterior and posterior relations. The former corresponds to a post state reading and the latter corresponds to a futurate reading as in (29a and b) respectively.

(29)

(a) dima msawyieh el-ma3mool.
Dima make-DA the-ma3mool
'Dima has made ma3mool (type of dessert).' (Post-state reading)

(b) dima jaayieh bukrah.
Dima travel-DA tomorrow
'Dima is coming/ is going to come tomorrow.' (Futurate reading)

In (29a) the DA expresses a perfect aspectual reading namely a post-state interpretation: the state of Dima having made the *ma3mool* (type of dessert)/the state of *ma3mool* having been made. In (29b), the DA denotes a futurate reading where the speaker expects that Dima will come based on some evidence at hand. Using a simple Riechenbach temporal system (1947), the two readings can be presented by the temporal semantic representation in (30a and b) below.

S= Speech time, E= Event time and R= Reference time

(30)
(a) perfect reading: E__ R,S / E__R__S

(b) futurate reading: S__R, E

The above semantic representations can be captured by using anterior and posterior temporal relations. The anterior and posterior analysis has been proposed to account for the temporal behavior of DAs (Kinberg1992, Belazi 1993, Mughazy 2004 among others). All of these formal analyses agree on one point (see chapter 2 section 2.2.3 for further details): DAs encode a resultant present state that is bound by retrospective or prospective events as presented by Figure (2).

Figure (2) Anterior vs Posterior Temporal Relations of DAs

E= Event and S= Speech time (Now/present)

DAs: E_____S_____E
(Anterior) (Now/Present) (Posterior)

As figure (2) demonstrates, all previous analyses (Kinberg1992, Belazi 1993, Mughazy 2004 among others) argue that the event is in an anterior and posterior relation with respect to

speech time i.e. present which holds the state. I adopt the semantic presentation of these studies. However, I differ from the previous analyses with one crucial point: I argue that the event is in an anterior and posterior relation with respect to *evidence acquisition time* (Lee 2011) and not with respect to speech time (present). The concept of evidence acquisition time (EAT henceforth) was first introduced by Lee (2011) to account for evidentials in Korean. I adopt Lee (2011)'s EAT to account for the temporal relations of DAs. I define EAT as follows: it is the time at which the speaker acquires accessible evidence that is related to the anterior and posterior event. I argue that this *accessible evidence* corresponds to the state or any other form of accessible evidence related to the anterior or posterior event. In the spirit of Faller (2002), I refer to the EAT as 'speaker's awareness origio' (SAO); what I mean by this is that at EAT the speaker is *aware only* of the accessible evidence inside the domain of EAT and not aware of anything outside the domain of EAT. In other words, what is inside EAT is the accessible evidence, therefore the speaker is aware of this evidence; however, what is outside the domain of EAT is the event, therefore the speaker is not aware of it. Based on this, I posit the following notions that capture the definition of EAT:

(a) EAT is the time at which the speaker acquires accessible evidence that is related to the anterior and posterior event.

(b) The accessible evidence is inside the domain of EAT and can be a state or any form of evidence the speaker believes to be related to the anterior or posterior event which is outside the domain of EAT.

(c) The speaker is aware only of what is inside rather than what is outside EAT. This means that the speaker is aware of the accessible evidence and not the event.

Now, I modify the semantic presentation given in figure (2) as follows:

Figure (3) Modified Version of the Anterior vs Posterior Temporal Relations of DAs

E= Event and EAT= Evidence Acquisition Time/Speaker's Awareness Origio, the **x** mark presents the 'speaker'.

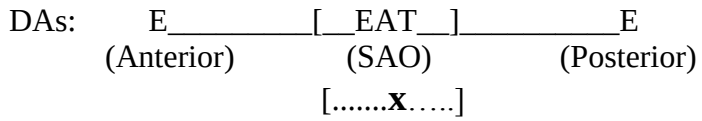


Figure (3) asserts that the event is in an anterior and posterior relation to the EAT rather than the present time. The incorporation of the EAT in the temporal presentation of DAs is crucial since it contributes to the evidential meaning DAs have i.e. EAT includes the indirect evidence which is necessary to establish the indirect evidential meaning of DAs. As shown in figure (3), the **x** mark, which represents the speaker, is included in the domain of EAT i.e. the speaker is only aware of what is inside EAT. The anterior relation captures the perfect reading of DA as in (29a), while the posterior relation captures the futurate reading (29b). I argue that the anterior and posterior relations are what trigger the indirect evidence induced by DAs: The fact that the event is either in anterior or posterior relation to EAT (which already includes the speaker and the accessible evidence or the state) guarantees that the *speaker does not perceive the event*; in other words, the event is outside the domain of the speaker (EAT/SAO).

To make our discussion more concrete, let us now apply our semantic representation in figure (3) to example (29a). Sentence (29a) denotes a perfect reading (i.e. post-state) as discussed above. The perfect reading of this sentence can be semantically recaptured using figure (3) as shown in (31):

E=Event, EAT=Evidence Acquisition Time and PS=Post-State

(31) DA (*msawieh* 'make$_{(DA)}$')

E_____[_____EAT_____]
(Anterior) (PS:ma3mool is already made)
[…….....….**x**……..]

As (31) shows, the post-state i.e. anterior relation denoted by the DA in (29a) triggers indirect evidence: the speaker, represented by (**x**) mark, does not perceive the event which is in an anterior relation to EAT; rather, the speaker only perceives the PS of this event which is included in the EAT. This analysis explains why DAs are felicitous in the contexts where seeing the event is negated as in (32a) as compared to the perfective (32b) where seeing the event cannot be negated.

(32)

(a) 'ana sheft dima msawieh el-ma3mool, bs ma sheftha lama sawwat-uh.
I see Dima make-DA the-ma3mool, but not see when make-it
'I saw Dima have already made the ma3mool, but I did not see her making it.'

(b) 'ana sheft dima sawwat el-ma3mool, #bs ma sheftha lama sawwat-uh.
I see Dima PERF-make the-ma3mool, #but not see when make-it
'I saw Dima making the ma3mool, but I did not see her making it.'

The same fact holds also for the futurate reading i.e. posterior relation. The speaker only perceives the accessible evidence available at EAT which s/he uses as its base for his inference about the posterior event i.e. futurate reading. The only difference is that with the futurate reading, the speaker does not perceive the event since the event is in a posterior rather than anterior relation to the EAT.

To recap, the aforementioned discussion provides support to the argument that DAs trigger indirect evidence similar to indirect evidentials. The indirect evidence requirement is

specified temporally with DAs: the event is in an anterior or posterior relation to EAT. Next, I discuss the third feature of the indirect evidentials, the inferential reading.

4.4.3 DAs as an Inferential Indirect Evidential

In this section I discuss the third feature of indirect evidentials that is the speaker's attitude towards the proposition s/he expresses i.e. an inferential reading. I propose that DAs have an inferential evidential reading in their semantics. The fact that DAs exhibit an inferential reading gives further support to the current indirect evidential proposal since inferential reading is a core feature of indirect evidentiality. I further argue that the inferential reading of DAs is licensed by an epistemic modal component. For the sake of this section, I only provide some arguments in favor of the epistemic modal reading and leave the rest to chapter 5. Before discussing the types of inferential readings in details, I will start by discussing the contribution of the indirect evidence requirement and the epistemic modal reading in triggering the inferential readings of DAs. The modal reading is discussed under two notions: actuality entailment test and propositional attitude predicates.

4.4.3.1 Inferential Indirect Evidence

I argue that the indirect evidence, which is specified by anterior and posterior temporal relations, is what triggers the inferential reading with DAs. The reasoning of this claim is as follows: The fact that the event is either in anterior or posterior relation to EAT guarantees that the *speaker does not perceive the event*; rather, the speaker uses the indirect evidence (i.e. the accessible evidence available at EAT) as his/her basis to make *inference about the event*. In other words, because the speaker *does not perceive the event*, the speaker *infers* the event/ about the

event. I apply this reasoning to derive an explanation of why DAs trigger an inferential reading in section 4.4.3.4.

4.4.3.2 Actuality Entailment Effect

The first evidence I provide to support the inferential/modal reading of DAs comes from their behavior under the actuality entailment effect (Bhatt 1999, Hacquard 2006). The actuality entailment effect was first introduced by Bhatt (1999) to examine the behavior of ability modals and their interaction with imperfective and perfective aspect. The main purpose of using this test was to detect whether or not a modal complement holds in the real world when inflected with imperfective and perfective aspect markings: whether the complement denotes a realis reading i.e. non-modal and therefore holds in the real world; or an irrealis reading i.e. modal and therefore holds in a world other than the real world (a possible world in Kratzer's 1981, 1991 terms). According to Bhatt (1999), the reasoning of this effect is as follows: if the proposition denoted by the modal complement *holds* in the real world, it cannot be cancelled by a contradictory statement that contradicts the meaning of the original sentence. However, if the proposition *does not hold* in the real world, it can be cancelled by a contradictory statement[2]. Consider examples (33a and b) adapted from (Bhatt 1999 and Hacquard 2006).

(33)

(a) sami gader yrfa3 es-sandoog, # bs ma rafa3uh.
Sami can-PERF lift the-box, # but not lift-it
'Sami was able to lift the box, # but he did not lift it.'

[2] See Hacquard (2006:16) for discussion on why such a test (actuality entailment) is an 'entailment' rather than an implicature. Similar facts discussed in Hacquard (2006) apply to DAs in JA: under this test, DAs do not show irrealis reading across the board as will be seen in chapter 5. The fact that DAs show contrastive irrealis vs realis reading under this test clearly suggests that something in the semantics of DAs, rather than some pragmatic factor, is related to the irrealis reading of DAs. In other words, if the irrealis reading is pragmatically driven, we should get either an irrealis or realis reading under this test across the board; the fact that we do not rules out the pragmatic factor.

(b) sami kaan bigdar yrfa3 es-sandoog, bs ma rafa3uh.
Sami was can-IMPERF lift the-box, but not lift-it
'Sami had the ability to lift the box, but he did not lift it.'

In (33a), the modal *gader* 'could/was able to' is inflected with perfective marking. The meaning of the sentence entails that Sami lifted the box i.e. lifting the box was actualized in the real world. This is supported by the fact that any continuation asserting that he did not comes out as a contradiction as shown by the unacceptability of (33a). The fact that (33a) is unacceptable under the actuality entailment test asserts that the proposition in this sentence (i.e. lifting the box) holds in the actual world according to the reasoning given in the above paragraph. However, things are different with (33b). In this sentence, the modal bi*gadar* 'can/is able to' is inflected with imperfective marking. The meaning of this sentence does not imply whether or not Sami lifted the box i.e. lifting the box may or may not have been actualized in the real world. This reading is supported by the fact that any continuation asserting that he did not does not come out as a contradiction as shown by the acceptability of (33b). The fact that (33b) is acceptable under actuality entailment test asserts that the proposition in this sentence (i.e. lifting the box) does not necessarily hold in the actual world (i.e. it holds in a world other than the real world, a modal or irrealis world).

I explain the logic of this test as follows. The logic of the actuality entailment test is comparable to the fact that a proposition (P) cannot have two truth values in the same world. In other words, if we assume that a proposition (P) is true (T) in the real world, it cannot be False (F) at the same time: in a *real world*, if P is T, P can only be T and not T and F. This can be semantically captured as in (34) below.

(34) $P(w^*) = 1 \longrightarrow \neg [\neg P(w)]$

(34) reads as: P is T in the real world iff it entails that it is not F in the real world.

The logic in (34) explains why (33a) is unacceptable under contradiction. Sentence (33a) has T value in the *real world*; therefore it cannot be contradicted: it cannot be T and F at the same time.

However, the only way for P to have two truth values i.e. T and F is when P is true in an *irrealis world (possible world*) not the real world. In other words, if P is T in a *possible world* (*w*), P might be T or F in the real world: the real world conforms (assigning T) or denies (assigning F) to P. This can be semantically represented as in (35).

(35) If P (*w*) = 1, P (w) =/≠ 1(w*)

(35) reads as: if P is T at a *possible world*, then P can or cannot be T at the real world. The logic in (35) explains why (33b) is acceptable under contradiction: Sentence (33b) has the T value in a *possible world*; therefore it can be contradicted: it can be F in the real world.

As is well known, modals in general introduce propositions that are true in irrealis worlds or possible worlds rather than the real world (in Kratzer's 1981 1991 terms). If an expression x is said to have a modal component, it means that we still judge the proposition denoted by this expression to be true even if it is not true in the real world. This fact is supported by the behavior of modals under the actuality entailment test. Consider (36a-c), the target of the contradictory statement is bold-faced.

(36)

(a) majdi kaan mumkin **ySuf** es-sayarah, bs majdi ma Safha.
Majdi was may **park-INF** the-car, but Majdi not PERF-park-it
'Majdi may have parked the car, but he did not.'

(b) **majdi** kaan mumkin ySuf es-sayarah, bs 'aHmad (elli) Safha.
Majdi was may park-INF the-car, but Ahmad (who) PERF-park-it
'It is Majdi who may have parked the car, but Ahmad did.'

(c) majdi kaan mumkin ySuf **es-sayarah**, bs huwwa Saf et-treela.
Majdi was may park-INF **the-car**, but he PERF-park-it the-truck
'Majdi may have parked the car, but he parked the truck.'

In (36a), the epistemic modal *mumkin* 'may' is used. The sentence is continued with a contradictory statement that negates that Majdi parked the car i.e. Majdi did not park the car in the real world (the target of the contradictory statement is the event of parking); yet the sentence is acceptable. The fact that the sentence is acceptable clearly suggests that the proposition denoted by the modal *mumkin* 'may' holds true in an irrealis world and not in the real world. The same facts hold also for sentences (36b and c) where the target of the contradictory statement is Majdi and the car respectively. Sentences (36b and c) are acceptable under contradiction which asserts that in the real world it is not Majdi who parked the car but Ahmad (36b) and what Majdi parked is not a car but a truck (36c). This clearly means that the sentences in (36) express a proposition that is true in an irrealis world and that we still judge these sentences to be true even when the proposition they express is negated in the real world. The sentences in (36) have a modal reading even when the contradiction includes a modal i.e. the contradiction asserts a modal reading rather than a real world reading as in (36a-c) above. In these sentences, the contradictory statement includes the modal *mumkin* 'might', and still the sentences give a modal reading as evident by their acceptability under the actuality entailment test.

(37)

(a) majdi mumkin **ySuf** es-sayarah, bs mumkin ma ySafha.
Majdi might **INF-park** the-car, but might not INF-park-it
'Majdi might park the car, but he might not.'

(b) **majdi** mumkin ySuf es-sayarah, bs mumkin 'aHmad ySufha.
Majdi might INF-park the-car, but might Ahmad INF-park-it
'It is Majdi who might park the car, but Ahmad might park it.'

(c) majdi mumkin ySuf **es-sayarah**, bs huwwa mumkin ySuf et-treela.
Majdi might park-INF **the-car**, but he might INF-park the-truck
'Majdi might park the car, but he might park the truck.'

I argue that DAs have a modal reading. I support my argument by the fact that DAs pattern with modals with regard to their behavior under the actuality entailment test: DAs, similar to modals, express a proposition that is true in an irrealis world and not necessarily in the real world. This is evident by the fact that DAs are acceptable under actuality entailment test. Consider (38a and b), the target of the contradictory statement is bold-faced.

(38)

(a) **majdi** Saaf es-sayarah, bs 'aHmad (elli) Safha.
Majdi park-DA the-car, but Ahmad (who) PERF-park-it
'Majdi has parked the car, but Ahmad did.'
Intended: '[I infer that] it is Majdi who parked the car.'

(b) majdi Saaf **es-sayarah**, bs huwwa Saf et-treela.
Majdi park-DA **the-car**, but he PERF-park the-truck
'Majdi has parked the car, but he parked the truck.'
Intended: '[I infer that] what Majdi has parked is the car.'

In (38a), the DA *Saaf* 'park$_{(DA)}$' is used. The sentence is continued with a contradictory statement that negates that it is **Majdi** who parked the car i.e. in the real world, it is not Majdi who parked the car, rather it is Ahmad (the target of the contradictory statement is **Majdi**). Even though the sentence is continued with this contradiction, the sentence is acceptable. The fact that the sentence is acceptable clearly suggests that the proposition (i.e. it is Majdi who parked the car) denoted by the DA *Saaf* 'park$_{(DA)}$' is true in an irrealis world and not in the real world. The same fact extends to sentences (38b) where the target of the contradictory statement is **the car**. Sentence (38b) is acceptable under contradiction which asserts that in the real world what Majdi parked is not a car but a truck. The fact that the sentence is acceptable clearly means that the proposition expressed in this sentence (i.e. what Majdi parked is the car) is true in an irrealis

world and not in the real world. This is exactly what a modal component means: we still judge (38a and b) to be true even when they are negated in the real world.

The sentences in (38) still give a modal reading even when the contradiction includes a modal i.e. the contradiction asserts a modal reading rather than a real world reading as in (38a and b) above. In (39a and b), the contradictory statement includes the modal *mumkin* 'might', and still the sentences give a modal reading as evident by their acceptability under the actuality entailment test.

(39)

(a) **majdi** Saaf es-sayarah, bs mumkin 'aHmad (elli) Safha.
Majdi park-DA the-car, but might Ahmad (who) PERF-park-it
'Majdi has parked the car, but maybe Ahmad did.'
Intended: '[I infer that] it is Majdi who parked the car.'

(b) majdi Saaf **es-sayarah**, bs huwwa mumkin elli Safuh et-treela.
Majdi park-DA **the-car**, but he maybe what PERF-park-it the-truck
'Majdi has parked the car, but maybe he parked the truck.'
Intended: '[I infer that] what Majdi has parked is the car.'

The modal reading of DAs is further supported when DAs are contrasted with the perfective form of the verb. Contra to DAs, the perfective form of the verb does not survive the contradictory statement as it is evident by the unacceptability of (40a and b) where the perfective form *Saf* 'parked' is used. The fact that perfective is unacceptable under the actuality entailment test clearly suggests that the proposition denoted by the perfective form is true in the real world rather than an irrealis world i.e. no modal reading is asserted. The target of the contradiction test is bold-faced.

(40)

(a) **majdi** Saf es-sayarah,# bs 'aHmad (elli) Safha.
Majdi park-PERF the-car, # but Ahmad (who) PERF-park-it
'Majdi has parked the car, but Ahmad did.'

(b) majdi Saf **es-sayarah**, # bs huwwa Saf et-treela.
Majdi park-PERF **the-car**, # but he PERF-park the-truck
'Majdi has parked the car, but he parked the truck.'

The sentences in (40) with the perfective form above still give non-modal reading even when the contradiction includes a modal as evident by their unacceptability under the actuality entailment test in (41a and b).

(41)

(a) **majdi** Saf es-sayarah,# bs mumkin 'aHmad (elli) Safha.
Majdi park-PERF the-car, # but maybe Ahmad (who) PERF-park-it
'Majdi has parked the car, but maybe Ahmad did.'

(b) majdi Saf **es-sayarah**, # bs huwwa mumkin Saf et-treela.
Majdi park-PERF **the-car**, # but he maybe PERF-park the-truck
'Majdi has parked the car, but maybe he parked the truck.'

In sum, the aforementioned discussion asserts that DAs pattern with modals in that they denote a modal i.e. irrealis reading since they survive the actuality entailment test. It also shows that DAs contrast with perfectives in that the former have a modal reading while the latter do not.

4.4.3.3 Propositional Attitude Predicates: A De-Dicto Reading

Another piece of evidence for the inferential/modal reading of DAs comes from their parallel behavior to propositional attitude predicates such as *bafaker*/*batDun* 'think' and *ba3taqed* 'believe'. Propositional attitude verbs are known to trigger a modal reading where the proposition is true only in an irrealis world rather than the real world. In propositional attitude verbs the proposition is true in the speaker's belief world (SBW): these meanings are referred to as the *de-dicto belief reading*. As exemplified in (42), a de-dicto reading is a reading where a proposition (P) is true according to the *believer's thought* and not necessarily the real world (Kearns 2000).

X= index (refers to someone), P= Proposition

(42) De-Dicto Belief : $BELIEVE_{(X)}$[P=1]

(42) reads as: X (someone) believes that P (i.e. P is true iff it is in X's thoughts). The modal reading of propositional attitude verbs is supported by the fact that they shift a realis reading to an irrealis (modal) reading. Consider the sentences in (43-45); (the target of the contradictory statement is bold-faced).

(43)

(a) majdi **ba3ath** er-resaleh,# bs (mumkin) majdi ma ba3athha.
Majdi **send-PERF** the-letter, # but (maybe) Majdi not PERF-send-it
'Majdi sent the letter, but (maybe) he did not.'

(b) **majdi** ba3ath er-resaleh,# bs (mumkin) 'aHmad (elli) ba3athha.
Majdi send-PERF the-letter, # but (maybe) Ahmad (who) PERF-send-it
'Majdi sent the letter, but (maybe) Ahmad did.'

(c) majdi ba3ath **er-resaleh**,# bs majdi (mumkin) ba3ath eT-Tard mush
Majdi send-PERF **the-letter**, # but Majdi (maybe) send- PERF the-parcel not
er-resaleh.
the-letter
'Majdi sent the letter, but (maybe) Majdi sent the parcel (not the letter).'

Sentences in (43) have the perfective form of the verb *ba3ath* 'send'. The sentences are continued with a contradictory statement that negates the original proposition in the sentence i.e. that the letter **was not sent** (43a), it is **not Majdi** who sent the letter (43b) and that what Majdi sent was **not the letter** (43c). All these sentences yield a non-modal reading as evident by their unacceptability under the actuality entailment test; this strongly suggests that the propositions they express is true in the real world and not in an irrealis world. The non-modal reading of the sentences (43a, b and c) can be captured by the following lexical entry in (44a, b and c) respectively.

w*= real world, t= time

(44)

(a) [[Majdi **sent** the letter**]]** $^{w^*,t}$ = [[SEND is true at t in the real world]]

(b) [[**Majdi** sent the letter**]]** $^{w^*,t}$ = [[MAJDI is true at t in the real world]]

(c) [[Majdi sent **the letter]]** $^{w^*,t}$ = [[THE LETTER is true at t in the real world]]

However, when theses propositions in (43) are embedded under a propositional attitude predicate such as the verb *befaker* 'think' as in (45a, b and c) respectively, the non-modal reading shifts into a modal interpretation as shown by their acceptability under the actuality entailment test.

(45)

(a) 3ali befaker majdi **ba3ath** er-resaleh, bs (mumkin) majdi ma ba3athha.
Ali think Majdi **send-PERF** the-letter, but (maybe) Majdi not PERF-send-it
'Ali thinks that Majdi sent the letter, but (maybe) he did not.'

(b) 3ali befaker **majdi** ba3ath er-resaleh, bs (mumkin) 'aHmad (elli) ba3athha.
Ali think **Majdi** send-PERF the-letter, but (maybe) Ahmad (who) PERF-send-it
'Ali thinks that Majdi sent the letter, but (maybe) Ahmad did.'

(c) 3ali befaker majdi ba3ath **er-resaleh**, bs majdi (mumkin) ba3ath eT-Tard
Ali think Majdi send-PERF **the-letter**, but Majdi (maybe) send- PERF the-parcel
mush er-resaleh.
not the-letter
'Ali thinks that Majdi sent the letter, but (maybe) Majdi sent the parcel (not the letter).'

The shift into a modal reading is due to a scopal effect where the propositions in (45a, b and c) respectively are in the scope of the propositional attitude verb *befaker* 'think'. The modal reading of these sentences can be semantically accounted for by the following lexical entry (46).

SBW= Speaker's Belief World, t=time, S= Speaker (Ali)

(46)

(a) THINK [[Majdi **sent** the letter**]]** ^{sbw,s,t} = [[SEND is true at t in SBW]]

(b) THINK [[**Majdi** sent the letter**]]** ^{sbw,s,t} = [[MAJDI is true at t in SBW]]

(c) THINK [[Majdi sent **the letter]]** ^{sbw,s,t} = [[THE LETTER is true at t in SBW]]

The semantic representation in (46) exemplifies the *de-dicto belief* reading indicated by the propositional attitude predicate 'think' in sentences under (45): the real world reading of sentences in (43) as denoted in (44) shifts into a modal reading where the propositions are now true in speaker's belief world rather than a real world as it is evident by their acceptability under the actuality entailment test. This shift into modal reading is due to the scopal effect of the propositional attitude verb 'think' as shown in (45) where the predicate 'think' has a wide scope over the propositions.[3] The propositional attitude verb 'think' forces the proposition to hold in SBW by introducing a 'judge parameter' (Stephenson 2005) into the semantics of sentences in (43). The judge parameter corresponds to the 'speaker's perspective' where the proposition is no longer judged based on real world readings, rather it is judged from the perspective of the speaker (i.e. the judge). In other words, the sentences in (43) are true in the real world as they are judged based on real world facts. This contrasts with sentences in (45); these sentences are true in SBW since they are *judged* by the *speaker* (Ali) i.e. they are judged from the perspective of Ali rather than perspective of real world. In the spirit of Stephenson (2005), I use the following lexical notation (47) to account for the modal reading of the propositional attitude predicate *befaker* 'think'(adapted from Stephenson 2005:9).

SBW= Speaker's Belief World (SBW), t=time, S= Speaker

(47) $[[\text{think}]]^{SBW,S,t}$ = [for all worlds *w'* compatible with SBW at t, P(SBW,S,t)=1]

The notation in (47) reads as: a proposition (P) is true iff it is true in SBW (rather than the real world) at a given time (t). We can now use the lexical entry in (47) to generate semantic representation of sentences in (45) as demonstrated in (48a, b and c) respectively:

[3] See Simons (2006) for an evidential account of propositional attitude predicates such as *think* and *believe*.

(48)

(a) [[think]]^{SBW,S,t} = [for all worlds w' compatible with SBW at t, **SEND**(SBW,S,t)=1]
(b) [[think]]^{SBW,S,t} = [for all worlds w' compatible with SBW at t, **MAJDI**(SBW,S,t)=1]
(c) [[think]]^{SBW,S,t} = [for all worlds w' compatible with SBW at t,**THE LETTER**(SBW,S,t)=1]

For example, the notation in (a) reads as: the proposition (SEND) is true in the SBW, Ali's belief, at a given time (t). The same applies to (b) and (c) where the speaker (Ali) believes that it is Majdi (b) and it is the letter what Majdi sent (c).

I argue that DAs pattern with propositional attitude predicates. This claim is supported by the fact that DAs, similar to propositional attitude predicates, shift a realis reading into an irrealis (modal) reading. Consider sentences (49a and b); (the target of the contradictory statement is bold-faced).

(49)

(a) **majdi** walla3 eDaw, # bs 'aHmad (elli) walla3-uh.
Majdi switch on-PERF the-light, #but Ahmad (who) PERF-switch on-it
'Majdi has switched on the light, but Ahmad did.'

(b) **majdi** walla3 eDaw, bs # huwaa walla3 el-telfezyoon.
Majdi switch on-PERF the-light, but # he switch on-PERF the-T.V.
'Majdi has switched on the light, but he switched on the T.V.'

Sentences in (49) have the perfective form of the verb *walla3* 'switch on'. The sentences are tested under the actuality entailment test: they are continued with a contradictory statement that asserts a real world contradictory reading: that it is **not Majdi** who switched on the light (49a) and that what Majdi switched on is **not the light** (49b). All these sentences yield a non-modal reading as evident by their unacceptability under the actuality entailment test; this strongly suggests that the propositions they express are true in the real world (i.e. actualized in the real world) and not in an irrealis world. The non-modal reading of the sentences (49a and b) can be captured by the following lexical entry in (50a and b) respectively.

w*= real world, t= time

(50)

(a) [[**Majdi** switched on the light**]]** $^{w^*,t}$ = [[MAJDI is true at t in the real world]]

(b) [[Majdi switched on **the light]]** $^{w^*,t}$ = [[THE LIGHT is true at t in the real world]]

However, when these propositions are used with DAs and not perfectives, the non-modal reading shifts to a modal interpretation as shown by their acceptability under the actuality entailment test as shown in (51a and b) respectively.

(51)

(a) **majdi** mwalli3 eDaw, bs ʻaHmad (elli) walla3-uh.
Majdi switch on-DA the-light, but Ahmad (who) PERF-switch on-it
ʻMajdi has switched on the light, but Ahmad did.ʼ

(b) **majdi** mwalli3 eDaw, bs huwaa walla3 el-telfezyoon.
Majdi switch on-DA the-light, but he switch on-PERF the-T.V.
ʻMajdi has switched on the light, but he switched on the T.V.ʼ

Contra to the perfective, the DA in (51a and b) forces a modal reading: the proposition is no longer true in the real world as is the case with the perfective, rather it is true in an irrealis world as evident by the acceptability of these sentences under the actuality entailment test. I argue that DAs are analogous to propositional attitude predicates in that they force the proposition to be true in a *speaker's belief world* (SBW) rather than the real world. The motivation for introducing the SBW comes from the evidential interpretation proposed for the DAs: DAs introduce an evidential operator (EV) which expresses a *speaker-oriented* reading i.e. the proposition is viewed from the speaker's perspective as discussed in the previous sections. Based on this, I argue that the modal reading of sentences in (51) with DA triggers a de-dicto reading and can be semantically recaptured by the same lexical entry I used to account for the modal reading of propositional attitude predicate *befaker* ʻthinkʼ in (46) above.

EV= Evidential Operator, SBW= Speaker's Belief World, t=time, S= Speaker

(52)

(a) $DA_{(EV)}$[THINK [[**Majdi** switched on the light**]]** ^{sbw,s,t} = [[MAJDI is true at t in SBW]]]

(b) $DA_{(EV)}$[THINK [[Majdi switched on **the light]]** ^{sbw,s,t} = [[THE LIGHT is true at t in SBW]]

Similar to propositional attitude verbs in (46), the semantic representation in (52) exemplifies a *de-dicto belief* reading indicated by the DA *mawale3* 'switch on $_{(DA)}$': the semantic representation in (52a) corresponds to sentence (51a) and can be read as: speaker *believes*/ *thinks* that it is Majdi (where 'Majdi' is target of the inference) who switched on the light. The semantic representation in (52b) corresponds to sentence (51b) and is read as: speaker *believes*/ *thinks* that what Majdi switched on is the light (where 'light' is target of the inference). The de-dicto reading is supported by the acceptability of sentences with DAs under the actuality entailment test (i.e. they indicate an irrealis reading rather than realis reading). In other words, I argue that DAs, similar to propositional attitude predicate, force the proposition to hold in SBW by introducing an evidential operator corresponding to a speaker parameter. The speaker parameter corresponds to the 'judge parameter' discussed earlier where the proposition is no longer judged based on real world readings as is the case with the perfective in (49); rather, with DAs it is judged from the perspective of the speaker (i.e. the judge) as shown in (51). The lexical entry in (52) captures the two core meanings of DAs, the evidential operator (EV) which introduces the speaker parameter (SBW); and the modal reading which is presented by the propositional attitude verb [THINK] as evident by the acceptability under the actuality entailment test.

To recap, DAs pattern with propositional attitude predicates in that both force an irrealis reading by shifting a non-modal into a modal reading. The propositions in both structures hold

true in a SBW rather than a real world. The notion of SBW is compatible with the evidential account proposed for DAs since the evidential reading is speaker-dependent. The fact that DAs exhibit similar interpretations with propositional attitude verbs lends further support to the modal reading of DAs.

4.4.3.4 Inferential Readings: Result-State (RSI) and Consequent-State (CSI) Readings

I have argued that DAs have an indirect evidential reading: they induce a speaker-dependent reading, they indicate indirect evidence and they have a modal interpretation. These three notions can be captured by introducing an evidential operator (EV) proposed in the semantics of DAs. In this section I show how these notions come into play in triggering the inferential reading of DAs.

I argue that the indirect evidence of DAs, which is specified by anterior and posterior temporal relations, is what triggers the inferential reading with DAs (see section 4.4.2.2 for further details). The reasoning of this is as follows: The fact that the event is either in an anterior or posterior relation to the EAT (which already includes the accessible evidence) guarantees that the *speaker does not perceive the event*; rather, the speaker uses the indirect evidence at the EAT as his/her basis to make *inference about the non-perceived event*. In other words, the indirect evidence at EAT constitutes the grounding for the speaker's *inference* about the event (speaker infers the event from seeing its results). This reasoning strongly indicates that the type of inferential reading is dependent on the type of the accessible indirect evidence available for speaker at EAT.

Given this fact, I argue that there are two types of indirect evidence that can be available at EAT: a result-state (RS) and a consequent-state (CS). Since the inferential reading is

dependent on the type of indirect evidence, it follows that DAs exhibit two types of inferential readings: a RS-based Inferential Reading (RSI henceforth) and a CS-based Inferential Reading (CSI henceforth). In other words, the event implied in the semantics of DAs can have two types of states: a RS and a CS; these states are the only accessible evidence for the speaker at EAT and each state triggers a different inferential reading: the RS triggers an RSI reading and the CS triggers a CSI reading.

Before I work out the semantics of inference in each reading, let me first explain the distinction between the two states. In the spirit of Nikolaeva (2000), I differentiate between the two readings as follows. First, the RSI includes states that can be viewed as an integral part of the lexical description of the verb i.e. it is unambiguously predictable from the meaning of the verb itself. This means that each verb has a unique RS (i.e. only one RS) that is directly predictable from it (Nikolaeva 2000). However, the CS is not part of the lexical description of the verb i.e. it is not directly predictable from the meaning of the verbal stem. This clearly means that each CS depends on a subjective basis because each verb (or event) could have more than one CS. For example, the event of 'parking' in sentence (53) has two states as follows:

(53) majdi Saf es-sayarah fee el-karaaj.
Majdi park-PERF.3SG.MASC the-car in the-garage
'Majdi (has) parked the car in the garage.'

(A) RS (part of the lexical description of the verb **park**): the car is **parked.**

(B) CS (not part of the lexical description of the verb **park**): Majdi is home.

In other words, the fact that Majdi parked the car has a RS (the car is parked) and there may be a CS (Majdi is home). The RS (the car is parked) is directly predictable from the verb or the event of parking itself: if there has been a parking event, consequently there is a car parked.

However, the CS (Majdi is home) is not directly predictable from the verbal semantics of the verb 'park', that is: if Majdi has parked the car, this does not necessarily mean that he is home. Note here that while there is only *one* RS (car is parked) of the verb or the event 'park', there could be *many* CSs. For example, the fact that Majdi has parked the car could have multiple, in fact infinite number of CSs: Majdi is tired from a long drive, Majdi has wrecked the car, Majdi is home, etc.

Second, I argue that the RS is semantically asserted or entailed by the event. That is, there is a logical entailment relation between the RS and the event. The CS, on the other hand, is contextualized and lacks this entailment relation. I propose the following composite truth tables (54 and 55) to account for the distinction in terms of entailment relation for RS and CS respectively.

(54) Composite Truth Table of Entailment (RS)

p = Event, q= RS

p		**q**
T	$\rightarrow$	**T**
F	$\rightarrow$	**F**
T	$\leftarrow$	**T**
F	$\leftarrow$	**F**

(55) Composite Truth Table of Entailment (CS)

p = Event, q= CS

p		**q**
T	$\rightarrow$	**T or F**
F	$\rightarrow$	**T or F**
T or F	$\leftarrow$	**T**
T or F	$\leftarrow$	**F**

As Table (54) demonstrates, both the event and the RS have a mutual entailment relation: if Majdi has parked the car, there is a car parked and vice versa. The same entailment logic applies when the sentence is F: if Majdi has not parked the car, consequently there is no car parked and vice versa. This contrasts with Table (55) where there is no entailment relation between the CS and the event: If Majdi has parked the car, he might be home or might not. Also, if Majdi is home, it could be that he parked the car or not. In other words, with RS, the event of parking is an entailing event; however, with CS the event of parking is non-entailing.

The above entailment relations are further supported by the cancelation test. In (56a) the RS (the car is parked) is semantically asserted as evident by the unacceptability of the sentence under cancellation. However, the CS (Majdi is home) is not entailed by the event of parking, therefore the acceptability of sentence (56b).

(56)

(a) majdi Saaf es-sayarah, # leish es-sayarah mish maSfoofah?
Majdi park-DA the-car, # why the-car not parked-PP
'Majdi has parked the car (the car has been parked), why the car is not parked?'

(b) majdi Saaf es-sayarah, leish majdi mush fii el-beit?
Majdi park-DA the-car, why Majdi not in the-home
'Majdi has parked the car, why is not he home?'

The unacceptability of (56a) shows that the RS (the car is parked) is part of the entailed meaning of the event 'parking'. This contrasts with (56b) where the CS is allowed under cancellation. Clearly, if 'Majdi is at home' is interpreted as a consequent result of 'Majdi's having parked the car', then the fact that 'Majdi has parked the car' does not necessarily entail that he is home as shown in Table (55) above. This explains why sentence (56b) is acceptable when the CS is negated.

Having established the distinction between the RS and CS, I will now work out the semantics of *inference* in each reading (RSI and CSI). To do this, I propose the following logic in (57) which accounts for the inference in each inferential reading (RSI and CSI).

p = Event, q=State at EAT(Evidence Acquisition Time), E= Event,
ERs= Event arguments, (p↔q)=Mutual Entailment, ¬(p↔q)= Lack of Mutual Entailment

(57)

(a) RSI Reading: If (p↔q), INFER [ERs]

(b) CSI Reading: If ¬(p↔q), INFER [E & ERs]

The logic of inference presented in (57) is as follows: If the speaker wants to use the state (i.e. the accessible evidence at EAT) to make inference about the entailing event of this state (p↔q), then this state is regarded as a RS and therefore the speaker's inference can *only* target the *event arguments* (ERs) i.e. the doer of the event (subject), the patient of the event (object), the manner the event is done (adverb), etc… and not the entailing event itself. This logic captures the inference in the RSI reading in (57a) above. However, if the speaker wants to use the state to make inference about the non-entailing event of this state (¬p↔q), then this state is regarded as a CS and therefore, the speaker's inference can in this case target the *non-entailing event* and *the event arguments*. This logic captures the inference in the CSI reading presented in (57b).

Let me demonstrate by an example. Let us assume that the speaker at the EAT perceives 'a car that is parked.' Let us call this accessible evidence S which stands for 'state'. This S can be a RS or CS depending on whether the speaker's inference is made about the entailing or the non-entailing event: the entailing event of this S at EAT is 'parking the car' and the non-entailing event could be any event other than the entailing event such as Majdi *has come* home. If the speaker wants to use this S (car is parked) to make an inference about the entailing event

'parking the car' (i.e. there is mutual entailment between the event and state (p↔q)), then the speaker can only target the event arguments (ERs) by his inference and not the entailing event itself. Consider sentence (58).

(58) **majdi** Saaf **es-sayarah**.
Majdi park-DA **the-car**
'Evidently, Majdi has parked the car.'

(a) Intended: '[I infer that] it is **Majdi** who parked the car.'
(b) Intended: '[I infer that] what Majdi has parked is **the car**.

Sentence (58) is uttered by the speaker when s/he perceived the S (car is parked) at the EAT. The fact that the inference in this sentence targets only the ERs: doer of the action (the subject: **Majdi**) and the patient (the object: **the car**), clearly suggests that the speaker wants to make an inference about the entailing event of S that is the event of 'parking the car'. Since the speaker in (58) wants to make an inference about the entailing parking event of S (there is mutual entailment between event '*parking* the car' and S 'car is *parked*: p↔q), then according to the lexical entry in (57a), the speaker can only target the ERs: **Majdi** (subject of the event) and **the car** (object of the event) in his inference and not the entailing event (parking the car). This logic is supported by the fact that only when the inference targets ERs: **Majdi** (subject of the event) as in (59a) and **the car** (object of the event) as in (59b), the sentence in (58) can be acceptable under actuality entailment test (Note here that the actuality entailment test detects the realis and irrealis readings: if the target of the actuality entailment test is acceptable, then it shows an irrealis reading i.e. it can be target of *inference*/*it is inferred*. However, if the target of the actuality entailment test is not acceptable, then it shows a realis reading i.e. it cannot be target of *inference*/ *it is not inferred*). On the other hand, when the speaker's inference targets the entailing event 'parking the car' the sentence becomes anomalous (59c): the mutual entailment

between the S (car is parked) and the entailing event ‘parking the car’ blocks inference from targeting the entailing event ‘parking the car; this is evident by the unacceptability of (59c) under the actuality entailment test where the entailing event of parking is targeted by the inference. The target of the inference is bold-faced in each sentence.

(59)

(a) **majdi** Saaf es-sayarah, bs ‘aHmad (elli) Safha.
Majdi park-DA the-car, but Ahmad (who) PERF-park-it
‘Majdi has parked the car, but Ahmad did.’
Intended: ‘[I infer that] it is **Majdi** who parked the car.’

(b) majdi Saaf **es-sayarah**, bs huwwa Saf et-treela.
Majdi park-DA **the-car**, but he park-PERF the-truck
‘Majdi has parked the car, but he parked the truck.’
Intended: ‘[I infer that] what Majdi has parked is **the car**.’

(c) majdi **Saaf** es-sayarah,# bs es-sayarah mish maSfoofah (ma enSafat).
Majdi **park-DA** the-car, # but the-car not parked-PP (not park-PERF-Passive)
‘Majdi has parked the car, but he did not park the car.’
Intended: ‘[I infer that] Majdi has parked the car/ the car has been parked.’

The aforementioned discussion demonstrates the logic under the RSI reading. I will now consider the other inferential reading that is the CSI reading. Similar to the RSI reading, let us assume that the speaker at the EAT perceives ‘a car that is parked’, let us call this accessible evidence S stands for ‘state’. As discussed above, this S can be a RS or CS depending on whether the speaker’s inference is made about the entailing or the non-entailing event. If the speaker wants to use this S to make an inference about a non-entailing event (i.e. there is *no* mutual entailment between the event and state (i.e. $\neg p \leftrightarrow q$), then in this case the S (car is parked) is regarded as a CS according to the lexical entry in (57b). The speaker can in this case target the non-entailing event by his inference. Consider sentences in (60).

(60)

(a) majdi **jaai.**
Majdi **come-DA**
'Evidently, Majdi has come.'
Intended: '[I infer that] Majdi **has come**.'

(b) es-seyarah maSfoofah, bs majdi muu jaai.
The-car parked, but Majdi not come-DA
'The car is parked, but evidently Majdi has not come.'

Sentence (60a) is uttered by the speaker when he perceived the S (car is parked) at the EAT. When the speaker perceives this evidence (i.e. the state of the car being parked at EAT), s/he uses this evidence as a grounding for the inference i.e. *majdi jaai* 'Majdi has come'. In (60a), the speaker *believes* or *infers* that 'Majdi has come' based on the fact that there is a car parked i.e. maybe the speaker knows it is Majdi's car, or s/he expects Majdi to come anytime today after a long trip in Europe, etc…. In other words, in the *speaker's belief world* (SBW), if there is a car parked, this *necessarily means* that someone has come: this is only true in the SBW and not necessarily in the real world; this is because in the real world there might be 'a car parked' but Majdi has not come. This contradictory interpretation (60b) (there is a car parked, but Majdi has not come) is predicted by the lexical entry in (57b): there is a lack of entailment between the S (car parked) and the event (Majdi's coming); the fact that there is no entailment between the S and the event explains why the contradiction in (60b) is acceptable. In other words, sentence (60a) indicates an *inferential* reading that is true only in the SBW and not necessarily in the real world; this is supported by the fact that when this inferential reading 'Majdi has come' is challenged by a real world reading as given by the actuality entailment test in (60b), the inferential reading survives the test. The legitimacy of (60b) clearly indicates that the event 'Majdi's coming' is an inferential or irrealis (i.e. it can be target of inference); this

logic is predicted by the lexical entry in (57b) which states that a non-entailing event (in this case Majdi's coming) can be a target of inference.

4.4.3.5 More on the Consequent-State Inferential Reading (CSI)

In this section I provide further evidence for the inferential interpretations discussed in the previous section, mainly the CSI reading. I also discuss how this inferential reading is derived through a temporal specification of indirect evidence.

JA speakers intuit that DAs are more acceptable than the perfective form of the verb in the context where the speaker makes an *inference* based on a consequent state. In the following contexts (61-64), the speaker makes an inference based on the available evidence at the EAT; this evidence is regarded as the CS since the speaker uses this evidence to make an inference about a non-entailing event. It is crucial to the current inferential analysis that under these inferential contexts DAs are more acceptable than perfective.

(61) Context: Adam and Sami see Sarah coming towards them and her eyes are red and swollen. Adam tells Sami:

(a) 'eTala3! sarah mSayHeh.
Look! Sarah cry-DA
'Look! [Evidently/ I infer that] Sarah has cried.'

(b) ??/# 'eTala3! sarah SayHat.
Look! Sarah cry-PERF.3SG.FEM
'Look! [Evidently/ I infer that] Sarah has cried.'

(62) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on and there appears to be some luggage in the door step. Then, Adam tells Sami:

(a) majdi jaai.
Majdi come-DA
'[Evidently/ I infer that] Majdi has come.'

(b) ??/# majdi ejaa.
Majdi come-PERF.3SG.MASC
'[Evidently/ I infer that] Majdi has come.'

(63) Context: Adam and Sami enter Majdi's room. They see the T.V is still on and the video games are hooked to the T.V. Adam tells Sami:

(a) majdi laa3eb 'ataari.
Majdi play-DA video games
'[Evidently/ I infer that] Majdi has played video games.'

(b) ??/# majdi la3ib 'ataari.
Majdi play-PERF.3SG.MASC video games
'[Evidently/ I infer that] Majdi has played video games.'

(64) Context: Adam and Sami enter Majdi's house. They see remains of cooked rice and on the table; the room smells Mansaf too. Adam tells Sami:

(a) majdi Taabix mansaf.
Majdi cook-DA Mansaf (traditional dish)
'[Evidently/ I infer that] Majdi has cooked Mansaf.'

(b) ??/# majdi Tabax mansaf.
Majdi cook-PERF.3SG.MASC Mansaf (traditional dish)
'[Evidently/ I infer that] Majdi has cooked Mansaf.'

In the above contexts, the speaker makes an inference based on available evidence: the speaker perceives evidence (i.e. a CS) at EAT and makes an inference about a non-entailing event. For example, in (61), the speaker infers that Sarah has cried based on the evidence that her eyes are red and swollen (CS). Note here that the fact that Sarah's eyes are red and swollen (CS) is not necessarily entailed by a crying event. To be more specific, it is possible that before Adam and Sami saw Sarah, she might have rubbed her eyes with red pepper and this caused the redness and swelling in her eyes. That is, there is a lack of entailment between the event (crying), which

is the target of inference here, and the state (her eyes are red and swollen) at EAT. The same logic applies to all other contexts in (62-64). It is crucial to our analysis here that under the inferential reading as is the case in the above contexts, JA speakers intuit that DAs in sentences under (a) above are more acceptable than perfectives in sentences under (b)[4].

Furthermore, in the above contexts, the type of indirect evidence at EAT (the indirect evidence in this case is the CS) is specified temporally as discussed earlier (See section 4.4.2.2. for further discussion). In other words, the temporal relation between the reference time of the eventuality and the EAT determines the indirect evidence the speaker acquires at EAT: in all the contexts (61- 64), DAs show a post-state interpretation where the event is in an anterior relation to EAT which includes the speaker and the post-state (which is in this case a CS). In the context in (63) for instance, the speaker (Adam) perceives accessible evidence at EAT i.e. a post-state (which is in this case a CS) where the T.V is on and the video games are hooked to T.V. The speaker uses this evidence to make an inference about an anterior event as shown in figure (4).

Figure (4) Temporal and Inferential Indirect Evidence (Anterior Relation)

E=Event, EAT=Evidence Acquisition Time and CS=Consequent-State

E_____[_____EAT_____]
(Anterior) (CS: T.V is on and video games are hooked to T.V)
(DA: *laa3ib* 'play')
[…….....…**Adam and Sami**……..]

As figure (4) shows, the anterior temporal relation denoted by the DA in (63a) triggers indirect evidence: the speaker (Adam) does not perceive the event which is in an anterior relation

[4] Most JA speakers intuit that the use of the perfective in these inferential contexts is not acceptable and they would rather use DAs. However, some feel that the perfective is not totally unacceptable but awkward.

to EAT; rather, he perceives only the CS of this event i.e. the T.V is on and the video games are hooked to the T.V. Adam uses this evidence at EAT to *infer* the anterior event as indicated by the DA *laa3ib* 'play$_{(DA)}$'. In this context, the speaker *believes* that the CS (the T.V is on and the video games hooked to the T.V) is a post-state of an anterior event which the speaker *believes* to be an event of 'playing video games'.

The same logic applies to futurate readings of DAs i.e. where the event is in a posterior relation to EAT. In the following context, the speaker (Adam) *infers* that Majdi is coming tomorrow based on available evidence at EAT. Consider sentence (65).

(65) majdi jaai bukrah.
Majdi come-DA tomorrow
'[Evidently/ I infer that] Majdi is coming tomorrow.'

In sentence (65), the speaker (Adam) perceives an accessible evidence at EAT. The speaker uses this evidence to make inference about a posterior event as shown in figure (5).

Figure (5) Temporal and Inferential Indirect Evidence (Posterior Relation)

E=Event, EAT=Evidence Acquisition Time and CS=Consequent-State

[_____EAT_____]_____E
(CS: Majdi has booked the ticket already) (Posterior)
DA: *jaai* 'come'
[…….....…**Adam**……..]

As figure (5) shows, the futurate reading (i.e. posterior relation) denoted by the DA in (65) triggers indirect evidence: the speaker (Adam) does not perceive the event which is in a posterior relation to EAT; rather, he perceives only the CS of this event i.e. Majdi booked his

ticket for instance. Adam uses this evidence at EAT to *infer* the posterior event as indicated by the DA *jaai* 'come'. In this context, the speaker *believes* that the CS (Majdi booked his ticket) necessarily means that he will come tomorrow. In other words, the fact that Majdi is coming is true only in the speaker's belief world and not in the real world because it might turn out that Majdi has booked the ticket but he would not come or will not ever come.

4.4.3.6 Inferential Contribution of Evidential DAs

In section 4.4.3.4, I have demonstrated that DAs trigger two types of inferential readings: RSI and CSI readings. Evidential DAs, in this regards, differ from other indirect inferential evidentials discussed in the literature, e.g. Cuzco Quechua (Faller 2002), Sti'at'imcets (Mtthewson et al. 2007), Gitsken (Peterson 2010), Turkish (Sener 2011) and (Korean (Lee 2011) among others. These languages trigger a CSI reading where the inferential evidential is used to trigger inference about the non-entailing event; no RSI reading has been attested in these languages. Evidential DAs in JA, on the other hand, trigger both types of inferential readings.

For example, in (67a), Korean uses the inferential evidential *-te* and *–ass* to trigger an inferential reading where the speaker sees wet ground and based on this evidence s/he infers that 'it rained yesterday'.

(67) Context: Chelswu saw a wet ground this morning. Now he says:

(a) Ecey pam-ey pi-ka o-ass-te-la.
yesterday night-at rain-NOM fall-PAST-TE-DECL
'[I infer that] it rained yesterday.' (Korean/ Lee 2011: 55)

In this context (67), the speaker (Chelswu) sees wet ground and he takes this evidence as the grounding for this inference that it rained yesterday. The evidence available at EAT i.e. wet ground is not necessarily entailed by a raining event because it might be the case that the ground

is wet because of a sprinkler or because there was a leak of water of one of the underground pipes etc…. in other words, this means that the inferential reading in (67) is based on a CS rather than a RS.

Unlike languages such as Korean, evidential DAs not only trigger a CSI reading but also a RSI reading. As already discussed in section 4.4.3.4, when the speaker at the EAT perceives accessible evidence or S stands for 'state', this S can be a RS or CS depending on whether the speaker's inference is made about the entailing or the non-entailing event. For example in sentence (58) repeated here as (68), and (60) repeated here as (69), the speaker perceives a state (S) 'a car parked' at EAT. When the speaker makes an inference about the entailing event (parking the car), this S is regarded as a RS and therefore the speaker can only make an inference about ERs as in (68). On the other hand, when speaker makes an inference about a non-entailing event (any event other than parking the car), this S is regarded as a CS and therefore the speaker makes an inference about a non-entailing event such as 'Majdi has come' as in (69).

(68) **majdi** Saaf **es-sayarah**.
Majdi park-DA **the-car**,
'Evidently, Majdi has parked the car.'
(a) Intended: '[I infer that] it is **Majdi** who parked the car.'
(b) Intended: '[I infer that] what Majdi has parked is **the car**.

(69) majdi **jaai.**
Majdi **come-DA**
'Evidently, Majdi has come.'
Intended: '[I infer that] Majdi **has come**.'

4.4.4 Interim Summary

I have proposed an indirect evidential account for the semantics of DAs in JA. The discussion so far has established that DAs have the three basic features of indirect evidentiality. Section 4.4.1 provided evidence for the speaker-oriented meaning under an habitual interpretation. In section 4.4.2 I showed that DAs assert indirect evidence similar to indirect evidentials i.e. the speaker did not perceive the event. One piece of evidence comes from the fact that DAs are acceptable in the contexts that negate seeing the event on the part of the speaker. Perfectives, on the other hand, are infelicitous in these contexts.

In section 4.4.3, I discussed the third feature of indirect evidentials that is the speaker's attitude towards the proposition s/he expresses i.e. an inferential reading. I proposed that DAs have an inferential evidential reading in their semantics. DAs express two inferential readings, RSI and CSI readings. The two readings contrast with regard to the entailment established between the result of the event and the event itself. The former (RSI) has a mutual entailment while the latter (CSI) does not. I further argued that these inferential readings of DAs are licensed by the temporal specification of the indirect evidence and an epistemic modal component as evidenced by the actuality entailment test and the de-dicto reading.

In the remainder of this chapter I provide further evidence in support of my indirect evidential analysis of DAs. I discuss the interaction of DAs with indirect evidential predicates in JA, mirative readings, the first person effect, reportive evidence and the futurate interpretation. I also extend my proposal to passive participles (PPs) in JA. Then I conclude by discussing the implications of the current evidential account on the temporal readings in JA and the temporal problem of DAs discussed in chapter 2.

4.4.5 Indirect Evidential Predicates in JA

Languages tend to use lexical predicates or 'evidential propers' (after Aikhenvald 2004) to express different types of evidentiality. English, for instance, uses some evidential proper predicates to encode indirect evidential interpretations as in (70a and b).

(70)

(a) **It looks like** John has arrived.

(b) **Apparently/Evidently**, She has failed the test.

In these sentences the use of 'it looks like' (70a) and 'apparently/evidently' (70b) encode an indirect evidential reading: the speaker makes inference about the 'arriving' and 'failing' events based on indirect evidence. In (70a), for instance, it might be the case that the speaker makes his/her *inference* based on some observable evidence at EAT such as s/he saw john's luggage at doorstep. The same fact holds for (70b) where the speaker *infers* that she failed the test based on some observable evidence which might be the fact that she looks upset. In all these contexts, the speaker infers the event based on *indirect evidence* i.e. the speaker did not perceive the event of arriving or failing, rather s/she infers them based on some evidence.

Similar to other languages such as English, JA has some other predicates that encode an indirect evidential meaning. These predicates include: *shakluh* 'apparently/evidently/it looks like', *'eDaahir* 'apparently' *mbayen* 'it appears to be', etc. I argue that DAs pattern with these 'indirect evidential proper' predicates. I take this analogous behavior as further supportive evidence for the proposed indirect evidential analysis of DAs.

4.4.5.1 Indirect Evidence: Event Not Perceived

Evidential proper predicates such as *shakluh* 'it looks like' encode indirect evidence where the speaker does not perceive the event. One piece of evidence comes from their unacceptability in the contexts where the speaker perceived the event. The only way for these predicates to be felicitous is when they are used in contexts where the event is not perceived by the speaker. Consider the following contexts (71-72).

(71) Context: Adam enters the room and sees Majdi watching T.V. Adam joins Majdi in watching T.V. Suddenly, the phone rings (as Sami is calling) and Adam answers the phone.

Sami:
(a) majdi shuu besawi?
Majdi what IMPERF-do.3SG.MASC
'What is Majdi doing?'

Adam:
(b) gaa3id betfaraj 3ala et-telfeziyoon.
PROG IMPERF-watch on the-T.V
'He is watching T.V.'

(c) # shakluh gaa3id betfaraj 3ala et-telfeziyoon.
It looks like PROG IMPERF-watch on the-T.V
'It looks like he is watching T.V.'

(72) Context: Adam enters the house (he knows Majdi is home) and he hears noise upstairs (loud music, somebody is yelling and cheering). Suddenly, the phone rings Sami is calling) and Adam answers the phone.

Sami:
(a) majdi shuu besawi?
Majdi what IMPERF-do.3SG.MASC
'What is Majdi doing?'

Adam:

(b) # gaa3id betfaraj 3ala et-telfeziyoon.
PROG IMPERF-watch on the-T.V
'He is watching T.V.'

(c) shakluh gaa3id betfaraj 3ala et-telfeziyoon.
It looks like PROG IMPERF-watch on the-T.V
'It looks like he is watching T.V.'

(73) Context: Adam and Sami are watching a boxing match. They are both fan of the player in red trunk (Mike Tyson). Sami goes outside to smoke a cigarette while Adam is still watching the match very carefully. Suddenly, he hears Adam cheering loudly; then Sami asks Adam:

Sami:

(a) shuu Saar?
what happen-PERF
'What happened?'

Adam:

(b) tyson Darabu buks w wage3.
Tyson punch-PERF-him blow and fall-PERF
'Tyson punched him then he fell.'

(c) # shakluh tyson Darabu buks w wage3.
it looks like Tyson punch-PERF-him blow and fall-PERF
'It looks like he punched him then he fell.'

(74) Context: Adam and Sami are watching a boxing match. They are both fan of the player in red trunk (Mike Tyson). They both go outside to smoke. While they are outside, suddenly they hear the crowd cheering; then Sami asks Adam (while they are both outside):

Sami:

(a) hah! shuu Saar ya tara?
listen! what happen-PERF think
'listen! What do you think happened?'

Adam:

(b) ?/# tyson Darabu buks w wage3.
Tyson punch-PERF-him blow and fall-PERF
'Tyson punched the other player then he fell.'

(c) shakluh tyson Darabu buks w wage3.
it looks like Tyson punch-PERF-him blow and fall-PERF
'It looks like Tyson punched the other player then he fell.'

In contexts (71) and (73), the speaker (Adam) has direct visual evidence of the event: in (71) he sees Majdi watching T.V and in (73) he is watching the match. Under these contexts, only the imperfective (71b) and the perfective (73b) are acceptable. The evidential predicate *shakluh* 'it looks like' is infelicitous in these contexts. The only way for sentences with *shakluh* 'it looks like' to be acceptable is in contexts (72) and (74) where the speaker (Adam) does not perceive the event: in (72), Adam does not see Majdi watching T.V., rather he hears a noise and cheering. He uses this indirect evidence as a base for his inference that Majdi is watching T.V. Similarly, in (74), Adam was not watching the match; rather he used the crowd cheers as evidence of his inference that Tyson knocked the other player out. The fact that DAs (c.f. 27 above) pattern with the indirect evidential predicate *shakluh* 'it looks like' in asserting an indirect evidence reading gives further evidence for the indirect evidential analysis of DAs.

4.4.5.2 Inferential Reading

I argue that indirect evidential predicates such as *shakluh* 'it looks like' encode an inferential reading in their semantics. In this regard, indirect evidential predicates show a parallel behavior to modals and propositional attitude predicates: indirect evidential predicates express a proposition that is true in an irrealis world (in this case SBW) and not necessarily in the real world. This is evident by the fact that indirect evidential predicates such as *shakluh* 'it looks

like', like propositional attitude predicates and modals, shift a realis reading into an irrealis (modal) reading. Consider sentences (76a-c); (the target of the contradictory statement is bold-faced).

(76)

(a) sami **fataH** es-shubaak,# bs (mumkin) sami ma fataH-uh.
Sami **open-PERF** the-window, # but (may be) Sami not open-PERF-it
'Sami opened the window, but (maybe) he did not.'

(b) **sami** fataH es-shubaak,# bs (mumkin) 'adam elli fataH-uh.
Sami open-PERF the-window, # but (may be) Adam who open-PERF-it
'Sami opened the window, but (maybe) Adam opened it.'

(c) sami fataH **es-shubaak**,# bs (mumkin) huwwa fataH el-baab.
Sami open-PERF **the-window**, # but (may be) he open-PERF the-door
'Sami opened the window, but (maybe) he opened the door.'

The sentences in (76) have the perfective form of the verb *fataH* 'opened'. The sentences are continued with a contradictory statement that negates the original proposition in the sentence. All these sentences yield a non-modal reading as evident by their unacceptability under the actuality entailment test as shown in (76a-c); this strongly suggests that the propositions they express are true in the real world (i.e. actualized in the real world) and not in an irrealis world.

However, when these sentences are embedded under an indirect evidential predicate such as *shakluh* 'it looks like' as in (77a-c), the non-modal reading shifts into a modal interpretation as shown by their acceptability under the actuality entailment test. The shift into a modal reading is due to the scopal effect where the propositions in (77a, b and c) respectively are in the scope of the inferential evidential predicate *shakluh* 'it looks like'. The modal reading of these sentences can be semantically accounted for by the lexical entries in (77d, e and f) respectively.

(77)

(a) shakluh sami **fataH** es-shubaak, bs mumkin sami ma fataH-uh.
It looks like Sami **open-PERF** the-window, but may be Sami not open-PERF-it
'It looks like Sami opened the window, but maybe he did not.'

(b) shakluh **sami** fataH es-shubaak, bs mumkin 'adam elli fataH-uh.
It looks like **Sami** open-PERF the-window, but may be Adam who open-PERF-it
'It looks like Sami opened the window, but maybe Adam opened it.'

(c) shakluh sami fataH **es-shubaak**, bs mumkin huwwa fataH el-baab.
It looks like Sami open-PERF **the-window**, but maybe he open-PERF the-door
'Sami opened the window, but maybe he opened the door.'

(d) THINK [[Sami **opened** the window**]]** ^{sbw,s,t} = [[OPEN is true at t in SBW]]

(e) THINK [[**Sami** opened the window**]]** ^{sbw,s,t} = [[SAMI is true at t in SBW]]

(f) THINK [[Sami opened **the window]]** ^{sbw,s,t} = [[THE WINDOW is true at t in SBW]]

Similarly, DAs shift the realis reading into an irrelais reading. In sentences (78a-c) the DA *faateH* 'open$_{(DA)}$' is used. The realis reading of these sentences (as indicated in 76a-c) shift into an irrealis reading when a DA is used: the proposition is true in the SBW and not necessarily in the real world as shown by the acceptability of (78a-c) under the actuality entailment effect.

(78)

(a) **sami** faatiH es-shubaak, bs (mumkin) 'adam elli fataH-uh.
Sami open-DA the-window, but (may be) Adam who open-PERF-it
'Sami opened the window, but (maybe) Adam opened it.'

(b) sami faatiH **es-shubaak**, bs (mumkin) huwwa fataH el-baab.
Sami open-PERF **the-window**, but (may be) he open-PERF the-door
'Sami opened the window, but (maybe) he opened the door.'

Furthermore, inferential evidential predicates such as *shakluh* 'looks like' trigger a RSI and CSI reading. Let us assume that the speaker at the EAT perceives 'an opened window', let us call this accessible evidence S which stands for 'state'. This S can be a RS or CS depending on

whether the speaker's inference is made about the entailing or the non-entailing event: the entailing event of this S at EAT is 'opening the window' and the non-entailing event could be any event other than the entailing event such as Majdi has arrived home. If the speaker wants to use this S to make inference about the entailing event 'opening the window', then the speaker can only target the event arguments (ERs) by his inference and not the event of opening itself. Consider sentences (79a-c).

(79)

(a) shakluh sami **fataH** es-shubaak,# bs mumkin sami ma fataH-uh.
It looks like Sami **open-PERF** the-window,# but may be Sami not open-PERF-it
'It looks like Sami opened the window, but maybe he did not.'
Intended:[Evidently/I infer that] Sami **has opened** the window.'

(b) shakluh **sami** fataH es-shubaak, bs mumkin 'adam elli fataH-uh.
It looks like **Sami** open-PERF the-window, but may be Adam who open-PERF-it
'It looks like Sami opened the window, but maybe Adam opened it.'
Intended:[Evidently/I infer that] **Sami** has opened the window.'

(c) shakluh sami fataH **es-shubaak**, bs mumkin huwwa fataH el-baab.
It looks like Sami open-PERF **the-window**, but maybe he open-PERF the-door
'Sami opened the window, but maybe he opened the door.'
Intended:[Evidently/I infer that] Sami has opened **the window**.'

The sentences in (79) are uttered by the speaker when *s/he perceives the S (an opened window)* at the EAT. The inference of the speaker in this case can only target the ERs: the doer of the action (the subject: **Sami**) and the patient (the object: **the window**) as shown by the acceptability of (79b and c) respectively. However, sentence (79a), where the event of opening is targeted by the inference, is anomalous. This is because the speaker cannot make inference about an asserted real world knowledge at EAT: the fact that the *speaker perceives* 'an opened window' at EAT necessarily asserts an entailing 'opening' event. In other words, if the speaker perceives an opened window at EAT, this becomes part of his real world knowledge (speaker *knows* that there is an opened window) and therefore cannot make an inference about it: if I see

an opened window, I cannot say ‘it looks like’ it is opened. The only way for sentence (79a) to be acceptable is where the speaker does not perceive a RS ‘an opened window’ at EAT, rather s/he perceives a CS such as the speaker ‘feels cold’ and therefore s/he infers that someone has opened the window as in this context (80).

(80) Context: Adam and Sami came to visit Majdi. Suddenly, they felt cold. Adam tells Sami:

(a) shakluh majdi **fataH** es-shubaak.
It looks like Majdi **open-PERF** the-window
‘It looks like Majdi opened the window.’

(b) shakluh majdi **fataH** es-shubaak, bs mumkin majdi ma fataH-uh.
It looks like Majdi **open-PERF** the-window, but may be Majdi not open-PERF-it
‘It looks like Sami opened the window, but maybe he did not.’

Sentence (79a), repeated here as (80b), is now acceptable: the speaker makes inference about the opening event based on the CS ‘Adam felt cold’ and not based on a RS ‘an opened window’: when Adam felt cold, he inferred that ‘Majdi has opened the window’. That is, the fact that the speaker does not perceive an ‘opened window’ at EAT means that ‘opening the window’ is not part of his/her world knowledge and therefore the speaker can target the event of ‘opening the window’ with his inference: if I do not see an opened window at EAT and I felt cold, then I might say a sentence like (79a) using the indirect evidential predicate ‘looks like’ to target the event of opening. Note here that there is no mutual entailment between the CS ‘feeling cold’ and the inferred event ‘opening the window’. That is, Adam might have felt cold because he was sick or because Majdi is turning the air conditioning on by mistake etc… and not necessarily because the window was open. This explains why the event of opening the window is targeted by the inference in (80).

The aforementioned discussion demonstrates the logic under the RSI reading. I will now consider the other inferential reading of *shakluh* 'it looks like', that is the CSI reading. Similar to the RSI reading, let us assume that the speaker at the EAT perceives 'an opened window, let us call this accessible evidence S stands for 'state'. As discussed above, this S can be a RS or CS depending on whether the speaker's inference is made about the entailing or the non-entailing event. If the speaker wants to use this S to make inference about a non-entailing event (i.e. there is *no* mutual entailment between the event and state), then in this case the S is regarded as a CS and hence the speaker can in this case target the non-entailing event by his inference. Consider the sentences in (81).

(81)

(a) shakluh majdi shawwab.
It looks like Majdi felt hot-PERF
'It looks like Majdi has felt hot.'
Intended: '[Evidently/I infer that] Majdi **has felt hot**.'

(b) es-shubaak maftooH, bs majdi muu mshaweb.
The-window opened, but Majdi not felt-hot
'The window is opened, but evidently Majdi does not feel hot.'

Sentence (81a) is uttered by the speaker when he perceived the S (an opened window) at the EAT. When the speaker perceives this evidence, s/he uses this evidence as grounding for his inference. In (81a), the speaker *believes* or *infers* that 'Majdi has felt hot' based on the fact that there is an opened window. In other words, in the *speaker's belief world* (SBW) if there is an opened window, this *necessarily means* that someone has felt hot: this is only true in the SBW (that is what the speaker believes) and not necessarily in the real world. This is because in the real world there might be 'an opened window' but no one feels hot at all. This explains why the contradictory interpretation in (81b) is acceptable. Also the acceptability of (81b) is born out if we know that there is no mutual entailment between the CS (opened window) and the event

under inference (Majdi felt hot); the lack of this entailment allows the inference to target the event 'Majdi felt hot' as shown in (81a and b). The RSI and CSI readings of the indirect evidential predicate *shakluh* 'it looks like' as discussed here is analogues to the inferential readings of DAs as discussed earlier (see section 4.4.3.4).

In conclusion, DAs pattern with inferential evidential predicates (evidential propers) such as *shakluh* 'it looks like' in asserting indirect evidence and inferential readings. I take this analogous behavior as further supportive evidence of the current indirect evidential analysis of DAs.

4.4.6 Evidential DAs and Mirativity

Mirativity covers unexpected, surprising, non-volitional, unintentional, and unusual information on the part of the speaker (Aikhenvald 2004:195). It has been argued that a mirative reading is often connected to non-firsthand i.e. indirect evidentiality (DeLancey 2001, Lazard 1999). In fact, indirect evidential systems often express a mirative meaning as one of their evidential overtones as reported in Aikhenvald (2004:195): "In small systems with two evidentials, the non-firsthand evidential may extend to cover new, unusual, and surprising information-that is, develop mirative overtones. In larger systems, the inferred evidential may acquire a similar range of meanings". Aikhenvald (2004) also reports cross-linguistic evidence where mirative nuances are expressed by reported evidentials, which are part of the indirect evidentiality.

Indirect evidentiality asserts that the speaker does not perceive the event, but rather s/he infers it (inferential indirect evidential) or is told about it (reported indirect evidential). Consequently, the speaker may not take any form of responsibility for this event. To be more specific, the fact that the speaker is not aware of the event might indicate that these events have

occurred beyond his/her control or that these events are unexpected to the speaker and consequently are 'surprising' to him/her. That is how the mirative interpretation of indirect evidentiality arises (Aikhenvald 2004). All of these complex mirative meanings have been referred to in the literature of evidentiality as 'unprepared mind' (Delancey 2001) or 'psychological distance' (Aksu and Slobin 1982). For example, in Turkish, if the speaker realized something that he did not expect, or something to his surprise, an indirect evidential is used as shown in sentence (82).

(82) buyu-**mus**-sun.
grow-**INDIRECT EV**-2SG
'You have grown!' (Johanson 2003:285, cited in Aikhenvald 2004)

The same fact obtains for many evidential systems cross-linguistically. In Abkhaz, Northern Khanty and Jarawara the indirect evidentials are used to encode a mirative overtone where the speaker has realized something to his surprise as evident in sentences (83a-c); examples are cited in Aikhenvald (2004: 196-197).

(83)

(a) sara je-s-ajha-be-w a-wa-j-dew-cqa abra de-q'a **zap.**
I it-me-elder ART-man-big-really here (s)he-be-**INDIRECT EV**
'It turns out (unexpectedly) that there is really a great person here who is more important than me!'

(Abkhaz/Chirikba 2003: 248-249)

(b) si xut-en wer-le-nen pa xoti ul-len
so house-3du make-PRES-3du and so pole-3du
kurte-t ul-**m**-el.
iron-PL be-**INDIRECT EV**.PAST-3SG
'So they are making the house, and the poles turned out to be iron.'

(Northern Khanty/Nikolaeva 1999:148)

(c) Okombi faha hi-fa-**hani** ama-ke.
Okombi water Oc-drink-IMM.P.**INDIRECT EV** EXT-DECL.f
'Okombi (to his surprise) drank water.'

(Jarawara/Aikhenvald 2004: 197)

I argue that the mirative interpretation also extends to DAs in JA. In the following contexts, the speaker discovers something unexpected or surprising; only indirect evidential DAs are appropriate in these contexts (84a, 85a and 86a) and not perfective or imperfective (84b, 85b and 86b).

(84)

(a) w 'ana Taali3 3ala el-masjid, Talliet 3a Haali wella ana laabis
While I going to the-mosque, look-PERF on myself surprisingly I wear-DA
el-banTaloon fii eshagluub!
the-pants inside out
'While I am going to the mosque, I looked at myself and surprisingly I found that I have worn the pants inside out!'

(b) ??/# w ana Taali3 3ala el-masjid, Talliet 3a Haali wella 'ana
While I going to the-mosque, look-PERF on myself surprisingly I
labist/balbas el-banTaloon fii eshagluub!
wear-PERF/wear-IMPERF the-pants inside out
'While I am going to the mosque, I looked at myself and surprisingly I found that I worn/wears the pants inside out!'

(85)

(a) SaHeit eS-SubeH, lageet Haali waagi3 min 3ala et-taxt!
wake-PERF the-morning, find-PERF myself fall-DA from off the-bed
'I woke up in the morning and (surprisingly) have found myself fallen off the bed!'

(b) ?/# SaHeit eS-SubeH, lageet Haali wage3t min 3ala et-taxt!
Wake up-PERF the-morning, find-PERF myself fall-PERF from off the-bed
'I woke up in the morning and (surprisingly) have found myself fallen off the bed!'

(86)

(a) 'eih! mana Haamil maSaari!
Oh! not carry-DA money
'Oh! I do not have money with me!'

(b) ?/# ‘eih! ma Hamalt/baHamel maSaari!
Oh! not carry-PERF/IMPER-carry money
‘Oh! I do not have money with me!’

The mirative interpretation can also be strengthened by using some particles in the context; I refer to these particles as ‘mirative particles’. JA employs the particle *‘atharii* ‘surprisingly’ to serve this purpose. This particle triggers a ‘deferred realization’ reading: the information of a certain situation is obtained and realized by speaker post-factum i.e. after-the-fact realization (Floyd 1996 and Aikhenvald 2004). In other words, the speaker’s surprise comes about as a result of this deferred realization of information. Indirect evidential DAs are appropriate in these contexts (87a and 88a) unlike perfective or imperfective (87b and 88b).

(87)
(a) fii el-maktabeh, ‘athariitni naayim 3ala el-laabtob!
in the-library, surprisingly sleep-DA on the-laptop
‘Surprisingly, I slept on the laptop in the library!’

(b) ?/# fii el-maktabeh, ‘athariitni nemit 3ala el-laabtob!
in the-library, surprisingly sleep-PERF on the-laptop
‘Surprisingly, I slept on the laptop in the library!’

(88)
(a) ruHet 3ala kanzas siti, ‘athariitni naasi a3abi banzeen!
go-PERF to Kansas city, surprisingly forget-DA fill-INF gasoline
‘I went to Kansas city and discovered (to my surprise) that I forgot to fill up my car with gas!’

(b) ?/# ruHet 3ala kanzas siti, ‘athariitni naseet a3abi banzeen!
go-PERF to Kansas city, surprisingly forget-PERF fill-INF gasoline
‘I went to Kansas city and discovered (to my surprise) that I forgot to fill up my car with gas!’

The indirect evidence of anterior and posterior relations of DAs explains why DAs are appropriate with mirative interpretations in the above contexts. DAs induce indirect evidence where the event is in an anterior or posterior relation with respect to EAT i.e. the speaker only

perceives the evidence at EAT and not the event. The lack of event awareness on the part of the speaker at EAT triggers a deferred realization reading where the speaker realizes the event (from its results at EAT) long after it occurred. In sentence (87), for instance, the speaker is only aware of the result state at EAT (i.e. him being on the laptop) and he has no personal awareness of the event of falling asleep until after it occurred: given his state at EAT (him on the laptop), he realized he fell asleep.

In sum, the mirative reading is one of the notable semantic extensions of indirect evidentiality cross-linguistically (Aikhenvald 2004). Contra to perfective and imperfective, only DAs are felicitous in the contexts where a mirative interpretation is expressed. The licensing of DAs in such contexts adds further support to the current indirect evidential analysis of DAs.

4.4.7 Evidential DAs and First Person Effect

One of the notable semantic features of indirect evidentiality is its sensitivity to first person 'I' (cf. Curnow 2002, 2003, Aikhenvald 2004 among many others). If a language has some restriction on the use of evidentials, these are likely to involve first person (Aikhenvald 2004:219). Indirect evidentials' sensitivity to first person has two forms. First, some indirect evidentials are restricted in the contexts of first person. It has been argued that indirect evidentials, more specifically inferential evidentials, is more appropriately used in the contexts of third person rather than first person (Schlichter 1986). Aikhenvald (2004) reports many languages where the evidentials are never used in the context of first person such as Hunzib, Kmoi languages, Tuyuca and many others.[5]

[5] Aikhenvald (2004: Ch.7) provides comprehensive review and discussion of languages with evidential systems that are restricted in the context of first person.

Second, when indirect evidentials are used with first person, they develop a mirative overtone i.e. non-volitional, unintentional, lack of awareness, surprised meanings, known as 'first person effect'. In other words, if the speaker is talking about himself, then the use of indirect evidential, more specifically inferential evidential, seems to be counterintuitive: if the speaker performed an action himself, then it follows logically that the speaker does not need to *infer* that this action took place since the speaker himself performed the action at issue. Therefore, when an indirect evidential is used with first person, the canonical inferential reading of the indirect evidential is interpreted with a mirative overtone i.e. unintentional, uncontrollable, non-volitional, surprise. All these meanings comprise what is known as 'first person effect'.[6]

For example, in Jarawara, when the indirect evidential is used in the contexts of first person, the indirect evidential implies a lack of control on the part of the speaker as shown in example (89) where the use of the indirect evidential with first person implies that the speaker had woken up drunk with no memory of what happened last night, (Dixon 2003:170 reported in Aikhenvald 2004).

(89) o-hano-**hani** o-ke.
1SG.S-be**.drunk-INDIRECT EV**.f 1SG-DECL.f
'I got drunk (and don't recall it).'

Similar examples are also found in many languages such as Turkish (Aksu-Koc and Slobin 1986:160 reported in Aikhenvald 2004). In (90), the use of indirect evidential *mush* with first person does not indicate an inferential reading; rather it indicates an inadvertent action and therefore causes surprise on the part of the speaker. The speaker in this sentence suddenly wakes up over a pile of books, and then to his surprise he utters (90).

[6] See Curnow (2003 and 2004) for further discussion and cross-linguistic examples.

(90) uyu-**mus**-um.
sleep-**INDIRECT EV**-1SG
'I must have fallen asleep!'

The indirect evidential sensitivity to first person is also clear in JA as it is evident by the sensitivity of the indirect evidential predicate *shakluh* 'apparently/evidently/it looks like' to first person. I have argued in section 4.4.5 that the indirect evidential predicate *shakluh* encodes an inferential reading. However, I argue that this inferential reading is dependent on the type of person used in the utterance. To be more specific, if indirect evidential predicate *shakluh* is used with third person, they denote a canonical inferential reading as shown in (91a); however, when it is used with first person, it indicates a 'first person effect' where the inferential reading is interpreted with a mirative overtone i.e. non-volitional, surprise and unprepared mind as shown in (91b).

(91)

(a) shakl-uh sami naam. (Inferential Reading)
it looks like-3SG Sami sleep-PERF
'It looks like Sami is asleep.'
Intended:'[I infer that] Sami is asleep.'

(b) shakil-ni nemet!
it looks like-1SG sleep-PERF
'Apparently I have slept!'
Intended: (Surprisingly), I must have slept! (Mirative Reading)

In (91a), the indirect evidential predicate *shakluh* 'it looks like' is used with third person. In this context, the speaker is making inference about Sami being asleep or not. This is evident by the acceptability of (91a) in a context where the speaker is looking at Sami lying down on the sofa and closing his eyes and then he uses this state as a base for his inference in (91a). However, in (91b), the same indirect evidential predicate is used but with first person. In this context, the

speaker is not trying to make inference about himself, rather the sentence indicates a 'deferred realization' meaning where the speaker realized after he woke up that he was sleeping i.e. the use of the indirect evidential predicate *shakilni* here indicates an unintentional or accidental action on the part of the speaker which triggers speaker's surprise. Therefore sentence (91b) is appropriate in the context where the speaker woke up suddenly upon sleeping over his books in the library and then to his surprise he realized he was sleeping.

I argue that DAs show sensitivity to first person as discussed above. First, in the context of first person i.e. when the speaker himself has performed an action, JA speakers usually do not use DAs; rather the perfective form of the verb is used. On the other hand, in the context of third person, DAs are allowed. For example, JA speakers intuit that (92a) with DA is unacceptable if the speaker is *talking about himself* i.e. first person is at issue as in (92b); the use of perfective (93) is more acceptable in this regard. However, they all agree that sentence (92a) with a DA is acceptable when the speaker is *not talking about himself*; rather he is talking about someone else i.e. third person is at issue as in (92c).

(92)

(a) lama naazil ed-daraj, meda3thir.
when go down-DA the-stairs, stumble-DA
'When going down the stairs, (he/I) stumbled.'

(b) ?/# lama naazil ed-daraj, meda3thir. (First Person)
when go down-DA. 1SG the-stairs, stumble-DA.1SG
'When I was going down the stairs, I stumbled.'

(c) lama naazil ed-daraj, meda3thir. (Third Person)
when go down-DA.3SG the-stairs, stumble-DA.3SG
'When he was going down the stairs, he stumbled.'

(93) lama naazalt ed-daraj, 'eda3thart.
when go down-PERF.1SG the-stairs, stumble-PERF.1SG
'When I was going down the stairs, I stumbled.'

The only way for sentence (92b) with the DA to be acceptable under first person interpretation is when used in reportive and mirative contexts. In a reportive context, the speaker is reporting what *someone else* said he has done (94a) and not when he (speaker) is describing what *he* himself has done (92b). In other words, the speaker is reporting the same statement (92b) through hearsay as in (94a). Another repair reading of sentence (92b) can also arise under a mirative interpretation (94b). In (94b), the first person pronoun is used and the sentence is acceptable *only* when the speaker is mocking his interlocutor by showing his disagreement. It also shows irony on the part of the speaker in the sense that he is surprised to hear such a statement about himself.

(94)

(a) bugulu enni lama naazil ed-daraj, meda3thir.
say-they that-I when go down-DA. 1SG the-stairs, stumble-DA.1SG
'The say that when I was going down the stairs, I stumbled.'

(b) lama naazil ed-daraj, meda3thir!
when go down-DA. 1SG the-stairs, stumble-DA.1SG
'When I was going down the stairs, I stumbled!'

It is worth mentioning that the reason why (92b) is acceptable under a hearsay interpretation as in (94a) is that in a hearsay report the speaker is only reporting what someone else said about him. In other words, in (94a) the evidential implication of DA is under the scope of a third party (they) and not under the scope of the speaker as in (92b); hence the acceptability of DA with first person (94a).

Second, similar to indirect evidential predicate *shakluh*, the inferential reading of DAs is neutralized in the contexts of first person, as contrasted with third person, and it is only acceptable under mirative reading. This sensitivity is evident in the behavior of DAs under actuality entailment test. In (39), repeated here as (95a), the DA *Saaf* 'park$_{(DA)}$' is used in the

context of third person where the speaker is making inference about ‘Majdi’; the inference made in this sentence is valid since the sentence is acceptable under actuality entailment test. However, when the same DA is used with first person, the inference is blocked as shown by the unacceptability of (95b) under the actuality entailment effect.

(95)

(a) **majdi** Saaf es-sayarah, bs mumkin ‘aHmad (elli) Safha.
Majdi park-DA the-car, but might Ahmad (who) PERF-park-it
‘Majdi has parked the car, but maybe Ahmad did.’
Intended: ‘[I infer that] it is Majdi who parked the car.’

(b) **‘ana** Saaf es-sayarah, # bs mumkin ‘aHmad (elli) Safha.
I park-DA the-car, # but might Ahmad (who) PERF-park-it
#‘I have parked the car, but maybe Ahmad did.’
#Intended: ‘[I infer that] it is me who parked the car.’

The fact that the inferential reading with DA is acceptable in the context of third person (95a) while it is not acceptable in the context of first person (95b) clearly suggests that the inferential reading of DAs, similar to indirect evidentials, is sensitive to first person. Furthermore and similar to the indirect evidential predicate *shakluh* ‘it looks like’ (91b), the only way for sentence (95b) to be acceptable is under a mirative interpretation: the sentence is acceptable only when a ‘deferred realization’ is induced where the speaker was not conscious or aware when he parked the car (i.e. he was drunk or drugged when he parked the car etc…) and then he realized that he parked it not until later (he woke up the next morning and saw that the car is parked) as shown in (96).

(96) **‘ana** Saaf es-sayarah, bs mumkin ‘aHmad (elli) Safha.
I park-DA the-car, but might Ahmad (who) PERF-park-it
I have parked the car, but maybe Ahmad did.’
Intended: ‘[Surprisingly, I found that] I have parked the car (the car is parked), but maybe Ahmad parked it.’

It is worth mentioning here that while the inferential reading of DAs is sensitive to the choice of person used (with third person, inference is allowed; while it is not with first person), the inferential reading of perfective is always blocked no matter whether third person or first person is used as shown by the unacceptability of (97a and b) respectively where the perfective form of the verb *Saf* 'parked' is used under the actuality entailment test.

(97)

(a) **majdi** Saf es-sayarah, # bs mumkin 'aHmad (elli) Safha.
Majdi park-PERF.3SG the-car, # but might Ahmad (who) PERF-park-it
#'Majdi has parked the car, but maybe Ahmad did.'
#Intended: '[I infer that] it is Majdi who parked the car.'

(b) **'ana** Safiet es-sayarah, # bs mumkin 'aHmad (elli) Safha.
I park-PERF.1SG the-car, # but might Ahmad (who) PERF-park-it
#'I have parked the car, but maybe Ahmad did.'
#Intended: '[I infer that] it is me who parked the car.'

I further argue that DAs show another form of sensitivity with first person in that the post-state and futurate readings of DAs are sometimes dependent on the type of person used (Mitchell and El-Hassan 1994). In this regard, indirect evidential DAs differ from other indirect evidential systems. In these systems, the only restriction in the use of evidentials is in first person contexts and first person effects as shown earlier. In (98a and b) the use of DA with the first person triggers a futurate reading where the speaker has a negative intention to live in the apartment and eat with them respectively. However, when sentence (98a) is used with a third person, the futurate reading shifts into a post-state reading as exemplified in (99). Examples are adapted from Mitchell and El-Hassan (1994: 86).

(98)

(a) 'ana mish maaxidh 'ishaga, el-Hai mish 3aajibni.
I not take-DA the-flat, the-neighborhood not I-like-it
'I am not going to take the flat, I do not like the neighborhood.'

(b) ‘ana mish maakil ma3kuuh.
I not eat-DA with-you
‘I am not going to eat with you.’

(99) huwwa mish maaxidh ‘ishaga, el-Hai mish 3aajbuh.
He not take-DA the-flat, the-neighborhood not he-like-it
‘He has not taken the flat, he did not like the neighborhood.’

In conclusion, DAs are sensitive to first person effects similar to indirect evidentials such as the indirect evidential predicate *shakluh* ‘it looks like’. The sensitivity of DAs is manifested in the sense that DAs are sometimes restricted in the contexts of first person; also the use of first person blocks its inferential reading unless a mirative overtone is intended. The choice of person could also affect the type of temporal/aspectual reading of DAs as well. I take DAs’ sensitivity to the first person as further evidence in favor of my indirect evidential proposal.

4.4.8 DAs as Reported Indirect Evidentials

The reported evidential is one of the major types of indirect evidentiality (see Willett 1988’s classification in section 4.3.2). Reported evidentials cover the type of information acquired through hearsay or someone else’s report. That is, the speaker acquires the knowledge through indirect evidence i.e. hearsay or report and not through direct evidence. This type of reported evidence is usually accompanied with the lack of speaker’s commitment to the truth of the reported information i.e. epistemic modal reading. In other words, the fact that the speaker acquires the information through second-hand or third-hand sources triggers a low degree of reliability and certainty of the reported statements on the part of the speaker; and therefore the speaker does not vouch for what s/he is reporting. In Estonian, for instance, the speaker uses a reported evidential to quote someone else’s report and implies that the speaker distances himself

from responsibility for the statement's veracity as shown in (100), cited in Aikhenvald (2004:180).

(100) Ta olevat arstiteaduskonna lopeta-nud.
He be-PRES.REPORTED doctor.faculty finish-PAST-PART
'He is said to have completed his studies of medicine (but I would not vouch for it)'

In the contexts where the speaker acquires his knowledge through hearsay or someone else's report, JA usually employs DAs to serve this purpose. In sentences (101a and b) the case is of reporting/narration. In these contexts, DAs (101a) are used to report incidents that the speaker did not witness, rather was told about by someone else: the speaker is not the immediate source of information) rather he/she is just reporting someone else's. This is contrasted with the perfective form of the verb (101b) where the speaker states incidents that s/he witnessed i.e. the speaker him/herself is the source of information.

(101)

(a) sami jaai min es-safar embareH w jaayib hadaya lal kul ma3uh.
Sami come-DA from travel yesterday and bring-DA gift-PL to all with-him
'[It is said/I was told] that Sami came back and brought gifts to everyone with him.'

(b) sami eja min es-safar embareH w jaab hadaya lal kul ma3uh.
Sami come-PERF from travel yesterday and bring-PERF gift-PL to all with-him
'[I saw] Sami came back and brought gifts to everyone with him .'

This observation is supported by the following narrative context in (102). I have obtained this context while I was talking to a JA speaker over the phone who was reporting an incident that happened with her brother in the last few days. At the time of the incident, the speaker was studying abroad and she was told about the incident through hearsay which is in this case her mother. DAs are used in most parts of the context which I only cite a part of here.

(102) jaai xalid faayit 3aleehum w mkaserhum takseer; ba3dein jaretna
come-DA Khalid enter-DA to-them and hit-DA hitting , then our-neighbor-FEM
sam3eh eS-soot w faayteh tHajez benaat-hum……
hear-DA the-noise and enter-DA separate between-them…..

'[I was told] that Khalid entered their room and hit them hard; then our neighbor heard the noise and she tried to stop the fight.'

JA speakers use the perfective sometimes to encode hearsay reports similar to DAs. When this happens, JA makes explicit reference to the speaker's attitude towards the information s/he obtains through hearsay. In (103a and b), the DAs and perfective are used respectively; in both contexts the speaker acquires the knowledge through a hearsay. However, there is an important contrast between the two forms: with DAs (103a), the speaker does not vouch for the information he was told about; the speaker distances himself from being responsible of the truth of the reported assertion. This modal reading is expected in the case of DAs since DAs induce indirect evidence where the speaker does not witness the event at issue. In (103b), on the other hand, the speaker vouches for the truth of his assertion as he might have hard evidence based on which he is certain that the event at issue took place.

(103)

(a) sami kaasir rejluh w raayiH 3a daktoor embareH.
Sami break-DA leg and go-DA to the-doctor yesterday
'[It is said/I was told] that Sami broke his leg and went to the doctor yesterday (I do not vouch for it).'

(b) sami kasar rejluh w raaH 3a daktoor embareH.
Sami break-PERF leg and go-PERF to the-doctor yesterday
'[It is said/I was told] that Sami broke his leg and went to the doctor yesterday (I vouch for it).'

A similar observation has been made by Mitchell and El-Hassan (1994). They have cited reportive examples where they asked 48 JA speakers to indicate which of the two sentences below (104a and b) suggests that the speaker was reporting the event and he was an *eye-witness*

of the event at issue 'hitting'; in (104a) a DA is used, while in (104b) perfective is used. According to their study, 46 JA speakers chose sentence (104b) with the perfective and only 2 chose (104a) with the DA. Examples are adapted from Mitchell and El-Hassan (1994:18):

(104)

(a) samiir Daarib muniir.
Samiir hit-DA Muniir
'Samiir has hit Muniir.'

(b) samiir Darab muniir.
Samiir hit-PERF Muniir
'Samiir hit Muniir.'

Based on this finding, I argue that the DA in (104a) indicates a *hearsay* report based on the fact that DA in (104a) is not accepted when speaker is reporting event which he was an eye-witness of. This interpretation is captured in (105a) where the intended reading of DA is [I was told]. However, the perfective (104b) indicates immediate visual evidence [I saw] rather than hearsay as shown in (105b).

(105)

(a) samiir Daarib muniir.
Samiir hit-DA Muniir
'Samiir has hit Muniir.'
Intended: [I was told] that Samiir hit Muniir.

(b) samiir Darab muniir.
Samiir hit-PERF Muniir
'Samiir hit Muniir.'
Intended: [I saw] Samiir hit Muniir.

In sum, the aforementioned discussion suggests that DAs express an indirect evidential interpretation in the sense that they are used to encode hearsay or reported evidential reading. This contrasts with the perfective which is used to express direct evidence rather than hearsay evidence. Also contra to DAs, when the perfective is used to express hearsay evidence, it denotes

a high degree of certainty towards the truth of the reported statements. This contrast is expected since the former indicates indirect evidence, while the latter does not.

4.4.9 The Futurate Interpretation of DAs

DAs express a futurate reading as one of its core meanings as in (106).

(106) sami msaafir bukrah.
Sami travel-DA tomorrow
'Sami is travelling tomorrow.'

In (106), the speaker uses DA to express a futurate interpretation in which he infers that Sami will travel tomorrow. I argue that the futurate reading of DAs can be taken as further evidence for the indirect evidential semantics of DAs.

The first argument pertains to the fact that DAs express a futurate rather than a future reading. A futurate reading is defined as "a sentence with no obvious means of future reference, that nonetheless conveys that a future-oriented eventuality is planned, scheduled, or otherwise determined." (Copley 2009:15)[7]. In sentences (107 and 108), the speaker is emphasizing events that are planned or scheduled.

(107) 'ana raaji3 3ala 3amaan bukrah.
I go back-DA to Amman tomorrow
'Evidently, I am going back to Amman tomorrow.'

(108) 'apel mnazleh aay foon jadeed esh-shahr eljaai.
Apple provide-DA iPhone new the-month next
'Evidently, Apple (the company) is releasing a new iPhone next month.'

[7] See Copley (2009) for further discussion on the semantics of futurates.

Also, DAs express futurate situations where the speaker believes that the occurrence of the future event is certain i.e. speaker has high degree of confidence that the event will occur (Mughazy 2004) as in (109) and (110).

(109) ed-denya shattayyih el-leileh.
the-sky rain-DA tonight
'Evidently, it is raining tonight.' (JA)

(110) en-nawwa gayya fe-m3ad-ha.
the-storm come-DA in-time-its
'The storm is coming on time.' (Egyptian Arabic/Mughazy 2004:209)

The certainty of speaker is supported by the fact that sometimes DAs are reduplicated to emphasize the meaning that the event will certainly take place according to speaker's belief (Mughazy 2004) as exemplified in (111a and b)[8].

(111)
(a) ed-denya shattayyih shattayyih.
the-sky rain-DA rain-DA
'Evidently, it is surely going to rain.'

(b) 'ana baa3eth el-maSaari baa3eth-hin bukrah.
I send-DA the-money send-DA-them tomorrow
'Evidently, I am surely sending the money tomorrow.'

The futurate (i.e. planned or scheduled) and future situations with high degree of certainty can be interpreted evidentially. The plan or schedule functions as the evidence available to speaker at EAT. The speaker then uses this evidence as grounding for his inference. Therefore, in (107) above, the speaker uses the plan he has at EAT as a basis for his inference about the future event 'going back to Amman'. The same fact also obtains for the situations where the

[8] Interestingly, unlike Bulgarian and Turkish, reduplication of DAs in JA expresses a high degree of certainty on the part of the speaker that the event will take place. In these languages reduplicated evidential structures express that the speaker is doubtful about the truth of the proposition. I refer the reader to Ghomeshi (2004), Inkelas and Zoll (2005) and Şener (2011) for further understanding of the semantics of reduplication.

speaker is confident about as in (109) and (111) above. The evidential interpretation of (111a) for example explains why the speaker is certain that the event will take place: the speaker is confident that the event will take place because he grounds his inference about the event of 'rain' based on the available evidence at EAT such as the sky is grey, it is cold etc… . All these meanings correspond to the evidential interpretation of DAs discussed earlier i.e. inference based on available evidence.

Another argument for the evidential reading of the futurate interpretation comes from the indirect evidence specification which is an essential requirement for the indirect evidential semantics of DAs. I have already argued in section 4.4.2.2 that the indirect evidence requirement of DAs is specified temporally. One of the temporal specifications that establishes the indirect evidence of DAs is the futurate reading of DAs i.e. posterior temporal relation (see section 4.4.2.2 for detailed discussion).

Furthermore, the indirect evidence can be manifested in the contexts of futurate DAs rather than the canonical future form which comprises the particle *raH* 'will' followed by the non-finite form of the verb. In my analysis of DAs, the difference between the canonical form of future and futurate reading of DAs is not accounted for based on animacy hierarchy as discussed in Boneh (2005); rather it is captured by direct and indirect evidential analysis (See chapter 2 for further details on Boneh's analysis). One argument I provide in favor of this claim is that unlike canonical future form, futurate DAs are not felicitous in the contexts where direct evidence is induced as exemplified in sentence (112), taken from Boneh (2005:8).

(112) Hood l-ward raH yuu'a3 la taHet.
pot the-flower will inf. 3sg.m-fall down to down
'The flower pot is about to fall down.'

Contra to Boneh (2005), I argue that the acceptability of using the future form *raH yuu'a3* 'will fall' instead of the DA is accounted for by the indirect evidential analysis rather than animacy restrictions. In (112), the speaker witnesses that the flower pot is falling or going to fall (Boneh 2005: 8). In other words, the context supplies direct evidence which is not compatible with the semantics of DAs where only indirect type of evidence is asserted. Hence, under this context only the canonical future form is used as shown by the acceptability of (112) and the unacceptability of DA as evident in (113) below.

Context: The speaker sees the flower pot shaking and is about to fall; then he says:

(113) # Hood l-ward waa'i3 la taHet.
pot the-flower fall down-DA to down
'The flower pot is about to fall down.'

In addition, futurate DAs encode an inferential or modal interpretation. This is evident by their behavior under the 'known falsity' diagnostic (Faller 2002). Epistemic modals are usually used to express a proposition that is *not* known to the speaker; in fact that is the major function of modals: they express propositions that are *possibly* or *necessarily* true as in (114 and 115) respectively.

(114) It may be raining.
◇P: It is possible that it is raining.

(115) It must be raining.
□P: It is necessarily possible that it is raining.

The propositions in (114) and (115) are true iff the speaker *does not know* whether the proposition (i.e. it is raining) is true or not. In other words, epistemic modals cannot be felicitously used if the speaker already knows the falsity or truth of the proposition, as evident by

the unacceptability of (116) where the speaker already knows that the proposition (i.e. raining) is false (Faller 2002).

(116) # It may/must be raining, but it is not (raining).

The same fact extends to futurate DAs. Similar to epistemic modals such as *may* and *must* in (114 and 115) futurate DAs cannot be felicitously used if the speaker already knows the falsity or truth of the proposition as evident by the unacceptability of (117a) where the speaker already knows that the proposition (coming) is false. Therefore, futurate DAs express an inferential meaning similar to modals as exemplified in (117b).

(117)

(a) majdi jaai bukrah, # bs huwwa muu jaai.
Majdi come-DA tomorrow, # but he not come-DA
'Majdi is coming tomorrow, but he is not coming.'

(b) majdi jaai bukrah.
Majdi come-DA tomorrow
'[I infer that] Majdi is coming tomorrow.'

In sum, it suffices to say that the futurate reading of DAs is another extension of the evidential interpretation of DAs. I will pursue this discussion with further details when I account for the modal and inferential readings of the futurate DAs in chapter 5 where I analyze the modal component of DAs using Kratzer's possible world semantics (1981, 1991).

4.5 Passive Participles

In this section, I extend my indirect evidential proposal to account for the semantics of passive participles (PPs) in JA. I will show that PPs are indirect evidentials since they pattern with DAs in expressing indirect evidential interpretations. Based on this fact, I argue that

participle constructions ‘active and passive participles’ are the hallmark of evidentiality in JA. In the remainder of this section, I briefly apply the same arguments I used to account for the indirect evidential semantics of DAs to PPs.

4.5.1 Speaker-Dependency: Habitual Interpretation

Similar to DAs, I argue that PPs encode an evidential i.e. speaker-oriented reading as evident by their behavior under habitual interpretation. In (118), the PP *mashghuul* ‘busy’ is used with the habitual adverb *dayman* ‘always’; and in (119), the same habitual adverb is used with passive imperfective form of the verb *binshaghel* ‘gets/becomes busy’.

(118) bs a’Hki ma3 majdi, talafuunuh dayman mashghuul, bs mush ma3natuh ennu
when talk to Majdi telephone-his always busy-PP, but not mean that
talafuunuh dayma benshaghel.
telephone-his always get-busy-IMPERF-PASSIVE
‘When I call Majdi, his phone is always busy, but this does not mean that his phone always gets busy.’

(119) bs a’Hki ma3 majdi, talafuunuh dayman binshaghel, # bs mush
when talk to Majdi telephone-his always busy-IMPERF-PASSIVE,# but not
ma3naatuh ennuh talafuunuh dayma benshaghel.
mean that telephone-his always busy-IMPERF-PASSIVE
‘When I call Majdi, his phone always gets busy, but this does not mean that his phone always gets busy.’

Sentences (118 and 119) are continued with a contradictory statement negating the habitual reading in the original sentence i.e. it is *not* the habit of Majdi’s phone to be busy. Sentence (119) with the passive imperfective yields unacceptability under a contradiction suggesting that the habitual reading asserted by the imperfective is true in the real world i.e. imperfective asserts that ‘it is the habit of Majdi’s phone to be busy’ therefore we cannot assert the otherwise. However, sentence (118) with the PP is totally acceptable under this test. The fact

that the PP is acceptable clearly suggests that the habitual reading (118) is not necessarily true in the real world. Therefore I argue that (118), similar to DAs, is true in a world different from the real world which I proposed to call the speaker's belief world (SBW*).* We can now account for the acceptability of (118) by proposing that the habitual reading of 'Majdi's phone is always busy' is perceived from the perspective of the *speaker* i.e. *speaker-oriented* reading.

The intuition of JA speakers supports the evidential i.e. speaker oriented reading proposed for sentence (118). JA speakers intuit that sentence (118) can be semantically restated as in (120 and 121):

(120) Among all/most of the times I call Majdi **I find** his phone busy.

(121) **I always find** his phone busy.

The readings in (120) and (121) explains why (118) is acceptable under the entailment test: The fact that the **speaker always finds** Majdi's phone busy does not necessarily mean that it is the habit of Majdi's phone to be busy all the time. Based on the above discussion, I propose the following semantic representation for sentence (118) and (119) as follows where an Evidential operator i.e. speaker's belief (SBW) is used to account for (118).

(122) always [GET BUSY(e) & MAJDI(m)& PHONE(e,m)]

(123) always EV [BUSY(e) & MAJDI(m)& PHONE(e,m)]

The semantic representation given in (122) corresponds to sentence (119) with the passive imperfective and it reads as: it is always the case that Majdi's phon gets busy. The one given in (123) corresponds to (118) with the PP and reads as: it is always the case that the speaker *finds* Majdi's phone busy i.e. according to speaker's belief (SBW) it is true that Majdi's phone is always busy.

4.5.2 Indirect Evidence

4.5.2.1 Event Not Perceived

I argue that PPs assert an indirect evidence requirement similar to indirect evidential DAs i.e. speaker did not perceive the event. The indirect evidence reading is essential to establish the indirect evidential reading of PPs similar to DAs as discussed earlier.

One piece of evidence comes from the fact that PPs are acceptable under a cancelation test that negates seeing the event on the part of the speaker. However, passive perfective is infelicitous in this context as shown in (124) and (125) respectively.

(124) ‘ana sheft el’aghraaD manguuleh, bs maa shefthin lama ntagalan
I saw the-stuff move-PP, but not see-them when move-them
‘I saw the stuff moved but I did not see when they were moved.’

(125) ‘ana sheft el’aghraaD ‘ntagalan,# bs maa shefthin lama ntagalan
I saw the-stuff move-PERF-PASSIVE, # but not see-them when move-them
‘I saw the stuff had been moved but I did not see when they had been moved.’

In (124) the PP *manguuleh* ‘move$_{(pp)}$’ is used. The PP survives the cancelation test that negates seeing the event on the part of the speaker. In other words, in (124) the speaker saw the state of the stuff having been moved and not the event of moving itself. This contrasts with the passive perfective in (125) where the sentence is unacceptable when seeing the event is negated; this asserts that with passive perfective the speaker saw the vent of moving itself and not only the state that comes about as a result of this event.

Another piece of evidence comes from the fact that PPs are not acceptable in the contexts where the speaker perceives the event itself. However, only the passive imperfective is acceptable when the speaker perceived the event. Consider this situation:

(126) Context: Majdi is smoking outside while Sami is working on his laptop inside. Suddenly, Majdi sees a car being parked in front of him.

Sami:
(a) shuu eSuut haDa?
what noise this?
'What is this noise outside?'

Majdi:
(a) fii seyarah btenSaf.
In car IMPERF-PASSIVE.park
'There is a car being parked.'

(b)# fii seyarah maSfuufah.
In car park-PP
'There is a car parked.'

In this context Majdi has a direct visual access to the event of parking the car. When he was asked by Sami about this event which he witnesses and is still taking place, only sentence (a) with the imperfective is acceptable and not (b) with the PP.

4.5.2.2 Temporal Specification

Similar to evidential DAs, I argue that the indirect evidence induced by PPs is a result of two temporal relations: anterior and posterior relations. The former corresponds to a post-state reading, and the latter corresponds to a futurate reading as in (127a and b) respectively.

(127)
(a) er-resaleh maktuubeh.
the-letter write-PP
'The latter has been written.' (Post-state reading)

(b) shuuf ! el-maTa3am maftuuH maftuuH bukrah, fa laa txaaf.
listen! the-resturant open-PP open-PP tomorrow, so not worry
'listen! The restaurant is surely going to be opened tomorrow, so do not worry/ Surely, I am going to open the restaurant tomorrow, so do not worry.'
(Futurate reading)

I use the same semantic representations in figure (3), repeated here as (128), to account for the post-state (anterior) and futurate (posterior) temporal relations of the indirect evidence of PPs in JA.

(128) Anterior vs Posterior Temporal Relations of PPs

E= Event and EAT= Evidence Acquisition Time/Speaker's awareness Origio, the **x** mark presents the 'speaker'

PPs: E_____[__EAT__]_____E
(Anterior) (SAO) (Posterior)
[.... **X**….]

In (128), the event is in anterior and posterior relation to EAT. The **x** mark, which represents the speaker, is included in the domain of EAT i.e. speaker is aware only of what is inside EAT. The anterior relation captures the post-state reading of PP as in (127a), while the posterior relation captures the futurate reading (127b). The anterior and posterior relations is what trigger the indirect evidence induced by PPs: The fact that the event is either in an anterior or posterior relation to the EAT (which already includes the speaker and the accessible evidence) guarantees that the *speaker does not perceive the event*; in other words, the event is outside the domain of the speaker (EAT).

To make our discussion more concrete, let us now apply our semantic representation in (128) to example (127a). Sentence (127a) denotes a post-state reading as discussed above. This reading can be semantically recaptured using (128) as shown in (129):

E=Event, EAT=Evidence Acquisition Time and PS=Post-State

(129) PP (*maktubeh* 'write$_{(pp)}$')

E_____[_____EAT_____]
(Anterior) (PS: Letter is written)
[…….....…**x**……..]

As (129) shows, the post-state reading i.e. anterior relation denoted by the PP triggers indirect evidence: the speaker represented by (**x**) mark does not perceive the event which is in an anterior relation to EAT; rather, the speaker perceives only the PS of this event which is included in the EAT. This analysis explains why PPs are felicitous in contexts where seeing the event is negated as in (130).

(130) 'ana sheft er-resaleh maktuubeh, bs maa sheftha lama enkatabat.
I saw the-letter write-PP, but not see-it when written
'I saw the letter written, but I did not see it when it was written.'

The same fact also holds for the futurate reading i.e. posterior relation. The speaker only perceives the accessible evidence available at EAT which s/he uses as its base for his inference about the posterior event i.e. futurate reading. The only difference is that with the futurate reading, the speaker does not perceive the event since the event is in a posterior rather than anterior relation to the EAT.

To recap, the aforementioned discussion provides support to the argument that similar to DAs, PPs also trigger indirect evidence: PPs are felicitous only in the contexts where the event is not perceived by the speaker; also the indirect evidence is specified temporally i.e. the event is in an anterior or posterior relation to EAT.

4.5.3 Passive Participles as an Inferential Indirect Evidential

I argue that PPs denote a speaker's attitude towards the proposition s/he expresses i.e. an inferential or epistemic modal reading. The fact that PPs exhibit an inferential reading gives further support to the argument that they are indirect evidential since inferential reading is a core feature of indirect evidentiality as shown earlier. I briefly apply the same arguments for DAs to account for the PPs' inferential reading.

4.5.3.1 Result-State vs Consequent-State Inferential Readings

PPs in JA encode result-state (RSI) and consequent-state (CSI) inferential readings similar to DAs. In the following context the speaker at the EAT perceives 'a car that is parked', let us call this accessible evidence S stands for 'state'. This S can be a RS or CS depending on whether the speaker's inference is made about the entailing or the non-entailing event: the entailing event of this S at EAT is 'parking the car' and the non-entailing event could be any event other than the entailing event such as Majdi is home (See section 4.4.3.4). If the speaker wants to use this S (car is parked) to make inference about the entailing event 'parking the car' (i.e. there is mutual entailment between the event and state) then the speaker can only target the event arguments (ERs: the doer of the action (subject), the patient or theme (object), the manner of the action (adverb) etc..) by his inference and not the entailing event itself. Consider sentence (131).

(131) es-sayarah maSfufah **3uuja.**
The-car park-PP **crooked**
'Evidently, the car is parked car crooked.'

Sentence (131) is uttered by the speaker when he perceived the S (car is parked) at the EAT. The fact that the inference in this sentence targets only the ERs: the manner in which the car is parked (adverb *3uuja* 'crooked') clearly suggests that the speaker wants to make inference about the entailing event of S that is the event of 'parking the car'; then according to lexical entry in (57a) (See section 4.4.3.4), the speaker can only target the ERs: the manner in which the car is parked (adverb *3uuja* 'crooked') in his inference and not the entailing event (parking the car).This logic is supported by the fact that only when the inference targets ERs (the manner in which the car is parked, *3uuja* 'crooked'), the sentence in (131) can be acceptable under the actuality entailment test as in (132a). The acceptability of (132a) contrasts with the passive perfective sentence (132b) where the sentence is anomalous under the actuality entailment test suggesting that the proposition holds in real world. When the speaker's inference targets the entailing event 'parking the car' the sentence becomes anomalous (132c): the mutual entailment between the S (car is parked) and the entailing event 'parking the car' blocks inference from targeting the entailing event 'parking the car; this is evident by the unacceptability of (132c) under the actuality entailment test where the entailing event of parking is targeted by the inference. The target of the inference is bold-faced in each sentence.

(132)

(a) es-sayarah maSfufah **3uuja,** bs hee mumkin enSafat
The-car park-PP **crooked** ,but it maybe park-PERF-PASSIVE
mustaqeemeh (lama enSafat).
straight (when park-PERF-PASSIVE)
'Evidently, the car is parked crooked, but it might have been parked straight.'
Intended: [I infer that] the car has been parked **crooked**.

(b) es-sayarah 'nSafat **3uuja,**# bs hee mumkin
The-car park-PERF-PASSIVE **crooked**,# but it maybe
enSafat mustaqeemeh.
park-PERF-PASSIVE straight
'The car has been parked crooked, but it might have been parked straight.'

(c) es-sayarah maSfuufah ,# bs es-sayarah mish maSfoofah (ma enSafat).
the-car park-PP, # but the-car not parked-PP (not park-PERF-PASSIVE)
'Evidently, the car is parked, but the car has not been parked.'

Furthermore, JA speakers intuit that PPs are more acceptable than the passive perfective form of the verb in the context where the speaker makes *inference* based on a consequent state i.e. CSI reading. In the following context (133), the speaker makes an inference based on the available evidence at EAT; this evidence is regarded as a CS since the speaker uses this evidence to make an inference about a non-entailing event. Consider the following context.

(133) Context: Adam and Sami go to visit Majdi. When they reach the house, they found that the door is open and all the stuff inside the house had been scattered everywhere and the place looks messy; then Adam says:

(a) 'edaar masruuga!
The-house rob-PP
'[Evidently/ I infer that] the house has been robbed.'

(b) ?? 'edaar 'ensaragat!
The-house rob-PERF-PASSIVE
'[Evidently/ I infer that] the house has been robbed.'

In the above context, the speaker makes an inference based on the available evidence: the speaker perceives the evidence (i.e. a CS) at EAT and makes an inference about a non-entailing event. The speaker infers that Majdi's house has been robbed based on the evidence that his stuff is scattered everywhere and the door was open. Note here that the fact that Majdi's stuff is scattered everywhere and the door was open is not necessarily entailed by a robbing event. To be more specific, it is possible that before Adam and Sami came to visit Majdi, he might have scattered his stuff because he was cleaning the house and he forgot the door was open when he left home. That is, there is a lack of entailment between the event (robbing), which is the target

of inference here, and the state (scattered stuff and open door) at EAT. This interpretation captures the CSI inferential reading of PPs. In sum, the aforementioned discussion suggests that PPs pattern with DAs in giving inferential readings, RSI and CSI readings.

4.5.4 Mirative Interpretation and First Person Effect

PPs show indirect evidential semantics since they encode mirative interpretations; they are also sensitive to first person as discussed below.

In the following contexts, the speaker discovers something unexpected or surprising (i.e. mirative reading); only PPs are appropriate in these contexts (134a and135a) and not passive perfective (134b and 135b).

(134)

(a) Talliet 3a Haali wella zraar el-gameeS mafkookah.
look-PERF on myself surprisingly buttons the-shirt unbutton-PP
'I looked at myself and surprisingly I found that my shirt is unbuttoned!'

(b) #/?? Talliet 3a Haali wella zraar el-gameeS 'enfakat.
look-PERF on myself surprisingly buttons the-shirt unbutton-PERF-PASSIVE
'I looked at myself and surprisingly I found that my shirt is unbuttoned!'

(135)

(a) SaHeit eS-SubeH, lageet el-ghaTa marmi ba3eed 3ann-i!
wake-PERF the-morning, find-PERF the-blanket throw-PP far from-me
'I woke up in the morning and (surprisingly) had found that the blanket had been thrown away from me!'

(b) #/?? SaHeit eS-SubeH, lageet el-ghaTa 'ertama ba3eed 3an-ni !
wake-PERF the-morning, find-PERF the-blanket throw-PERF-PASSIVE far from-me
'I woke up in the morning and (surprisingly) had found that the blanket had been thrown away from me!'

The mirative interpretation of PPs can also be found in the contexts where 'mirative particles' are used. JA employs the particle *'atharii* 'surprisingly' to serve this purpose. This particle triggers a 'deferred realization' reading: the information of a certain situation is obtained and realized by speaker post-factum i.e. after the event had occurred as discussed earlier. PPs are appropriate in these contexts (136a) unlike passive perfective (136b).

(136)

(a) Taleet 3ala es-shubaak 'athareetuh maksuur!
Look-PERF to the-window surprisingly-it break-PP
'I looked at the window and surprisingly found that it was broken!'

(b)#/? Taleet 3ala es-shubaak 'athareetuh 'enkasarr!
Look-PERF to the-window surprisingly-it break-PERF-PASSIVE
'I looked at the window and surprisingly found that it was broken!'

Similar to indirect evidentials, PPs are also sensitive to the first person. In first person contexts i.e. when the speaker himself has experienced the action, JA speakers usually do not use PPs; rather the passive perfective form of the verb is used. On the other hand, in third person contexts, PPs are allowed. For example, JA speakers intuit that (137a) with a PP is unacceptable if the speaker is talking about himself i.e. the first person is at issue as in (137b); the use of passive perfective (138) is more acceptable in this regard. However, JA speakers agree that sentence (137a) with a PP is acceptable when the speaker is not talking about himself; rather he is talking about someone else i.e. a third person is at issue as in (137c).

(137)

(a) lama maDroob w maHTooT fee es-sijin, Haka/Hakeit ma3 el-muHaami.
When hit-PP and put-PP in jail call-PERF.1SG with the-lawyer
'When(I/he) was hit and jailed, I/he called the lawyer.'

(b) #?? lama maDroob w maHTooT fee es-sijin, Hakeit ma3 el-muHaami.
When hit-PP.1SG and put-PP.1SG in jail, call-PERF.1SG with the-lawyer
'When I was hit and jailed, I called the lawyer.'

(c) lama maDroob w maHTooT fee es-sijin, Haka ma3 el-muHaami.
When hit-PP.3SG and put-PP.3SG in jail, call-PERF.3SG with the-lawyer
'When he was hit and jailed, he called the lawyer.'

(138) lama nDarabit w nHaTeit fee es-sijin, Hakeit ma3 el-muHaami.
When hit-PP.1SG and put-PP.1SG in jail, call-PERF.1SG with the-lawyer
'When I was hit and jailed, I called the lawyer.'

To recap, PPs express mirative readings and are sensitive to the first person. This gives further support to their indirect evidential interpretation similar to DAs.

4.6 Evidentiality in Semitology

As I discussed in chapter 2, evidentiality is a new topic in Semitology. The reason behind this fact is a long held belief that a separate category of evidentiality does not exist in Semitic languages. The current work is the first attempt to account for evidentiality not only in Arabic but in the entire family of Semitic languages.

For example, Isaksson (2000) claims that Semitic languages, especially Hebrew and Arabic, do not exhibit a grammatical category of evidentiality. Contra to Isaksson (2000), I have shown that participle morphology, exemplified by active and passive participles, is the hallmark of the evidential category in JA, a Semitic language. The fact that there exists a separate morphological paradigm for participles that distinguishes it from other predicates such perfective and imperfective predicates and that this morphological structure exhibits evidential semantics in both participle constructions (DAs and PPs) supports my claim regarding the existence of the evidential category in at least one Semitic language, JA (See chapter 2 section for further details).

4.7 Evidentiality and Temporal Relations

In this section, I explore one of the least studied areas of the semantics of evidentiality that is the interaction of evidentiality and tense. While the study of temporality per se is outside the scope of this dissertation, the motivation for a temporal analysis of the evidential DAs stems from the fact that the type of evidence induced by DAs is specified temporally. As discussed earlier, the indirect evidence of DAs is specified by two types of temporal relations: anterior and posterior temporal relations (see section 4.4.2.2 for further details). In this section, I briefly discuss the application of the evidential account to temporal relations in JA. I also use the implications of the interaction of the temporal relation and evidentiality to address the temporal problem of DAs discussed in chapter 2.

4.7.1 Evidential Relative Tense

In the spirit of Lee (2011) and Smirnova (2012), I argue that evidential DAs encode a relative tense in their semantics. The motivation for this claim comes from the fact that the temporal interpretation of evidential DAs exhibits a pattern that is similar to embedded constructions. Relative tense (also known as anaphoric tense Partee 1984) covers the notion that the reference time is located with respect to some other relevant time contextually given and not with respect to the time of utterance (henceforth TU) as in absolute tenses (Comrie 1985, Partee 1984, Klein 1994 and others). In English, for instance, non-finite verbs bear a relative tense as exemplified in the use of participles in this sentence (Comrie 1985:57).

(139) Passengers awaiting flight 26 proceeded to departure gate 5.

In (139), the time interval of the participle construction (awaiting) includes the time reference of the finite verb (proceeded). The tense of the matrix clause verb is past i.e. as a finite verb it receives an absolute tense marking. The time reference of the non-finite participle therefore receives a relative tense i.e. it receives a past tense interpretation depending on the time reference of the main verb 'proceeded'. Similarly, in JA, the tense of the embedded constructions such as the complements of attitude or reporting verbs are relative in nature in that their temporal interpretation is dependent on the tense of the main verb and not on the TU (Ogihara 1996 and Abusch 1997) as shown in (140).

(140) [majdi gaal ennuh][sami raH yjii embareH/bukrah].
[Majdi said that] [Sami will arrive yesterday/tomorrow]
'[Majdi said that] [Sami would arrive yesterday/tomorrow.]'

The embedded future form *raH yjii* 'would come' in (140) is interpreted with respect to the time of the reporting verb *gaal* 'said' which is located prior to the TU (i.e. past tense). Hence, the reference time of the embedded future form can follow or precede the TU: if it follows the TU, then it is deictically specified; however, if it precedes the TU, then it is relatively specified i.e. relative to the past tense of the main verb *gaal* 'said'. That is to say, if we assume that the embedded future form is absolute (interpreted with respect to the TU), then we would incorrectly predict that the reference time of the future form should only be located in the future (posterior to the TU) and that the relative tense reading where the reference time of the future form is located posterior to the reference time of the main verb is false. Yet, this is not the case in (140), because both readings are acceptable, the absolute and the relative posterior readings.

I propose that evidential DAs exhibit the same pattern of temporal reference as the embedded verb in (140) above. My contention is that evidential DAs locate the reference time of an event (henceforth T) not with respect to the TU but with respect to the time at which the speaker acquires the relevant evidence of the evidential assertion i.e. the evidence acquisition time (EAT, Lee 2011). The reference time of the described eventuality (T) is located anterior or posterior to the EAT (as discussed in section 4.4.2.2). The temporal location of the EAT is then specified contextually or by the use of temporal adverbials. The relative tense analysis is motivated by data such as sentence (58), repeated here as (141).

(141) **majdi** Saaf **es-sayarah**.
Majdi park-DA **the-car**
'Evidently, Majdi has parked the car.'
Intended: [I infer that] Majdi is the one who parked the car.
Intended: [I infer that] what Majdi has parked is the car.

In (141), the speaker acquires the evidence (in this case car parked) at the EAT. Let us assume that the EAT is temporally specified at the TU (now). The speaker uses the evidence at the EAT, which coincides with the TU, to make an *inference* about an *anterior event* as evident by the post-state interpretation of the DAs in (141) as shown in (142) below.

T= reference time of the described eventuality, EAT=Evidence Acquisition Time and PS=Post-State (evidence), **x** = Speaker

(142) DA (*Saaf* 'park$_{(DA)}$')

T_____[_____EAT(now)_____]
(Anterior) (PS: car is parked (now))
[…….....……**x**……..……..]

As (142) demonstrates, the speaker uses the evidence (the parked car) at the EAT, which coincides with TU (now), to make inferences about the subject (Majdi) and the theme of the event 'parking the car' which is located anterior to the EAT. It is crucial to our analysis here that the anterior temporal relation locates T with respect to the EAT and not to the TU. The evidential relative tense of sentence (141) is exemplified in (143).

(143)

(a) Intended: '[I infer that] [it is **Majdi** who parked the car]
[….EAT…] […….T……]
[…..TU…..] […….Anterior……...]

(b) Intended: '[I infer that] [what Majdi parked is **the car**]
[….EAT…] […….T……]
[…..TU….] […….Anterior……]

In (143), the speaker makes his inference based on the evidence at the EAT which coincides with TU (now). The inference targets the subject (Majdi) and the object (the car) of the anterior event which is represented by T which is in turn located with respect to the EAT and not the TU. This relative tense schematic representation patterns with the relative tense interpretation of sentence (140) above: T in (143) corresponds to the embedded future form *raH yjii* 'would come' in (140); the EAT (the time at which the speaker makes his inference based on the available evidence) in (143) corresponds to the reference time of the main verb *gaal* 'said' in (140). The future form *raH yjii* 'would come' is located posterior to the reference time of the main verb *gaal* 'said' not the TU as shown above. Similarly, T is located anterior to the EAT and not the TU. This relative temporal relation is recaptured in (144) below.

(144) EAT ⊆ TU, T < EAT

The same fact also holds when the same sentence (141) is used with a past adverbial such as *embareH* 'yesterday' as in (145).

(145) embareH**,** lageet **majdi** Saaf **es-sayarah**.
Yesterday, find-PERF.1SG **Majdi** park-DA **the-car**
'Yesterday, it was evident that Majdi had parked the car.'

(a) Intended: '[I inferred that] it was **Majdi** who had parked the car.'
[….EAT……] […….T…….……]
[..Prior to TU..] […….Anterior.……..……...]

(b) Intended: '[I inferred that] what Majdi had parked was **the car**.
[….EAT……] […….T…….……]
[..Prior to TU..] […….Anterior.……..……...]

The only difference here is that the EAT is prior to the TU and T is anterior to the EAT as shown in (146).

(146) EAT < TU, T < EAT

The relative tense analysis also applies to DAs with a CSI (consequent-state inferential reading) in sentence (60a), repeated here as (147).

(147) majdi **jaai.**
Majdi **come-DA**
'Evidently, Majdi has come.'
Intended: '[I infer that] Majdi **has come**.'

In (147), the speaker acquires the evidence (in this case car parked) at EAT. Let us assume that the EAT is temporally specified at the TU (Note here that the EAT could also be temporally located prior to the TU, that is, if we assume the speaker made the inference in (147) yesterday when he wanted to visit Majdi and saw his car parked in front of the house). The speaker uses the evidence at the EAT, which coincides with the TU, to make *inference* about an

anterior event as evident by the post-state interpretation of DAs in (147) as shown in (148) below.

T= reference time of the described eventuality, EAT=Evidence Acquisition Time,
PS=Post-State (evidence), **X** = Speaker

(148) DA (*jaai* 'come$_{(DA)}$')

T_____[_____EAT(now)_____]
(Anterior) (PS: car is parked (now))
[…….....……**X**……..……..]

As (148) demonstrates, the speaker uses the evidence (car parked) at the EAT, which coincides with the TU (now), to make inference about an event (in this case 'coming') located anterior to the EAT. The evidential relative tense of this sentence is illustrated in (149).

(149) Intended: '[I infer that] [Majdi has come]
[….EAT…] […….T…….]
[…..TU…..] [….Anterior…...]

This relative temporal relation is recaptured in (150) below.

(150) EAT ⊆ TU, T < EAT

The above discussion so far clearly shows that the temporal interpretation of evidential DAs is relatively asserted: T is located with respect with the EAT and not the TU. The use of the EAT in this regard, corresponds to the *attitude holder's now* (cf. Von Stechow 1995, Ogihara 1996, Giannakidou 1998 Smirnova 2012 and others).[9] In the spirit of Smirnova (2012), I assume, therefore, that evidential sentences with DAs have two evaluation times or anchoring points, the

[9] See Ogihara (1996) for an analysis of propositional attitude predicates and the *attitude holder's now*.

first evaluation time covers the proposition in the scope of the evidential operator, the EAT, and the second one concerns the time of the entire predicate, the TU.

4.7.1.1 The Temporal Framework of Evidential Relative Tense

I assume an intentional temporal framework in which tense maps properties of eventualities and time to propositions and then establishes these properties in time as proposed by Condoravdi (2002). In her temporal analysis of modals, Condoravdi (2002) argues that the temporal reading of modals can be best captured by the AT-relation. The AT-relation comprises four sentence radicals *P* the property of eventuality, *t* an interval or reference time of eventuality and *w* the world at which the eventuality holds and *e* the event[10]. In other words, according to the AT-relation in (151) the property of eventuality *P* of *e* is established in a reference time *t* at a certain world *w*. According to Condoravdi (2002:70) "the temporal relation for locating the eventualities with respect to the reference time is dependent on the eventualities properties in question (cf. Dowty 1986, Kamp and Rohrer 1983, Partee 1984, Klein 1994, and others)". The AT-relation I adopt is specified in the lexical entry (151).

(151) AT(*t*,*w*,*P*):

(a) Eventive = $\exists e\,[P(w)(e) \,\&\, \tau(e,w) \subseteq t]$

(b) Stative = $\exists e\,[P(w)(e) \,\&\, \tau(e,w) \circ t]$ (Condoravdi 2002:70)

[10] A sentence radical is the denotation of a sentence before applying the temporal, aspectual or any other operator specification to it (Stump 1985, Kaufmann 2005 and others). Therefore, the sentence radicals for a sentence like 'Sarah write letter' are of the type <w,<e, <t>:

- Sarah write letter: λw λt λe [write.letter (w) (e) (t) (s)].

I use this notation to derive semantic presentations of evidential relative tense with three other variables EAT, TU and T; therefore I propose the following semantic representations to account for the relative temporal readings of DAs:

(152) Anterior Temporal Relation:

(a) EAT ⊆ TU & T < EAT & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

(b) EAT < TU & T < EAT & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

(c) TU < EAT & T < EAT & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

(153) Posterior Temporal Relation:

(a) EAT ⊆ TU & EAT < T & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

(b) EAT < TU & EAT < T & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

(c) TU < EAT & EAT < T & AT(*t*,*w*,*P*): ∃*e* [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆/∘ T]

The semantic entries in (152 and 153) present the relative tense with the anterior and posterior temporal relations specified by DAs. These two temporal relations specify the indirect evidence requirement that is essential to the indirect evidential reading of DAs. I also argue that the above notations have the predicative force to account for the two inferential readings of evidential DAs: result-state inferential RSI and consequent-state inferential CSI as will be shown in the next sub-section. The semantic entry in (152) represents the relative tense with the anterior temporal relation (post-state reading) of DAs where T is anterior to EAT (T < EAT). The AT-relation indicates that the event is instantiated in *w* and in T (the reference time of the described eventuality) as shown in: AT [*P*(*w*) (*e*) & τ(*e*,*w*) ⊆ T]. The last component of this semantic entry comprises the relation between the EAT and the TU. The relation in (a) constitutes the present tense EAT ⊆ TU, (b) past tense EAT < TU, and (c) future tense TU < EAT. The same fact holds

for (153); the only difference is that the relation between the EAT and T is of a posterior nature which characterizes the second temporal reading given by DAs, the futurate reading.

4.7.1.2 Semantic Derivation

The above semantic presentations can recapture the relative temporal interpretation of sentences such as (141), (145) and (147) above. The meanings of these sentences are derived by the following semantic representations given in (154 and 155) respectively.

(154) $\exists e$ [EAT $\subseteq$ TU & T < EAT & AT [**Park** (w) (e) & $\tau(e,w) \subseteq$ T]

(155) $\exists e$ [EAT < TU & T < EAT & AT [**Park** (w) (e) & $\tau(e,w) \subseteq$ T]

Sentences (141), (145) and (147) characterize an anterior temporal relation where the speaker makes an inference about an anterior event. However, sentences (141) and (145) express result-based inferential readings RSI, while (147) expresses a consequent-state inferential reading CSI. The semantic representation (154) can derive a semantic representation for the relative temporal readings of sentences (141) and (147) as follows: the EAT (where the speaker uses the evidence for his inference) coincides with the TU; the speaker uses the evidence at the EAT to make inference about an event i.e. 'park in (141) and 'come' in (147) which are located anterior to the EAT and these events (e) are instantiated at *w* and T. The same logic extends to sentence (145) as shown in (155). The only difference is that in (155) the EAT is located prior to the TU; therefore sentence (145) indicates past (T<EAT) of past (EAT<TU).

Likewise, sentences with DAs that express a posterior temporal relation as in (156a) can be semantically derived by the semantic representation given in (153) above as shown in (156b).

(156)

(a) majdi jaai bukrah.
Majdi come-DA tomorrow
'[I infer that] Majdi is coming tomorrow.'

(b) $\exists e$ [EAT $\subseteq$ TU & EAT < T & AT [**Come**(w) (e) & $\tau(e,w) \subseteq$ T]

Sentence (156a) expresses a posterior relation under CSI inferential reading. The semantic presentation in (156b) reads as: the speaker acquires the evidence at EAT which coincides with TU; the speaker uses the evidence at EAT to make inference about an event (i.e. come) located as posterior to EAT.

As discussed so far, the semantic representations given under (152 1nd 153) can account for the relative temporal interpretations of evidential DAs sentences with both anterior and posterior relations and under RSI and CSI readings as shown above. It is worth mentioning, however, that the semantic representations of relative tense of evidential DAs is only semantically felicitous when the EAT is either at the TU as shown in (152a and153a) or prior to the EAT (152b and 153b), but not when the EAT is posterior to the TU (152c and 153c). In other words, the posterior temporal relation between the EAT and the TU (TU<EAT) pertains to contexts where the speaker makes inference about an anterior or posterior event based on the assumption that he *will* acquire the relevant evidence in the future. That is to say, evidential DAs are not allowed in the context where the speaker makes the evidential implication first then acquires the evidence as shown in (157). This temporal configuration is semantically possible but pragmatically inapplicable.

(157) ??/# 'ana bukrah raH aguul ennuh majdi jaai.
I tomorrow will say that Majdi come-DA
'[Tomorrow, I will infer that] Majdi is coming.'

This sentence shows that in order to express an indirect evidential reading using DAs in JA, the speaker is supposed to have acquired the evidence first in order for him to express the evidential reading and not otherwise.

To conclude, DAs assert a relative temporal reading where the reference time of the described eventuality is located with respect to another relevant time i.e. the EAT and not the TU. It is assumed, therefore, that evidential sentences with DAs have two evaluation times or anchoring points, the first evaluation time covers the proposition in the scope of the evidential operator i.e. the EAT, the second one concerns the time of the entire predicate, the TU. Furthermore, and based on this, evidential sentences with DAs have two reference times, the EAT and T. This notion contributes to the discussion in the next section.

4.7.2 Remarks on the Temporal Problem of DAs

Most of the previous approaches that discussed DAs have focused on the temporal interpretation of DAs and more specifically the temporal problem of DAs (See chapter 2 for further details). The temporal problem of DAs is concerned with the fact that unlike all other verbless sentences, those with DAs have varied temporal readings in that they license temporal adverbials that belong to different time specifications without the need of an overt copular verbs (Kinberg 1992, Mughazy 2004 among others). For example, sentence (158) licenses the present temporal adverbial *hassa* 'now', while those in (159) and (160) license the past adverbial *embareH* 'yesterday' and the future adverbial *bukra* 'tomorrow' respectively without the need of an overt copular verb to license past and future adverbials, *kaan* 'was/were' and *ykoon* 'to be' respectively as it is always the case with verbless sentences.

(158) sami hassa mraweH.
Sami now come-home-DA
'Sami has come back home now.'

(159) majdi kaatib er-resaleh embareH.
Majdi write-DA the-letter yesterday
'Majdi had written the letter yesterday.'

(160) sarah msaafrih bukrah.
Sarah travel-DA tomorrow
'Sarah is travelling tomorrow.'

The most appealing approach to account for this temporal problem is the sub-atomic account (Kinberg 1992, Belazi 1993 and Mughazy 2004). In the sub-atomic analysis, DAs encode a present state (target state) that is bound by underlying retrospective or prospective events. These underlying events occur at the beginning or at the end of the target state which always holds indefinitely at speech time. When the state is bound at its beginning, the underlying event is viewed as retrospective and consequently license past temporal adverbials. On the other hand, if the target state is bound at its end, the underlying event is viewed as a prospective event and in turn licenses the future adverbials. The present adverbials are licensed by the state which always holds at present according to this analysis.

In my temporal analysis of DAs I retained the use of anterior and posterior temporal relations similar to the sub-atomic analysis. However, my analysis differs in many regards. First, the sub-atomic analysis only addresses the issue of *how* DAs license these temporal adverbials. My analysis, on the other hands, discusses *why* DAs license the anterior and posterior temporal relations: DAs license these readings to establish the indirect evidence requirement that is essential to the indirect evidential meaning of DAs as discussed earlier. Second, the sub-atomic analysis assumes that the state receives a default present reading and that temporal adverbials

describe the underlying events i.e. past adverbs describe the retrospective event while the future adverbs describe the prospective event as shown in (161).

(E: Event, S: Speech time/Present)

(161) **E…..……..S…….....…… E**
(Retrospective) (State) (Prospective)

However, this analysis does not provide an explanation for sentences like (162) where the past adverbial *embareH* 'yesterday' describes a state 'the state of the parked car' rather than the event of parking which is described by another past adverbial, *awal embareH* 'the day before' as evident under the cancellation test which negates the fact that the event took place at *embareH* 'yesterday'.

(162) Majdi Saaf es-sayarah 3ala baab ed-daar embareH, bs hwwa
Majdi park-DA the-car by the -house gate yesterday but he
Safha awal embareH.
park- PERF.3SG.MASC the day before
'Majdi's car was parked at the house gate yesterday, but he parked it there the day before.'

In my temporal analysis, on the other hand, sentences with evidential DAs have two reference times: the EAT and T. Therefore, temporal adverbials could quantify over any one of them. This explains why in (162) the past adverbial *embareH* 'yesterday' quantifies over the state in EAT and not the event in T.

In my temporal analysis, the present adverbials describe the EAT rather than anterior or posterior events included in T. This is due to the inclusion temporal relation specified by the present tense where reference time is *included* in the TU. According to the semantic presentation given in (152 and 153) earlier, only the EAT can license this inclusion temporal reading. This

explains why the adverb *hasaa* 'now' in (163) describes only the EAT (the time which includes the evidence or the state) and not the anterior event which is described by another non-present adverbial, *embareH* 'yesterday', as shown under the cancellation test (163).

(163) el-maHal faatiH hassa, bs sami fataHuh embareH.
The-store open-DA now, but Sami open-PERF-it yesterday
'The store is open now, but Sami opened it yesterday.'

The future adverbials, on the other hand, do not describe the EAT but can only describe T which is in posterior relation to EAT. In other words, despite the fact that there are two posterior relations in (153), TU < EAT and EAT < T, future adverbials can only modify T and not EAT. This is because, as discussed earlier, in order to express an indirect evidential reading using DAs in JA, the speaker is supposed to have acquired the evidence first in order for him to express the evidential reading and not the otherwise. Therefore, when the adverbial *bukrah* 'tomorrow' is used, the future adverbial modifies T and the EAT is better accounted for as coinciding with the TU in order to give the appropriate futurate inferential reading. As for the past adverbial *embareH* 'yesterday' it can describe the EAT as shown in example (162) above and T as well (i.e. licenses the anterior event). In other words, under the current temporal analysis past adverbials bear an ambiguity between specifying the EAT which includes the evidence (state) or T which includes the event. This is because according to the temporal relations under (152) there are two anterior relations: EAT < TU and T < EAT; therefore and due to the absence of any restrictions (as is the case of future adverbials where they can only modify T and not the EAT as discussed above) past adverbials can modify both, T and EAT. When *embareH* 'yesterday' licenses T, the EAT coincides with the TU. This reading violates what has been referred to in the literature as the 'present perfect puzzle' i.e. contrary to past tense sentences, present perfect

sentences do not allow modification with past adverbials (cf. Klein 1992). I will discuss this issue in more detail in chapter six.

4.8 Conclusion

In this chapter I have proposed an indirect evidential account for the semantics of DAs in JA. DAs correspond to the three basic features of indirect evidentiality: (a) Speaker-Dependency: it shows a speaker-oriented meaning, (b) type of evidence: indirect evidence (i.e. speaker did not witness the event; rather s/he was told about it or inferred it) and (c) speaker's attitude towards the proposition (epistemic modal component): information is not attested to the speaker since s/he did not witness the event.

DAs show a distinct behavior under a habitual reading in that DAs show an evidential reading i.e. a habitual reading from a speaker's perspective. The evidence comes from the fact that the habitual interpretation with DAs is anchored to the speaker rather than to the subject as in the imperfective as evident from the entailment test. Under the actuality entailment test, the habitual reading with DAs is anchored to the speaker and is true only in the SBW rather than the real world. The contrast between the imperfective and DAs also appears in their sensitivity with regard to verifying instances. The imperfective usually does not require a verifying instance where the imperfective is acceptable even when the 'event' has not taken place. However, sentences with DAs are acceptable only when the 'event' is verified. Another major argument in support of the evidential speaker-oriented reading of DAs comes from the distinction between subjective and objective evidence. When objective evidence (that is known to a group of people) is asserted such as describing a universal fact, only the imperfective is allowed; whereas the only

situation in which a sentence with a DA is allowed is when subjective evidence is at issue: when the speaker himself has found or discovered the situation.

DAs have an indirect evidence requirement similar to indirect evidentials i.e. the speaker did not perceive the event. One piece of evidence comes from the fact that DAs are acceptable under a cancelation test that negates seeing the event on the part of the speaker. However, perfective sentences are infelicitous in these contexts. Another piece of evidence comes from the fact that DAs are not acceptable in the contexts where the speaker perceives the event directly. However, the imperfective and the perfectives are acceptable when the speaker perceives the event. I have also shown that evidential DAs in JA introduce a temporal contribution to the indirect evidence requirement: the indirect evidence is specified temporally rather than morphologically. In this regard, JA differs from other evidential languages where direct and indirect evidence is specified by separate morphemes. The indirect evidence induced by DAs is a result of two temporal relations: the event is anterior to the EAT or posterior to it. The former corresponds to a post state reading and the latter corresponds to a futurate reading.

As an indirect evidential, DAs trigger inferential readings: RSI and CSI inferential readings. In the former, there is entailment between the state (i.e. the evidence at EAT) and the event; therefore speaker can only target ERs in his inference and the inference about the event itself is blocked. In the latter however, the lack of entailment allows the inference to target the event. By this meaning, DAs differ from other inferential evidential systems where only a CSI reading is triggered; no RSI reading has been attested in these systems. The inferential reading of DAs stems from an epistemic modal component since DAs pattern with modals and propositional attitude predicates in many regards. The inferential reading is further supported by the fact that DAs have an irrealis reading under the actuality entailment test.

Furthermore, DAs pattern with inferential evidential predicates (evidential propers) such as *shakluh* 'it looks like' in that both forms show the core feature of indirect evidentiality: a speaker-oriented reading, indirect evidence and inferential interpretation. This analogous behavior is further evidence for the current indirect evidential analysis of DAs.

DAs show a mirative reading and sensitivity to first person. These are one of the notable semantic extensions of indirect evidentiality cross-linguistically (Aikhenvald 2004). Contra to perfectives and imperfectives, only DAs are felicitous in the contexts where a mirative interpretation is expressed; also only DAs show sensitivity to first person. In addition, DAs are used as reported evidentials. Reported evidentials are one of the major types of indirect evidentiality. Reported evidentials cover the type of information acquired through hearsay or someone else's report. In the contexts where the speaker acquires his knowledge through hearsay or someone else's report, JA usually employs DAs to serve this purpose. JA speakers use perfectives sometimes to encode hearsay reports similar to DAs as well. When this happens, JA makes explicit reference to the speaker's attitude towards the information s/he obtains through hearsay: with DAs, the speaker does not vouch for the information he was told about; the speaker distances himself from being responsible for the truth of the reported assertion. This modal reading is expected in the case of DAs since DAs induce indirect evidence where the speaker does not witness the event at issue. With perfectives, on the other hand, the speaker vouches for the truth of his assertion as he might have hard evidence based on which he is certain that the event at issue took place.

I extended my indirect evidential proposal to account for the semantics of passive participles (PPs) in JA. I showed that PPs are indirect evidentials since they pattern with DAs in almost all the indirect evidential arguments. Based on this fact, I concluded that participle

constructions ‘active and passive participles’ are the hallmark of evidentiality in JA. This conclusion has its own significance not only in the literature on Arabic but for the literature of Semitology as well. This is due to the fact that evidentiality is a totally new topic in Semitology. The reason behind this fact is a long held belief that evidentiality as a separate category does not actually exist in Semitic languages. Contra to this belief, I have shown that participle morphology, exemplified by active and passive participles, is the hallmark of the evidential category in JA, which is a Semitic language. The fact that there exists a separate morphological paradigm of participles that distinguishes them from other predicates and that this morphological structure exhibits evidential semantics in two participle constructions, active and passive participles, supports my claim regarding the existence of an evidential category in JA and consequently in Semitology.

Chapter Five

Indirect Evidentiality and Epistemic Modality

5.1 Introduction

This chapter provides a compositional analysis of evidential DAs where DAs are analyzed as quantifiers over possible worlds, adopting Kratzer's possible world theory (1981, 1991). The analysis provides a *unified* account where the evidential, modal and temporal components are incorporated into the semantic denotation of DAs. The central argument of the analysis is that the propositions in the scope of evidential DAs are evaluated with regard to multiple sets of accessible/possible worlds (i.e. speaker's belief worlds SBW). I base my possible world analysis on empirical findings of some modal reading diagnostics including formal diagnostics of level of meaning (propositional vs illocutionary), modal subordination and counterfactual copular sentences.

The significance of this chapter resides in the fact that it attempts to provide further typological support for the close overlap between evidentiality and epistemic modality based on data from a Semitic language, JA. It also provides further support for the proposed evidential account for DAs in the previous chapter: the fact that DAs show a modal reading lends further support to the indirect/inferential reading of DAs.

This chapter is organized as follows. In section 5.2 I review previous approaches that discussed the interaction of evidentiality and epistemic modality. In section 5.3 I discuss the diagnostics of levels of meaning: truth-conditional vs non truth-conditional. Section 5.4 examines whether DAs are propositional (modal) or illocutionary (non-modal) operators by applying the diagnostics discussed in section 5.3; it also includes the diagnostics of modal

subordination and counterfactual effect. In section 5.5 I lay out the theoretical framework of possible world semantics based on Kratzer's (1981 and 1991). In section 5.6 I analyze evidential DAs as encoding a modal meaning based on the two conversational backgrounds, modal base and ordering source as discussed in section 5.5. I also propose a formal semantic analysis of the modal reading of DAs and then incorporate the temporal component into the proposed semantic formalization. Section 5.7 concludes the chapter.

5.2 Interaction of Evidentiality and Epistemic Modality

One of the intriguing questions in the literature of evidentiality is whether there is a relation between evidentiality and epistemic modality. In order to answer this question, three approaches have been proposed to account for this interaction.

5.2.1 Previous Approaches

The first approach claims that evidentiality and epistemic modality are two separate categories with no relation at all (de Haan 1999, Faller 2002, Aikhenvald 2004 among others). According to this approach, evidentiality can be expressed outside the epistemic modality system. Major support for this claim comes from languages where evidentials can co-occur with pure epistemic modals in the same clause. For example, in Western Tarahumara, the reportive evidential suffix *-ra* (1a) can be used with suffixes that indicate truth or doubt as in (1b), examples are described by Burgess (1984) cited in Faller (2002:84).

(1)
(a) alue hu-ra.
he be-QUOT
'They say it is he.'

(b) raha-ra-guru.
burn-QUOT-TRUTH
'They say he burned it and it is probably true.'

One of the proponents of this approach is de Haan (1999) who argues that there is no link between the two categories as illustrated in the following examples (de Haan 2001:208).

(2)
(a) John must be home. The light is on.

(b) John is at home. The light is on.

In (2a), the modal *must* is argued to be an evidential since it asserts a proposition based on available evidence i.e. based on the evidence (light is on) it is necessarily true that John is at home; therefore it is argued to be a typical evidential. However, in (2b), the same evidence is present (the light is on), yet no modal is used.

The second approach claims that epistemic modals are evidentials (Westmoreland 1995, 1998, Drubig 2001, Nuyts 2001, von Fintel and Gillies 2007). As discussed in Portner (2009), this view has a strong and weak version. The weak version states that epistemic modals implicate an evidential interpretation in their semantics; yet they are different from pure evidentials. The strong version, on the other hand, states that epistemic modals are pure evidentials. This approach bases its claims on three arguments. First, it has been argued that epistemic modals do not contribute to the truth condition of the assertion and therefore they are better subsumed under evidentials which are treated as illocutionary operators i.e. they do not contribute to the truth condition of the assertion.[11] The second argument pertains to the scopal effect of epistemic

[11] This view has been challenged by Lyon (1977), Faller (2002), Papafragou (2006), Portner (2009) and others.

modals. It has been argued that epistemic modals take wide scope over other truth-conditional operators including negation and tense and therefore they are best analyzed as evidentials which have the same pattern.[12] In (3), for instance, the epistemic modal *may* scopes over the negation operator.

(3) John may not be at home. (Portner 2009:169)

The final argument in favor of this approach is that epistemic modal interpretation is usually based on evidence which can be direct, indirect, and reportive. This is similar to typical evidentials in which the presence of evidence is an essential requirement to establish the evidential meaning. Given this fact, many authors argued that the English modal 'must' is an evidential based on the assumption that it requires indirect evidence in order for its assertion to be felicitous (Stone 1994 and Westmoreland 1995). Example (4) is illustrative.

(4) It must be raining.

In sentence (4), the assertion is acceptable only if the speaker infers that it is raining based on indirect evidence such as hearing the splash of water outside and not based on direct evidence where the speaker witnesses the event of raining.

The third approach claims that there exists a relation between evidentiality and epistemic modality. Some proponents of this approach claim that evidentiality is subsumed under epistemic modality. Under this definition, there have been some attempts in the literature to extend the notion of evidentiality to cover all aspects related to epistemological assessment (Givon 1982,

[12] See von Fintel and Gillies (2007) for counterarguments.

Bybee 1985, Chafe and Nichole 1986, Friedman 1986, Palmer 1986, Traugott 1989, Hopper and Traugott 1993, Bybee and Fleischman 1995 among others). For instance, Palmer (1986) views evidentiality as a major type of epistemic modality. Palmer (1986:51) describes the meaning of *epistemic* as "should apply not simply to modal systems that basically involve the notions of possibility and necessity, but to any modal system that indicates the degree of commitment by the speaker to what he says." This epistemic-based view thus clearly acknowledges that encoding the source of information (i.e. narrow sense of evidentiality) can also describe the degree of the speaker's commitment towards what he says depending on the manner the speaker acquired this knowledge (Mushin 2001). A similar observation has been made by Givon (1982:24) who clearly describes evidentiality as "propositions that are asserted with relative confidence, are open to challenge by the hearer and thus acquire-or admit- evidentiary justification". Again, this definition subsumes evidentiality under the notion of epistemic modality (See chapter 4 section 4.3.1 for further details). The other group of proponents of this approach argues that the two categories are distinct but they overlap (Izvorsk 1997, Dendale and Tasmowski 2001, Matthewson et al. 2007, McCready and Ogata 2007, Rullman et al. 2008 and others). In this dissertation, I support the line of arguments proposed in the last approach that evidentiality and epistemic modality are related.

In the next sections, I provide arguments to support my claim that evidential DAs in JA show an epistemic modal reading.

5.3 Levels of Meaning: Truth-Conditional vs Non Truth-Conditional

Since the seminal work of Searle (1969) and Searle and Vanderveken (1985), a distinction has been made between illocutionary (i.e. non truth-conditional) and propositional (truth-conditional) levels of meaning. Therefore, a linguistic structure can either contribute to the truth condition of the assertion and therefore belongs to the propositional level of meaning; or it does not contribute to the truth condition of the assertion and therefore belongs to the illocutionary level. The two levels of meaning stand in a hierarchical relation: illocutionary level operators always scope over propositional level operators. Given this fact, evidentials, as linguistic structures, have been examined in the literature as whether they contribute to the illocutionary or propositional level of meaning; the former corresponds to a non-modal analysis and the latter corresponds to a modal analysis (based on the fact that modals are propositional level operators i.e. they contribute to the truth condition of the proposition expressed, see Faller 2002, Papafragou 2006 and others). For example, evidentials in Cusco Quechua as in Faller (2002), and Cheyenne as in Murray (2010) have been analyzed as illocutionary operators i.e. they do not contribute to the truth condition. Conversely, evidentials in languages such as St'át'imcets as in Matthewson et al. (2007), Japanese as in McCready and Ogata (2007), some evidentials in Gitsken as in Peterson (2010) and Korean as in Lee (2011) have been analyzed as epistemic modals i.e. propositional level operators since they contribute to the truth condition of the sentence.

In order to determine the level of meaning an evidential operates at (i.e. whether an evidential contributes to the propositional content of the assertion as in epistemic modals or to the illocutionary level) some well-attested diagnostics have been proposed in the literature (Lyons 1977; Chierchia and McConnel-Ginet 1990; Papafragou 2000, 2006; Garret 2001; Faller

2002, 2003, 2007; Matthewson et al. 2007; Waldie et al. 2009; Simons et.al 2010, Lee 2011 among others). These tests have been classified into two parts as follows:

A. Truth Value Diagnostics:

(1) Known Truth Falsity
(2) Assent/Dissent
(3) Cancellability of type of evidence requirement

B. Scopal and Embeddability Diagnostics:

(1) Embeddability
(2) Scope in negative contexts
(3) Scope in interrogative contexts

In order to determine whether evidential DAs in JA belong to the propositional level (modal analysis) or illocutionary level (non-modal analysis) operators, I adopt these attested diagnostics with some other related tests that I will discuss in sections 5.5 and 5.6. Before I proceed to the next section where I evaluate the applicability of these diagnostics to DAs, I will present the predications of each analysis i.e. propositional (modal) vs illocutionary (non-modal) analyses against the above mentioned diagnostics. This will help us understand how each of these analyses corresponds to each one of these diagnostics. These predictions are summarized in Table (1), adapted from Peterson (2010: 124).

Table (1): Propositional vs Illocutionary Analyses based on the Level of Meaning Diagnostics

Diagnostic	Yes	No
1. Felicitous if P is known to be True or False	Illocutionary	Propositional
2. Pass Assent-Dissent Test	Propositional	Illocutionary
3. Evidence Type Cancellable	———	———
4. Embeddable	Propositional	Illocutionary
5. Scope Over Interrogatives	Illocutionary	Propositional
6. Scope Over Negation	———	———

It is worth mentioning that two of the above tests, Evidence Type Cancellable and Scope over negation cannot actually distinguish between the two analyses as will be discussed in section 5.4 since both the propositional and illocutionary analyses predicate the same patterns with regards to these tests (Faller 2006, Peterson 2010, Lee 2011 among others).

5.4 Evidential DAs: Propositional or Illocutionary Operators

In this section, I examine whether DAs are propositional (modal) or illocutionary (non-modal) operators. To achieve this goal, I apply the diagnostics mentioned above. I argue that the results of these tests motivate a modal analysis of evidential DAs. I further support my arguments by comparing the results of these diagnostics of evidential DAs with English epistemic modals and two other types of attested evidentials in the literatures: evidentials in Cusco Quechua as in Faller (2002, 2006 and 2007) which have been analyzed as illocutionary operators and evidentials in St'át'imcets as in Matthewson et al. (2007) which have been analyzed as epistemic modals i.e. propositional level operators. I conclude that DAs pattern with English epistemic modals and evidentials in St'át'imcets, rather than evidentials in Cusco Quechua.

Before I discuss these diagnostics, some remarks on terminology are in order. The meaning of sentences with evidential DAs has two essential components: the evidential claim or evidential implication and prejacent (P) as exemplified in sentence (60 ch.4), repeated here as (5), which has been discussed in chapter 4 as triggering an inferential reading (See chapter 4 section 4.4.3.4).

(5) majdi **jaai.**
Majdi **come-DA**
'Evidently, Majdi has come.'
Intended: '[I infer that/Based on my indirect evidence] Majdi **has come**.'

The evidential claim which corresponds to [I infer that] has two parts, the inferential part of the assertion and the type of the indirect evidence asserted by DAs. The other component is the prejacent (P) which corresponds to 'Majdi has come'. These two components are illustrated in (6).

(6) Intended: [I infer that/ according to my indirect evidence] [Majdi has come].
Evidential Claim Prejacent (P)

The same logic applies to epistemically modalized utterances as in (7). The modal meaning of the sentence comprises two components: modal claim which corresponds to 'it is possible that' and prejacent (P) 'it is raining'.

(7) It might be raining.
= [It is possible that] [it is raining]
Modal claim Prejacent (P)

5.4.1 Truth Value Diagnostics

5.4.1.1 Known Truth/Falsity

Epistemic modals are usually used to express a proposition that is *not known* to the speaker. In fact, that is the major function of modals: they express propositions that are *possibly* or *necessarily* true as in (8 and 9) respectively.

(8) It may be raining.
◇P: It is possible that it is raining.

(9) It must be raining.
□P: It is necessarily possible that it is raining.

The propositions in (8 and 9) are true iff the speaker *does not know* whether the prejacent (i.e. it is raining) is true or not: epistemic modals cannot be felicitously used if the speaker already *knows* the falsity or truth of the prejacent (P). In other words, sentences (8 and 9) are felicitous only in the context where the speaker is inside his house, for example, with no knowledge at all of whether is it is raining or not outside. However, if the speaker is outside and he knows for sure that it is raining (he is walking under the rain) or it is not raining (he enjoys a sunbath with clear sky), then it is impossible for him to utter (8 and 9). This meaning is evident by the unacceptability of (10) where the speaker already knows that the prejacent (the embedded proposition of the modal i.e. raining) is false.

(10) # It may/must be raining, but it is not (raining).

This test shows that a modal analysis of evidentials predicates the same results: if evidentials pattern as epistemic modals then they should be infelicitous if the speaker knows the prejacent to be true or false. The same fact obtains for the inferential evidential *k'a* in

St'át'imcets which have been analyzed as an epistemic modal (Matthewson et al. 2007). The inferential evidential *k'a* is infelicitous in the contexts where the prejacent is known to be false or true by the speaker as illustrated in examples (11) where the speaker knows that the prejacent is false and (12) where the speaker knows that the prejacent is true (Matthewson et al. 2007: 213, 216).

(11) # wa7 k'a kwis, t'u7 aoz t'u7 k-wa-s kwis.
IMPERF INFER rain but NEG just DET-IMPERF-3poss rain
'It may/must be raining, but it's not raining.'

(12) # ts'um-qs-an-as k'a kw s-Lemya7 kw s-Roger;
lick-nose-DIR-3ERG INFER DET NOM-Lemya7 DET NOM-Roger
ats'x-en-lhkan wi7 zam'.
see-DIR-1SG.SUBJ EMPH after-all
'Lemya7 must have kissed Roger; actually I saw it.'
Consultant Comment: 'you are guessing but you are saying you saw it.'

In Quechua, on the other hand, the reportive evidential *si* is analyzed as an illocutionary operator i.e. a non-modal operator (Faller 2002). One piece of evidence comes from the fact that it does not contribute to the truth condition of the assertion as evident by their felicity under known/falsity test. Contra to modal analysis, in (13), the reportive evidential *si* is felicitously used even when the speaker knows that the prejacent is false; examples are taken from Faller (2002:160, 191).

(13) para-sha-n-si ichaqa mana creinichu.
rain-PROG-3-si but not I.believe
'[I heard] it is raining, but I do not believe it.'

Evidential DAs presuppose that the evidence for P is indirect. This clearly implies that with DAs it is impossible for the speaker to know that P is true or false. The indirect evidence triggers an inferential reading as in (14a) below where the speaker sees a light that is on at EAT

and uses this evidence as a ground for his inference. The inferential meaning of (14a) is evident when the DA *mwali3* 'switch on$_{(DA)}$' is acceptable under the actuality entailment test (14b) as contrasted with the perfective in (14c) where the perfective does not survive the actuality entailment test suggesting that the proposition holds in the real world rather than irrealis world.

(14)

(a) sami mwali3 el-Daw.
Sami switch-on-DA the-light
'Evidently, Sami has switched on the light.'
Intended: [I infer that] it is Sami who switched on the light.'

(b) sami mwali3 el-Daw, bs mumkin 'aHmad elli wala3uh.
Sami switch-on-DA the-light, but maybe Ahmad who switch-on-PERF-it
'Evidently, Sami has switched on the light, but maybe Ahmad did.'
Intended: '[I infer that] it is Sami who switched on the light.'

(c) sami wala3 el-Daw, # bs mumkin 'aHmad elli wala3uh.
Sami switch-on-DA the-light, #but maybe Ahmad who switch-on-PERF-it
'Sami has switched on the light,# but maybe Ahmad did.'
Intended: '[I assert that] it is Sami who switched on the light.'

Similar to modals and the inferential evidential *k'a* in St'át'imcets, the inferential reading of DAs is infelicitous if the speaker knows that the prejacent (i.e. it is Sami who switched on the light) is true. One way to test that is to embed DAs under contexts where the speaker perceived the event: if someone perceived the event then it follows that s/he has real world knowledge of this event i.e. s/he knows whether prejacent is true or not. This meaning is manifested in the following context (15) where the speaker saw Sami switched on the light i.e. since speaker saw the event of switching the light on, it follows that speaker knows that prejacent is true. The fact that the speaker saw Sami switch on the light yields sentence (14b), repeated here as (15a) unacceptable.

(15) Context: Speaker saw Sami when he switched on the light.

(a) sami mwali3 el-Daw, # bs mumkin ‘aHmad elli wala3uh.
Sami switch-on-DA the-light, #but maybe Ahmad who switch-on-PERF-it
‘#Evidently, Sami has switched on the light, but maybe Ahmad did.’
Intended: #‘[I infer that] it is Sami who switched on the light.’

This observation is born out also by the fact that JA speakers intuit that in the contexts where the speaker perceived the event (in this case switching on the light) the perfective form of the verb is used rather than DAs. I asked JA speakers which sentence they use to express the situation where s/he saw Sami switched on the light. All agreed that they would use (16b) with perfective rather than (16a) with DAs.

(16) Context: You saw Sami when he switched on the light.

(a) # sami mwali3 el-Daw.
Sami switch-on-DA the-light
‘Evidently, Sami has switched on the light.’

(b) sami wala3 el-Daw.
Sami switch-on-PERF the-light
‘Sami has switched on the light.’

The same fact obtains also when the speaker knows that the prejacent is false. This meaning is exemplified in (17) where the speaker saw *Ahmad* switched on the light i.e. since speaker saw the event of switching the light on, it follows that speaker knows that the prejacent (it is Sami who switched on the light) is false. The fact that the speaker saw *Ahmad* switch on the light yields sentence (14b), repeated here as the unacceptable sentence (17a).

(17) Context: Speaker saw Ahmad when he switched on the light.

(a) sami mwali3 el-Daw, # bs mumkin ‘aHmad elli wala3uh.
Sami switch-on-DA the-light, #but maybe Ahmad who switch-on-PERF-it
‘#Evidently, Sami has switched on the light, but maybe Ahmad did.’
Intended: #‘[I infer that] it is Sami who switched on the light.’

The infelicity of the inferential reading of DAs under this test is further supported when the evidential claim of DAs are contrasted with the assertive reading of perfectives. Contra to DAs, the perfective is felicitous when the speaker knows that the prejacent is true. This is exemplified in (18a and b) below where the inferential reading of DAs in (14b), repeated as (18a), and the assertive reading of the perfective of (14c), repeated as (18b), are used when the speaker knows that the prejacent is true.

(18) Context: Speaker saw Sami when he switched on the light.

(a) DAs = Intended: # [*I infer that*] it is Sami who switched on the light.'

(b) Perfective =Intended: [*I assert that*] it is Sami who switched on the light.'

5.4.1.2 Assent/Dissent

The assent/dissent test (also referred to in the literature as challengeability test) defined as: if an element can be questioned, doubted, rejected or (dis)agreed with, then it contributes to the truth conditions of the proposition expressed. Otherwise, the element does not contribute to the truth condition (Faller 2002:110).[13] To illustrate the meaning of this test let us consider the behavior of some adverbs such as the adverb *frankly* which has been analyzed as illocutionary force operators (Faller 2002 and Ifantidou-Trouki 1993). The motivation for analyzing this adverb as contributing to illocutionary level of meaning rather than propositional level is that one cannot challenge or disagree with the meaning of this adverb as shown in (19).

[13] See Faller (2002, 2006) and Papafragou (2006) for discussion regarding the debate whether this test can be applied to epistemic modals or not.

(19) A: Frankly, my opinion is that Adam has made a big mistake by not going to the doctor.

B: No, Not true
= Adam has not made a mistake by not going to the doctor (Correct Reading).
≠ You are not being frank (Incorrect Reading).

In (19), the negation uttered by speaker B targets the meaning of the sentence and not the meaning of the adverb *frankly* itself. This clearly shows that the adverb *frankly* cannot be understood as part of the propositional content of the assertion in (19A). In other words, if an expression scopes through a propositional level operator such negation, then this expression does not contribute to the truth condition of the proposition (as in example 19). On the other hand, if it scopes under propositional level operators then it contributes to the truth condition of the assertion. In (19), the adverb *frankly* scopes through negation and therefore is analyzed as an illocutionary force operator i.e. serving a speech act function rather than contributing to the truth-condition of the proposition.

If modals are propositional content operators, then we predict that their modal claim can be challenged, agreed or disagreed with. This prediction is born out in (20). In (20), which contains the epistemic modals *must*, the utterance made by the speaker B does not actually target the prejacent i.e. the embedded proposition that Jo is the thief ; rather it targets the *modal claim* 'Jo *must* be the thief'; (example taken from Matthewson et al. 2007: 221, adapted from Faller 2002:113).

(20) A: Jo must be the thief.

B: That is not true. There are some other plausible suspects. Jo may be entirely innocent.

I reconstruct the meaning of this example in (21) below for explanation purposes.

(21) A: Jo must be the thief.
Meaning: [It is necessarily the case that] [Jo is the thief]
Modal claim (Must) Prejacent

B: That is not true. There are some other plausible suspects. Jo may be entirely innocent.
= ¬ [It is necessarily the case that] [Jo is the thief]
≠ [It is necessarily the case that] ¬[Jo is the thief]

As shown in (21), the utterance of speaker B actually challenges the modal claim of the proposition rather than the prejacent.[14] This gives support to the observation that modals are truth-conditional operators.

The modal analysis of evidentials would predict, as discussed above, that they would pass the assent/dissent test i.e. the evidential claim can be challenged. However, an illocutionary, non-modal analysis predicts that they would fail the test i.e. the evidential claim cannot be challenged. The inferential evidential *k'a* in St'át'imcets allows the evidential or modal claim to be challenged as shown in (22) where the modal claim 'John *must* be home' is targeted by negation and not the prejacent i.e. the embedded proposition that 'John is home'; Example is taken from Matthewson et al. (2007: 222).

(22) Context: A is driving past John's house with B and sees John's lights are on.

A: wa7 k'a l-at tsitcw-s-a s-John; takem
be INFER in-DET house-3poss-EXIS NOM-John all
i sts'ak'w-s-a wa7 s-gwel.
DET.PL light-3poss-EXIS IMPF STAT-burn
'John must be home; all his lights are on.'

[14] See von Fintel and Gillies (2007) for further examples on how the modal claim can be target of challengeability tests.

B: aoz kw-a-s wenacw; papt wa7 lhap-en-as
NEG DET-IMPF-3poss true always IMPF forget-DIR-3ERG
kw-a-s lhap-en'-as i sts'ak'w-s-a
DET-IMPF-3poss put.out-DIR-3ERG DET.PL light-3poss-EXIS
lh-as 'ut'qa7.
when-3CONJ go.out
'That is not true. He always forgets to turn his lights off when goes out.'
B's statement ≠ 'John is not home'
B's statement = 'It is not true that John must be home.'

Contra to a modal analysis, the evidential claim of the reportative evidentials in Quechua cannot be challenged as shown in (23) where the utterance of the speaker B does not actually access the evidential claim that the speaker has learnt the information from someone else (as shown by the unacceptability of 23B); rather, the negation in B's utterance targets the prejacent of the assertion i.e. the embedded proposition that Ines visited his sister. Examples are taken from Faller (2006:11).

(23) A: Ines-qa qaynunchaw nana-n-ta-s watuku-sqa.
Ines-TOP yesterday sister-3-ACC-REP visit-PST.2
P= 'Ines visited her sister yesterday.'
EV= speaker was told that P.

B: Mana-n chiqaq-chu. # Mana-n chay-ta willa-rqa-sunki-chu.
not-BPG true-NEG not-BPG this-ACC tell-PST.1-3s2o-NEG
'That is not true. You were not told this.'

The assent/dissent facts support a modal analysis of DAs in JA. This is clearly represented under the consequent-state inferential reading (CSI) of DAs. I have argued in chapter 4 that JA speakers intuit that DAs are more acceptable than perfective in the contexts where the speaker makes inference based on a consequent-state (CS). In the following contexts (61 and 64 ch.4 repeated here as 24 and 25 respectively), the speaker makes inference based on the available evidence at EAT; this evidence is regarded as CS since the speaker uses this evidence to make inference about a non-entailing event. JA speakers use DAs to express this meaning.

(24) Context: Adam and Sami see Sarah coming towards them and her eyes are red and swollen. Adam tells Sami:

(a) ‘eTala3! sarah mSayHeh.
Look! Sarah cry-DA
‘Look! [I infer that] Sarah has cried.’

(25) Context: Majdi is out of town. Adam and Sami approach Majdi’s house and see that the light is on and there appears to be some luggage in the door step. Then, Adam tells Sami:

(a) majdi jaai.
Majdi come-DA
‘[I infer that] Majdi has come.’

The inferential reading in the above contexts can also be expressed by using the epistemic necessity modal *akeed* ‘must’ as exemplified in (26-27).

(26) Context: Adam and Sami see Sarah coming towards them and her eyes are red and swollen. Adam tells Sami:

(a) ‘eTala3! Sarah akeed mSayHeh.
Look! Sarah must cry-DA
‘Look! Sarah must have been crying.’
Meaning: [It is necessarily possible/ must be the case] that Sarah has cried.

(27) Context: Majdi is out of town. Adam and Sami approach Majdi’s house and see that the light is on and there appears to be some luggage in the door step. Then, Adam tells Sami:

(a) majdi akeed jaai.
Majdi must come-DA
‘Majdi must have come.’
Meaning: [It is necessarily possible/must be the case] that Majdi has come.

The fact that the epistemic modal *akeed* 'must' can replace DAs to express an inferential reading as shown above indicates that the inferential reading of DAs corresponds to that of the epistemic modal *akeed* 'must'. In other words, both DAs and epistemic modal *akeed* 'must' can be used to express an inferential reading where the speaker uses indirect evidence (i.e. CS) at EAT to make inference about a certain event. Therefore and based on this fact, DAs and the epistemic modal *akeed* 'must' has a similar *modal claim:* [*it must be the case that/ it is necessarily possible that*]. This similar pattern between DAs and the epistemic necessity modal *akeed* 'must' especially with regard to the modal claim is crucial in capturing the inferential interpretation of DAs in this test. When DAs and the epistemic modal *akeed* 'must' are used under assent/dissent test, the evidential claim of DAs and the modal claim of the epistemic modal *akeed* 'must' can be challenged as in (28 and 29) adapted from Matthewson et al. (2007).

(28) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on.

Adam: majdi jaai, eTala3 haai eDwaw Daawieh.
Majdi come-DA look these light.PL light-DA
'[It must be the case that] Majdi has come; all the lights are on.'

Sami: mish sharT/SaHeeH; majdi dayman bensa eD-Dwaw Daawieh
not necessary/true; Majdi always IMPERF- forget light-PL light-DA
lamma yeTla3 bara.
when go-IMPERF-3SG outside
'Not necessarily true, Majdi always forgets the lights on when he goes outside.'
> Sami's statement = 'It is not true that Majdi *must* have come home.'
> Sami's statement ≠ 'Majdi has not *come* home.'

(29) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on.

Adam: majdi akeed jaai, eTala3 haai eDwaw Daawieh.
Majdi must come-DA, look these light.PL light-DA
'Majdi must have come; all the light are on.'
Meaning: [It must be the case] that Majdi has come.

Sami: mish sharT/SaHeeH; majdi dayman bensa eD-Dwaw Daawieh
not necessary/true; Majdi always IMPERF- forget light-PL light-DA
lamma yeTla3 barra.
when go-IMPERF-3SG outside
'Not necessarily true, Majdi always forgets the lights on when he goes outside.'
> Sami's statement = 'It not true that Majdi *must* be home.'
> Sami's statement ≠ 'Majdi has not *come* home.'

In (28 and 29), the negation made by Sami's utterance does not actually denies the prejacent i.e. Majdi has come home; rather it targets the evidential inferential claim of DAs 'It must be the case that' as shown in (28) and the modal claim of the epistemic modal 'It must be that' in (29). Also, the fact that the utterance made by Sami includes *mish sharT* 'not necessarily' in (28) indicates that the evidential claim of the DA in (28) has a modal claim, 'it is necessary the case that'.

The observation that the inferential evidential claim and modal claim of DAs and modals can be challenged can also extend to evidential indirect predicates in JA such as the evidential predicate *shakluh* 'it looks like' which exhibits an inferential and modal reading as discussed earlier. Consider the same context (30) where the evidential predicate *shakluh* 'it looks like' is used.

(30) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on.

Adam: shakluh majdi jaai, eTala3 haai eDwaw Daawieh.
it looks like Majdi come-DA, look these light.PL light-DA
'It looks like Majdi hascome; all the light are on.'
Meaning: [I infer/ it must be] that Majdi has come.

Sami: mish sharT/SaHeeH; majdi dayman bensa eD-Dwaw Daawieh
not necessary/true; Majdi always IMPERF- forget light-PL light-DA
lamma yeTla3 barra.
when go-IMPERF-3SG outside
'Not necessarily true, Majdi always forgets the lights on when he goes outside.'
> Sami's statement = 'It not true that Majdi *must* be home.'
> Sami's statement ≠ 'Majdi has not *come* home.'

Similar to DAs and epistemic modal *akeed* 'must', the negation made by Sami's utterance in (30) does not actually denies the prejacent i.e. Majdi has come home; rather it targets the evidential inferential claim of the evidential *shakluh* 'it looks like'. The fact that DAs pattern with indirect evidential predicates in this test lends further support to the indirect evidential meaning of DAs.

5.4.1.3 Cancellability of Evidence Requirement

The type of evidence requirement (i.e. direct and indirect) is essential in evidential interpretation since it distinguishes between direct and indirect evidentiality. As noted by Izvorski (1997), the type of evidence requirement in the evidential perfect in Bulgarian is a presupposition and therefore is not cancellable. This prediction is also applicable to both analyses considered here. Both modal and illocutionary analyses predict that the evidence requirement is a presupposition and therefore cannot be cancelled. For instance, Faller (2006) observes that the reportive evidence requirement in Quechua illocutionary reportive evidentials

is not cancellable as shown in (31); the same fact obtains for modal evidentials in St'at'imce as in (32).

(31) Ines-qa mana-s qaynunchaw nana-n-ta-chu watuku-sqa.
Ines-TOP not-REP yesterday sister-3-ACC-NEG visit-PST.2
P= 'Ines didn't visit her sister yesterday.'
EV: (i) speaker has reportive evidence that Ines didn't visit her sister.
(ii) # speaker does not have reportive evidence that Ines didn't visit her sister.
(Faller 2006: 15-16)

(32) # ts'um-qs-an-as k'a kw s-Lemya7 kw s-Roger;
lick-nose-DIR-3ERG INFER DET NOM-Lemya7 DET NOM-Roger
ats'x-en-lhkan wi7 zam'.
see-DIR-1SG.SUBJ EMPH after-all
'Lemya7 must have kissed Roger; actually I saw it.'
(Matthewson et al. 2007:216)

In (31), the reportive evidence requirement for the reportive evidential *si* in Quechua cannot be cancelled as shown in reading (i) and (ii). Similarly, in (32), the indirect evidence requirement for the inferential evidential *k'a* in St'át'imcets is not cancellable either. This is shown when the indirect evidence (i.e. event not perceived by speaker) is used in a context where direct evidence rather than indirect evidence is asserted. The fact that the sentence with inferential evidential *k'a* yields unacceptability in this context clearly suggests that the indirect evidence requirement is not cancellable.

DAs in JA assert indirect evidence requirement as discussed earlier. The same results discussed above also obtain for DAs in JA i.e. the indirect evidence requirement is not cancellable and therefore is analyzed as presupposition. This is shown in the following context where the speaker perceived the event (direct evidence is asserted), yet the DA (33b) is infelicitous in this context and only perfective (33a) is allowed. The fact that the DA is

infelicitous in this context suggests that the indirect evidence requirement of evidential DAs is not cancellable.

(33) Context: Majdi and Sami want to swim in the pool. Majdi goes outside to smoke a cigarette; while he is smoking outside, he sees the workers filling the pool with water; Majdi continues seeing them filling the pool with water. Majdi tells Sami:

Majdi: (a) hayumma 3abbu el-burkeh mai, bnegdar nesbaH.
Here-they fill-PERF.3PL.MASC the-pool water, can swim
'Here they filled the pool with water, we can swim.'

(b)??/# hayumma m3abbyiin el-burkeh mai, bnegdar nesbaH.
Here-they fill-DA the-pool water, can swim
'Here they have already filled the pool with water, we can swim.'

The aforementioned discussion shows that both analyses, modal vs illocutionary, predict the same results. In the modal analysis, the indirect evidence requirement is a presupposition and therefore cannot be cancellable. Similarly, in illocutionary analysis, the evidence requirement is an illocutionary force operator and therefore projects through negation. The two theories therefore converge with regard to this test. It is concluded therefore that this test does distinguish between the two competing analyses here and it is not useful for our purpose.

5.4.2 Embeddability and Scopal Diagnostics

5.4.2.1 Embeddability

Another test whether evidentials contribute to the truth conditions of the proposition concerns embedding. The logic of this test is as follows: if the evidential can be embedded under conditional sentences, attitude or reporting verbs, then it is understood as contributing to the propositional content and therefore analyzed as modal operator not an illocutionary operator (Faller 2002, Matthewson et al. 2007 and others). The same logic is reformulated in Peterson

(2010:119): “An illocutionary operator cannot be understood as part of the propositional content of an *embedded* clause, but a modal can”.

However, before I discuss the applicability of this test, it is crucial to our analysis here to examine more closely the meaning of embedding and what it entails. There are two types of embedding that need to be distinguished, a semantic embedding and a structural or morpho-syntactic embedding. The difference between them is characterized by Schenner (2010), as reported in Peterson (2010:119) as follows:

(34)

(a) An expression is *syntactically embedded* if it occurs in a clause distinct from the root clause (i.e. in an adverbial, relative or complement clause).

(b) An expression is *semantically embedded* if it is interpreted in the scope of some other operators.

The difference between these two types of embedding is illustrated in sentences (35) and (36) below (Adapted from examples in Peterson 2010:119).

(35) If you come early, we can go to the party.

(36) Adam thinks that his brother, whom I met yesterday, will win the race.

Sentence (35) is an example of syntactic and semantic embedding where the sentence ‘we can go to the party’ is syntactically embedded and is also semantically embedded since it falls under the scope of the conditional operator *if*. Sentence (36), on the other hands, is an example of syntactic and not semantic embedding. That is, the relative clause ‘whom I met yesterday’ in (36) is not semantically embedded under the belief operator (think) i.e. it is not interpreted in the scope of ‘think’ even though it is syntactically embedded under it i.e. it occurs in its complement clause (Peterson 2010).

Epistemic modals are propositional content operators since they can be embedded under conditional sentences, attitude or reporting verbs. One piece of evidence comes from their behavior when embedded under reporting verbs. When modals are embedded under reporting verb, the modal claim is shifted from the speaker to the matrix subject of the reporting verb. This meaning is illustrated in the following sentences.

(37) Adam might come.
Meaning: [It is possible that] [Adam come]

(38) John said that Adam might come.
Meaning: [It is possible that] [Adam come]

In (37), the inference or the modal claim (i.e. it is possible that) is anchored to the speaker. In other words, the speaker is making the inference that Adam might come. However, in (38), the inference or the modal claim is not anchored to the speaker; rather it is anchored to the subject of the matrix verb 'John'. That is, in (38), the anchoring of the inference shifts from the 'speaker' to 'John' i.e. the possibility that Adam comes is viewed from the perspective of 'John' not the perspective of the 'speaker'. This result clearly shows that epistemic modals such as the modal *might* in (38) can be *semantically* embeddable since its modal claim is interpreted differently when it is embedded (i.e. it shifts from the speaker to the subject of matrix verb).

A modal analysis of evidential predicts that an evidential can be embedded *semantically* under conditional, attitude and reportive verbs. In other words, if evidentials can be embedded in these environments, they are analyzed as contributing to the propositional content (i.e. modals) and hence they cannot be illocutionary operators. This prediction is true for the inferential evidential *k'a* in St'át'imcets. Matthewson et al. (2007) have found that inferential evidential *k'a* in St'át'imcets can embed under a verb of saying as in (39).

(39) tsut s-Lemya7 kw s-tup-un'-as k'a s-Maria
say NOM-Lemya7 DET NOM-punch-DIR-3ERG INFER NOM-Maria
ta sesq'wez-s-a.
DET younger.sibling-3POSS-DET
'Lemya7 said that Maria must have hit her younger brother.'
(Matthewson et al. 2007:230)

In (39), the inferential implication of the evidential *k'a* is anchored only to the subject of the matrix verb 'Lemya7' rather than the speaker.[15] This interpretation indicates that the evidential *k'a* shows semantic embedding similar to epistemic modal in (38). Conversely, reportive evidentials in Quechua such as the evidential *si* (40) can only syntactically embed under verbs of saying because the relevant interpretation of semantic embedding does not obtain: the reportive evidential implication is still anchored to the speaker (readings (i) and (ii)) and not to the subject of the matrix verb (i.e. Marya) in reading (iii).

(40) Marya ni-wa-rqa-n Pilar-(*si) chayamu-sqa-n-ta-s.
Marya say-1O-PAST1-3 Pilar arrive-PP-3-ACC-si
'Marya told me that Pilar arrived.'
(i) Speaker was told by someone else that Marya told the speaker that Pilar arrived.
(ii) Speaker was told by Marya that Pilar arrived.
(iii) ≠ Marya was told that Pilar arrived. (Faller 2002: 222)

This modal analysis extends to evidential DAs in JA. This observation is obtained by the shiftability facts DAs show when they are embedded under verbs of saying: DAs embed semantically under verbs of saying such that the inferential claim is shifted from the speaker to the subject of the matrix clause. Consider (41) and (42).

[15] Similar results have been obtained for evidentials in Japanese (McCready 2010) and Tibetan (Garrett 2001).

(41) **majdi** Saaf **es-sayarah**.
Majdi park-DA the-car
'Evidently, Majdi has parked the car.'
Intended: '[I infer that] it is Majdi who parked the car/ what Majdi has parked is the car.

(According to me)

(42) hesham biguul ennu **majdi** Saaf **es-sayarah**.
Hesham IMPERF-say that **Majdi** park-DA the-car
'Hesham says that (evidently) Majdi has parked the car.'
Intended: '[Hesham infers that] it is Majdi who parked the car/ what Majdi has parked is the car.

(According to Hesham)

I have argued earlier that sentences such as (41) above triggers inferential reading where the speaker uses an indirect evidence at EAT to make inference about an anterior event (see chapter 4, section 4.4.3.2 and 4.4.3.4 for detailed analysis). However, when the evidential DA in (41) is embedded under a verb of saying as in (42), the inferential claim of the evidential DA is shifted from the speaker to the subject of the matrix verb (i.e. Hesham). I support my argument regarding the arising shiftable interpretation in (42) by the sensitivity of DAs to first person (see chapter 4, section 4.4.7). In that section I argued that DAs cannot trigger inferential interpretation in the context of first person as in sentence (43) below due to the counterintuitive effect: speaker cannot infer about himself if he himself has performed the action at issue. When DA is used with first person, the inference is blocked due to counterintuitive effect as shown by the unacceptability of (43) under the actuality entailment test.

(43) **'ana** Saaf es-sayarah, # bs mumkin 'aHmad (elli) Safha (mush 'ana).
I park-DA the-car, # but might Ahmad (who) PERF-park-it (not me)
#' Evidently, I have parked the car, but maybe Ahmad did (not me).'
#Intended: '[I infer that] it is me who parked the car.'

The unacceptability of (43) stems from the fact that the *inference is anchored to the speaker* i.e. the speaker cannot make inference about himself if he himself parked the car. The fact that DAs are sensitive to first person constitutes a good diagnostic to test whether DAs are semantically embeddable or not. The idea here is: if a sentence such as (43) above is embedded under a verb of saying and it still yields *unacceptability*, then this should mean that DAs are not embeddable because the inference did not shift from the speaker to the subject of the matrix verb. However, if a sentence such as (43) is embedded under a verb of saying and it yields *acceptability*, then this should mean that DAs are embeddable because the inference shifted from the speaker to the subject of the matrix verb. To put this differently, if (43) is embedded and the inference is shifted from the speaker to the subject of matrix verb, it follows that the reason for the unacceptability of (43) is lifted i.e. inference is no more anchored to the speaker. This predication is obtained for DAs as shown by the acceptability of sentence (43) when embedded under the verb of saying *biguul* 'say' in (44).

(44) hesham biguul ennu **'ana** Saaf es-sayarah, bs mumkin 'aHmad (elli)
Hesham say that I park-DA the-car, but might Ahmad (who)
Saf-ha (mush 'ana).
park-PERF-it (not me)
'Evidently, Hesham says that I have parked the car, but maybe Ahmad did (not me).'
Intended: '[Hesham infers that] it is me who parked the car.'

The above discussion shows that DAs are embeddable similarly to modals and modal evidentials. It shows also that they contrast with illocutionary evidentials which violate a shiftability reading. I take this parallel behavior between DAs, epistemic modals and St'át'imcets modal evidentials to lend further support to the modal analysis of DA utterances.

5.4.2.2 Scope with Respect to Interrogatives

There is a general assumption that pragmatic operators such as speech act operators including questions scope over propositional content operators such as modals. This observation has been demonstrated by Peterson (2010: 122): "epistemic modals cannot take scope over illocutionary act, such as performing a request or asking a question". Based on this fact, we expect a contrast in behavior between modal vs non-modal evidentials. Evidentials that are analyzed as modals should have narrow scope with regards to interrogatives whereas illocutionary evidentials can have wide scope over question operators.

In Quechua, Faller (2002, 2006) shows that only the illocutionary analysis can account for the behavior of the reportive evidential *si* where it is used to ask a question on someone's else behalf. The context in example (45) is that the researcher's question to the mother-in-law is not heard, so the question was repeated by the consultant on the researcher's behalf.

(45) *Imyana*-s ka-sha-nki.
how-REP be-PROG-2
'(She says) How are you?'
(Faller 2006:14-15)

Such uses of *si* require that the interrogatives are in the scope of the reportive evidential *si*. In other words, the reportive evidential has wide scope over the question as evident by the fact that the reportive evidential takes the *speaker* rather than the *addressee* as its anchor. Faller (2002, 2006) concludes based on this behavior that evidentials in Quechua are illocutionary level operators.

The interpretation of epistemic modals in interrogative contexts, on the other hands, is anchored to the addressee rather than to the speaker. This phenomenon is known in the literature as 'interrogative flip' i.e. the change of anchoring or perspective from the speaker to the

addressee (Spease and Tenny 2003). In (46b), the interpretation of the modal claim is anchored to the *addressee* rather than the speaker. This contrasts with (46a) where the interpretation of the modal claim is anchored to the *speaker* in simple declarative sentences.

(46)
(a) He should go to the dentist. (Speaker-oriented, according to me)

(b) Should he go to the dentist? (Addressee-oriented, according to you)

The same fact holds true for evidentials in St'át'imcets. The evidential claim is anchored to *addressee* rather than the *speaker* in interrogative contexts with the reportive evidential *ku7* in St'át'imcets (47).

(47) swat ku7 k-wa táns-ts-an.
who REPORT DET-IMPF dance-CAUS-1SG.ERG
'Who did they say I was dancing with?' (Matthewson et al. 2007: 232)

The above observation is true for evidential DAs in JA. The interrogative flip reading is observed in the behavior of DAs in interrogative contexts under RSI and CSI readings. The DA *msakir* 'close$_{(DA)}$' in (48a) below triggers a RSI inferential reading as evident by the fact that it survives the actuality entailment test in (48b and c). The evidential claim interpretation of the DA is anchored to the speaker in (48a). Note here that the evidential claim includes the inferential implication denoted by [I infer] and the indirect evidence requirement [according to the indirect evidence]. However, when the same DA is used in an interrogative context, the evidential claim interpretation is shifted to the addressee as in (48d).

(48)

(a) majdi msakir esh-shubaak.
Majdi close-DA the-window
'Evidently, Majdi has closed the window.'
Intended: [I infer that] it is **Majdi** who closed the window/what Majdi closed is the **window**.

(b) majdi msakir esh-shubaak, bs mumkin 3ali elli sakar-uh.
Majdi close-DA the-window, but maybe Ali who close-PERF-it
'Evidently, Majdi has closed the window, but maybe Ali did.'
Intended: [I infer that] it is **Majdi** who closed the window.

(c) majdi msakir esh-shubaak, bs huwwa mumkin sakar el-baab.
Majdi close-DA the-window, but he maybe close-PERF-it the-door
'Evidently, Majdi has closed the window, but maybe he closed the door.'
Intended: [I infer that] what Majdi has closed is the **the window**.

(d) majdi msakir esh-shubaak?
Majdi close-DA the-window
'Is it Majdi who has closed the window/ is it the window what Majdi closed?'
= [Given your evidence], is it the case that it is Majdi who closed the window.
= [Given your evidence], is it the case that what Majdi closed is the window.

The same logic applies to the CSI reading of DAs. I have already argued that sentence (49a) below triggers a CSI reading (see chapter 4, section 4.4.3.5 for detailed discussion). When the same DA is used in interrogative context (49b), the evidential claim of DA is anchored to the addressee rather than to the speaker.

(49) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on and there appears to be some luggage in the door step. Then, Adam tells Sami:

(a) majdi jaai.
Majdi come-DA
'[Evidently/ I infer that] Majdi has come.'
= [According to my evidence] Majdi has come.

(b) majdi jaai?
Majdi come-DA
'Majdi has come?'
= [According to your evidence] is it the case that Majdi has come?

It is worth mentioning that interrogative flip has been reported with illocutionary evidentials too as reported in Faller (2002, 2006). In (50), the reportive evidential *si* triggers an interrogative flip reading where the evidential implication is anchored to the addressee rather than to the speaker.

(50) May-manta-s chay run aka-n-man.
where-ABL-REP this man be-3-COND
'Where could this man be from?'
(Faller 2006: 13, reported in Itier 1995: 290)

This might suggest that the interrogative flip reading does not distinguish between the two analyses examined here, the modal vs illocutionary as shown in (50). However, the test cases are instead those presented in sentence like (45) discussed at the beginning of this section. In the absence of cases like the one mentioned in (45) above (where the reading is anchored to speaker rather than addressee in interrogatives), I conclude that the interrogative test lends further support to the modal analysis of evidential DAs in JA. The same conclusion has been adopted by Faller (2006) for the German reportive evidential *sollen* and Matthewson et al. (2007) for the modal evidentials in St'át'imcets. [16]

5.4.2.3 Scope with Respect to Negation

The modal analysis predicts that the evidence requirement is a presupposition therefore it projects through negation. The same fact obtains for illocutionary analysis which predicts that illocutionary operators always take wide scope with respect with other propositional level operators such as negation. The two analyses therefore converge with regards to this test: both

[16] Based on data from Enrich (2001), Faller (2006) provided discussion where she motivated a modal analysis of the German reportive evidential *sollen*. One of the arguments she provided in this regard is the absence of cases where the evidential implication is anchored to the speaker rather than the addressee when *sollen* is used in interrogatives.

predict that the evidential claim presented by the inferential implication and the requirement of evidence still obtain in negative contexts.

Modal evidentials in St'át'imcets are reported to scope over negation (Matthewson et al. 2007). In the following example, the inferential evidential *k'a* is used in negative context. The negation is not construed as denying the evidential claim (the inferential modal implication, and the requirement of indirect evidence); rather it targets the prejacent i.e. the embedded propositional content in the scope of the evidential.

(51) aoz k'a k-wa-s Sylvia ku xílh-tal'i.
NEG INFER DET-IMPF-3poss Sylvia DET do(CAUS)-TOP
= 'It is necessarily not true Sylvia who did it.' [Presupposition: Indirect Evidence]
≠ 'It is not necessarily true Sylvia who did it.' [Presupposition: Indirect Evidence]
≠ 'It is not the case that I have indirect evidence that it was necessarily Sylvia who did it.'

(Matthewson et al. 2007:218)

Similarly, negation only scopes over the propositional content with the evidential DAs as in sentences (52a-c).

(52)

(a) **majdi** msakir esh-shubaak.
Majdi close-DA the-window
'Evidently, Majdi has closed the window.'
Intended: [I infer that/ It must be the cast that/Given my evidence] it is **Majdi** who closed the window.

(b) **majdi** muu msakir esh-shubaak.
Majdi not close-DA the-window
'Evidently, Majdi has not closed the window.
= [I infer that/ It must be the case that/Given my evidence] it is **Majdi** who did not close the window.
≠ [I do not infer that/it must not be the case that/ I do not have evidence that] it is **Majdi** who closed the window.

(c) **majdi** mu msakir esh-shubaak, bs mumkin 3ali elli ma sakar-uh.
Majdi not close-DA the-window, but might Ali who not close-PERF-it
'Evidently, Majdi has not closed the window, but maybe Ali has not (not Majdi).'
Intended: [I infer that/It must be the case that/Given my evidence] it is **Majdi** who did not close the window.

(d) **majdi** muu Saaf es-sayarah.
Majdi not park-DA the-car
'Evidently, Majdi has parked the car.'
Intended: '[I infer that/It must be the case that/Given my evidence] it is **Majdi** who did not parked the car.
= [I infer that/ It must be the case that/Given my evidence] it is **Majdi** who did not park the car.
≠ [I do not infer that/it must not be the case that/ I do not have evidence that] it is **Majdi** who parked the car.

In (52a), the DA *msakir* 'close$_{(DA)}$' is used in an affirmative context. The sentence triggers a RSI inferential reading as evident by its acceptability under the actuality entailment test as shown in (48b) in section 5.4.2.2. In (52b), the same DA is used in a negative context. The sentence (52b) triggers a RSI inferential reading as shown by its acceptability under the entailment test in (52c). In (52b), negation only scopes over the propositional content in the scope of the evidential DA. The same fact extends to (52d).

The same logic also applies to the CSI reading of DAs in (53). Under CSI reading, when DA is used in negative context the evidential claim of DA projects through negation.

(53) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is off. Then, Adam tells Sami:

(a) majdi muu jaai.
Majdi not come-DA
= [I infer that/it must be the case that] Majdi has not come.'
= [According to my evidence] it is not the case that Majdi has come.
≠ [I do not infer that/It must not be the case that] Majdi has come.'
≠ [I do not have evidence that] Majdi has come.

In (53), the inference in CSI is straightforwardly obtained: speaker infers that Majdi has *not come* home based on available evidence at EAT i.e. that the light is off. However, the inference with RSI reading is rather not straightforward sometimes. Unlike (53), the speaker in (52d) does not have available evidence at EAT to make his inference. In other words, the result-state which serves as the indirect evidence based on which speaker makes his inference (i.e. car parked) is not available in (52d) due to negation i.e. there is no car parked. Given this fact, the question that might arise here is that 'how is the inference in (52d) obtained if there is no available evidence at EAT?' I argue that the inferential reading in (52d) with negation stems from a presuppositional reading that accompanies DAs in negative contexts (Boneh 2005). Based on data from Syrian Arabic, Boneh (2005) claims that when DAs are used in negative contexts, only the post-state, which is asserted in TT (topic time after Klein 1994), is negated and not the anterior event. The fact that the anterior event is not part of the assertion time and therefore not negated triggers a presuppositional reading as in (54a and b); examples are taken from (Boneh 2005:13).

(54)

(a) sami muu nayem.
Sami NEG sleep-PART.SG.M
'Sami is not/no longer asleep now (but he did fall asleep)

(b) sami muu kaatib er-resaleh.
Sami NEG write-PART.SG.M the-letter
'Sami is not in the post-state of having written the letter.'

(c) sami maa katab er-resaleh.
Sami NEG write-PERF.SG.M the-letter
'Sami did not write the letter.'

In (54a) it is argued that *Sami* has fallen asleep at some point, but what the speaker asserts is that now he is not. Thus, the only part that is negated is the post-state which is included in TT and not the underlying eventuality itself i.e. the stage of entering into the relevant state is not negated. Boneh (2005) argues that this interpretation indicates that the underlying event is presupposed since it is not canceled under negation. The same logic obtains for (54b). Negating DA in this sentence does not necessarily mean that the anterior event did not take place as it is the case with the perfective in (54c). The difference between the DA (54b) and the perfective (54c) stems from the fact that in the case of the DA negation targets post-state which is included in TT and therefore reflects a presuppositional reading about the underlying event which is not included in TT i.e. an expectation on the part of the speaker that *Sami* was supposed to engage in the relevant event of writing the letter, but he hasn't. This reading does not arise in the case of the perfective because the event itself is contained in TT, therefore the event is negated and a presuppositional reading is blocked (See Boneh (2005) for detailed discussion).

I argue that the same results are true for DAs in JA. When DAs are used in negative contexts, negation triggers a presuppositional reading where the speaker assumes that *the relevant event was supposed to take place.* In (55), negating DA triggers a presuppositional reading where the speaker assumes that Majdi was on his way (the underlying eventuality was unfolding) when he (the speaker) came home. In other words, the speaker assumes that Majdi was *supposed* to come home, but in fact he has not.

(55) lamma rawaHet 3ala ed-daar, majdi maa kaan jaai.
When come-home-PERF.1SG to the-home, Majdi not be-PAST come-home-DA
'When I came home, Majdi had not come yet.'

This presuppositional reading is what triggers the RSI with DA in (52d): the speaker assumes that Majdi was supposed to park the car but he has not. This presuppositional reading which is true in speaker's belief world serves as the indirect evidence based on which the speaker makes his inference in (52d): given what should have been done in the ideal world (i.e. Majdi should have parked the car at EAT), I infer that it is **Majdi** who did not park the car.[17]

So far, I have argued that the evidential claim with DAs projects through negation. This observation contrasts with the general behavior of modals because modals show wide and narrow scope readings under negation. However, the fact that evidential claim of DAs is projective does not straightforwardly undermine a modal analysis of evidential DAs. Other

[17] Portner (2003) argues that English present perfect triggers a presuppositional reading. He claims that perfect comprises two components: a truth conditional component (temporal) and a modal pragmatic component. The modal component has a presuppositional reading governed by epistemic necessity operator. This meaning is characterized by the following schematic representation (Portner 2003:45):

(i) P (P, Tense(S)) where P is the proposition expressed by S and it indicates contextual entailment and Tense (S) is an answer to a discourse topic T. This reading is illustrated in (ii).

(ii) Suppose that the conversational background (CB) in (a) is given before the two sentences in (b and c):
(a) CB [Eliot wrote Middlemarch; if someone smart read an author's book, then s/he understands his/her style; Mary is smart].
(b) A: We need to get an explanation of Eliot's style, who can we ask?
(c) B: Mary *has read Middlemarch*.

When the perfect is uttered, P entails that Mary can explain Eliot's style i.e. the consequent state (Mary can explain Eliot's style is an answer to the discourse topic 'who can explain Eliot's style' (Portner 2003: 42-43).

The same facts could also be extended to DAs: result-state of DAs triggers a presuppositional reading especially if we know that the resultative state with DAs is semantically asserted (iii a) contra to the perfective where the resultative state is pragmatically given (iiib) as shown in the cancellation test below.

(iii)
(a) sami faatiH el-maHal # bs msakruh.
Sami open-DA the-store #but close-DA it
'Sami has opened the store but closed it.'

(b) sami fataH el-maHal bs sakruh.
Sami open-DA the-store but close-DA it
'Sami has opened the store but closed it.'

In other words, the fact that the resultative state is semantically asserted with DAs guarantees a presuppositional reading contra to the perfective where the presupposition can be blocked by the pragmatic nature of its result state. I leave this topic for further research.

propositional level operators such as the English epistemic modal *must* can receive only a wide scope reading with respect to negation. In (56), the only scopal reading of the epistemic modal *must* is the one given in (a) where the negation scopes under the modal claim; the reading where negation scopes over the modal claim does not arise (b), (See for example Horn 1989:259, Faller 2006:16 among others).

(56) Sarah must not be the burglar.

(a) It is necessarily the case that Sarah is not the burglar.

(b) # It is not necessarily the case that Sarah is the burglar.

A modal analysis would therefore account for the above parallel between DAs in (52b and d) and (53a) and epistemic modals in (56). However, this is not necessarily the case. I have argued at the beginning of this section that illocutionary (non-modal) evidentials such as the evidentials in Quechua exhibit the same pattern i.e. they project over negation. In (57), the only available reading is given in (a) i.e. the speaker has evidence that the prejacent is denied; the reading in (b) where the evidence (evidential claim) is denied does not arise.

(57) Mana-s para-sha-n-chu.
not-REP rain-PROG-3-POL
p= 'it is raining.'
EV= 'Speaker has reportive evidence that it is not raining.'
EV≠ 'Speaker does not have reportive evidence that it is raining.'
(Faller 2006: 10)

The aforementioned discussion therefore shows that the two theories (i.e. the modal vs non-modal) converge with regard to this test. It is concluded therefore that this test does distinguish between the two competing analyses here and it is not useful for our purpose.

5.4.3 Interim Summary

The results of the diagnostics of the level of meaning so far show that DAs pattern with epistemic modals and modal evidentials in St'át'imcets and not with non-modal or illocutionary evidentials like the Quechua evidentials. Therefore, it is concluded that a modal analysis would best account for the behavior of evidential DAs i.e. DAs are propositional level operators since they contribute to the truth condition of the proposition expressed. These results are summarized in Table (2) below. The results of Table (2) show that DAs pattern with propositional operators especially when these results are compared to those in Table (1) given earlier. These results pattern with the discussion in chapter 4 where I provided two pieces of evidence for the modal reading of DAs namely their behavior under actuality entailment effect and de-dicto reading (see chapter 4, sections 4.4.3.2 and 4.4.3.3). I provide further support to a modal analysis in the next two sections where I discuss the interaction of DAs and modal subordination and the behavior of DAs in counterfactual copular contexts. The results of the propositional vs illocutionary diagnostics, actuality entailment test, de-dicto reading and the discussion about the interaction of DAs with modal subordination and counterfactual contexts will serve as the empirical base for the modal account that I will provide in section 5.6.

Table (2) Diagnostics Results for St'át'imcets, Quechua and Evidential DAs

Diagnostic	**YES**	**NO**
1. Felicitous if P is known to be True or False	Illocutionary Quechua	Propositional St'át'imcets and DAs
2. Pass Assent-Dissent Test	Propositional St'át'imcets and DAs	Illocutionary Quechua
3. Evidence Type Cancellable	———	———
4. Embeddable	Propositional St'át'imcets and DAs	Illocutionary Quechua
5. Scope Over Interrogatives	Illocutionary Quechua	Propositional St'át'imcets and DAs
6. Scope Over Negation	———	———

5.4.4 Modal Subordination

Modal subordination requires an anaphora to be in the semantic scope of its antecedent (Roberts 1987, 1989). In (58a), the anaphora *he* is used in a sentence with a realis quantificational meaning i.e. unmodalized sentence 'He took the silver'. However, the antecedent sentence comprises a modal element which forces non-factual or modal quantificational interpretation as evident by the use of the modal *might*. The fact that the two sentences have different quantificational interpretations blocks the anaphoric dependency of the anaphora *he.* This observation contrasts with (58b) where the antecedent sentence and the anaphora sentence belong to the same quantificational force i.e. both include a modal element;

hence anaphoric dependency is allowed and results in the acceptability of (58b). Example is taken from Roberts (1989:697).

(58)

(a) A thief$_{\mathbf{i}}$ might break into the house. #He$_{\mathbf{i}}$ took the silver.

(b) A thief$_{\mathbf{i}}$ might break into the house. He$_{\mathbf{i}}$ would take the silver.

This prediction is true for evidential DAs as contrasted to perfectives. Evidential DAs are used in the sentences under (a) as contrasted to those under (b) where perfectives are used. Each antecedent sentence is then subordinated with another independent sentence with the anaphora and a modal element. Contra to perfectives, sentences with DAs are acceptable. Consider (59 and 60).

(59)

(a) ‘ana sheft sami mshaghil et-tadfe’a$_{\mathbf{i}}$. ‘eHtemal huwwa elli shaghal-ha$_{\mathbf{i}}$.
I saw Sami turn-on DA the-heating. Maybe he who turn-on -it
‘Evidently/I saw Sami has turned on the heat. Maybe he is the one who turned it on.’

(b) ‘ana sheft sami shaghal et-tadfe’a$_{\mathbf{i}}$. # ‘eHtemal huwwa elli shaghal-ha$_{\mathbf{i}}$.
I saw Sami turn-on -PERF the-heating. Maybe he who turn-on -it
‘I saw Sami has turned on the heat. # Maybe he is the one who turned it on.’

(60)

(a) ‘ana sheft ‘aHmad m3abii el-jarakil$_{\mathbf{i}}$ maai. ‘eHtemmal huwwa elli 3abaa-hin$_{\mathbf{i}}$.
I saw Ahmad fill-DA the-barrels water. Mybe he who fill-PERF-them
‘Evidently, Ahmad has filled the barrels with water. Maybe Ahmad is the one who filled them.’

(b) ‘ana sheft ‘aHmad 3aba el-jarakil$_{\mathbf{i}}$ maai.#‘eHtemmal huwwa elli 3abaa-hin$_{\mathbf{i}}$.
I saw Ahmad fill-PERF the-barrels water. Maybe he who fill-PERF-them
‘Evidently/I saw Ahmad has filled the barrels with water. # Maybe Ahmad is the one who filled them.’

In (59b), the anaphora *-ha* attached to the verb *shaghal* 'turned on' is used in a sentence with a modal quantificational force as evident by the presence of the modal *mumkin* 'might'. However, the antecedent sentence, which has the antecedent *et-tadfe'a* 'the heating', lacks a modal element and has only the perfective form. The anaphoric dependency in (59b) is blocked as shown by the unacceptability of the utterance. The reason why (59b) is unacceptable is due to the difference in quantificational interpretations: the antecedent sentence has a non-modal while the anaphora sentence has a modal force. The contrast in quantificational force blocks the anaphoric dependency of the anaphora *-ha* and therefore yields (59b) unacceptable. Conversely, the fact that (59a) with the DA is acceptable clearly shows that the antecedent sentence with the DA has a modal interpretation otherwise the sentence should be unacceptable. In other words, the fact that (59a) is acceptable clearly indicates that the antecedent sentence with the DA belongs to the same modal quantificational force as the anaphora sentence which has a modal element; hence allowing the anaphora *ha* in the modalized sentence to refer back to its antecedent in the DA antecedent sentence. The same logic applies to sentences (60a and b).

The previous discussion demonstrates the interaction of DAs and modal subordination under the RSI reading of DAs. The CSI of DAs shows a parallel pattern with regard to modal subordination as well. In the following contexts, the speaker is making an inference abut a non-entailing event; therefore a CSI reading is triggered. DAs are more appropriately used than perfectives in these contexts ((See chapter 4 section 4.4.3.5 for detailed discussion).

(61) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that the light is on. Then, Adam tells Sami:

(a) majdi$_i$ jaai. # (huwwa$_i$) jab elli hadieh.
Majdi come-DA. (He) bring-PERF.3.SG.MASC to-me gift
'[Evidently/ I infer that] Majdi has come. #He brought me a gift.'

(b) majdi$_i$ jaai. akeed (huwwa$_i$) jab elli hadieh.
Majdi come-DA. Must (He) bring-PERF.3.SG.MASC to-me gift
'[Evidently/ I infer that] Majdi has come. He must have brought me a gift.'

(62) Context: Adam and Sami see Sarah coming towards them and her eyes are red and swollen. Adam tells Sami:

(a) 'eTala3! sarah$_i$ mSayHeh.# (hieh$_i$) rasabat fii el-'emteHaan.
Look! Sarah cry-DA.# (she) fail-PERF in the-exam
'Look! [Evidently/ I infer that] Sarah has cried. # She failed the exam.'

(b) 'eTala3! sarah$_i$ mSayHeh. akeed (hieh$_i$) rasabat fii el-'emteHaan.
Look! Sarah cry-DA. Must (she) fail-PERF in the-exam
'Look! [Evidently/ I infer that] Sarah has cried. She must have failed the exam.'

Given the indirect evidence (i.e. the light is on), the speaker *infers* that Majdi has come home. However, by making such inference, the speaker does not commit himself to the truth of the proposition in the actual world. In other words, the speaker does not assert that the prejacent is true, rather he hypothesizes so. This inferential meaning of the antecedent sentence with the DA allows anaphoric dependency as in (61b) since the anaphora sentence has a modal element (*akeed* 'must'). The fact that the sentence is acceptable clearly means that the DA sentence has a similar modal quantificational interpretation; hence the acceptability of the (61b). However, such anaphoric dependency is blocked in (61a) due to the fact that the anaphora sentence lacks a modal element and therefore yielding a quantificational interpretation (realis) different from the modal/inferential quantification of the DA antecedent sentence; hence the unacceptability of (61a). The same facts obtain for (62a and b).

In sum, when the anaphora sentence has a modal element (modal quantification), the antecedent sentence with the DA allows anaphoric dependency. The fact that anaphoric dependency is allowed clearly suggests that the quantificational interpretation of the DA

sentences is of a modal nature otherwise the anaphoric relation should be blocked. I take this as further evidence for a modal analysis of evidential DAs.

5.4.5 The Counterfactual Effect

Counterfactuals involve situations that are remote from the actual world i.e. they make a statement that a given situation is hypothetical not about how it really is in the actual world. The hallmark for counterfactuality is the counterfactual conditionals where the antecedent of the conditional does not hold in the real world but in a hypothetical world. In (63), the antecedent of the conditional does not hold in the actual world; the speaker implicates that Kangaroos have tails, (Kearns 2000: 61, after Lewis 1973).

(63) If kangaroos had no tails, they would topple over.

In (63), the speaker is making a hypothetical statement about kangaroos; the antecedent of the conditional is true only in a hypothetical world not the real world because in the real world kangaroos normally have tails.

Other than counterfactual conditionals, JA sometimes uses copular sentences to implicate counterfactual interpretations. However, when this happens, only DA copular is allowed and not the perfective copular. In the following situation, Adam is emphasizing a counterfactual effect: the proposition expressed by the copular sentence is not true in the real world rather it is counterfactual.

(64) Context: Adam has been working on a very difficult assignment for the last hour. Sami expected him to be done. Sami does not know that the assignment is hard.

Sami: shuu!! lessa mush mxaliS?!
What!! Still not finish
'What!! You have not finished yet?!'

Adam: (a) huu 'ana **kaayin/baagii** subermaan!
EMPH I **was-DA** superman
'Do you think I am a superman (to finish so fast)!!'

(b)# huu **'ana kunt/bageit** subermaan!
EMPH I **was-PERF** superman
'Do you think I am a superman (to finish so fast)!!'

In (64), Adam is making a hypothetical statement about himself which corresponds to the counterfactual conditional: *If I were superman, I would finish it fast*. The antecedent of the conditional does not hold in the actual world rather it is true only in a hypothetical world.

It is crucial to our analysis here that only DA copular verbs are allowed in these counterfactual contexts and not the perfective copular as evident by the acceptability of (64a) with the DA copular *kaayin*/*baagii* and the unacceptability of (64b) with the perfective copular *kunt*/*bageit*. This observation is further exemplified in the following counterfactual contexts where the speaker makes a statement that a given situation is hypothetical, not about how it really is in the actual world. Only DAs (65a and c) are allowed in these contexts and not perfective (65b and d).

(65)

(A) Context: the speaker is mocking Sami by asserting the fact that he did not do anything beneficial.

(a) shuu!! galulak msawee el-hawayil!!
what!! Tell-PERF-you make-DA the-miracle-PL
'Do you think he has done the miracles!!'

(b)?? shuu!! galulak sawwa el-hawayil!!
what!! Tell-PERF-you make-PERF the-miracle-PL
'Do you think he has done the miracles!!'

(B) Context: the speaker expresses his denial and surprise from Adam who thinks that Sami spends all of his time studying.

(c) shuu!! gallak sami raayiH jaai 3ala el-maktabeh
what!! say-to-you Sami go-DA come-DA to the-library!!
'You think that Sami always go to the library!!'

(d)??# shuu!! gallak sami raaH 'eja 3ala el-maktabeh
what!! say-to-you Sami go-PERF come-PERF to the-library!!
'You think that Sami always go to the library!!'

The counterfactual reading of the copular DA is supported by the fact that under a counterfactual reading, the copular DA is acceptable only with irrealis markers such as the conjunction marker *mshaan* 'to' and not realis markers such as *lethalik/laheik* 'that is why'. The contrast in meaning between these two markers is illustrated in (66a and b) where the former denotes irrealis reading thus the sentence is acceptable (66a), while the latter denotes realis reading and therefore the sentence is unacceptable (66b).

(66)

(a) sami rawaaH 3ala ed-daar bakeer mshaan yegra,
Sami go-home-PERF.3SG.MASC to the-house early to study-INF,
bs ma gara.
but not study-PERF
'Sami went home early to study, but he did not study.'

(b) sami rawaaH 3ala ed-daar bakeer lethalik gara,#
Sami go-home-PERF.3SG.MASC to the-house early that is why study-PERF
bs ma gara.
but not study-PERF
'Sami went home early, that is why he studied,# but he did not study.'

Copular DA in (64a) above is only allowed with the irrealis marker *mshaan* 'to' as in (67a) and not the realis marker *lethalik/laheik* 'that is why' in (67b).

(67)
(a) huu 'ana kaayin/baagii subermaan mshaan 'axaliS bsur3a!!
EMPH I was-DA superman to finish-INF fast
'Do you think I am a superman to finish so fast!!'

(b) huu 'ana kaayin/baagii subermaan #lethalik xalaSt bsur3a!!
EMPH I was-DA superman that is why finish-PERF fast
'Do you think I am a superman #that is why I finished so fast!!'

Note here that the realis marker can only be used under an assertive or realis reading as shown by the acceptability of the realis marker *lethalik/laheik* 'that is why' with the perfective copular *kaan* in (68).

(68) sami kaan ghani, lethalik en-naas kaanat tuTulb-uh maSaari.
Sami was rich, that is why the-People were ask-IMPERF-him money
'Sami was rich, that is why people used to ask him for money.'

I take the counterfactual effect of DAs in these counterfactual contexts as further evidence for the modal reading of evidential DAs in JA.

5.5 Possible World Semantics: Kratzer (1981, 1991)

Semantically, modals have been analyzed as quantifiers over *possible worlds* (Kripke 1962, Lewis 1973, Kratzer 1981, 1991). The notion of possible worlds has been introduced to capture the meaning that the actual world might have different state of affairs. That is, there are infinite numbers of possible ways the actual world can be. If I say for example 'Sami may come tomorrow', I mean that there is at least one possibility in which Sami might come tomorrow. In possible world semantics, this meaning can be captured by saying that 'there is at least one possible world that is compatible to what I know about the real world in which Sami might come tomorrow.' There are also worlds in which Sami does not come tomorrow. In other words, the actual world might be a world in which Sami comes tomorrow or a world in which Sami does not i.e. there are more than one state of affair in which the actual world can be. In possible world semantics, modals are analyzed as either existential quantifiers i.e. they quantify over *some* of the possible worlds such as the modal 'might' or universal quantifiers i.e. they quantify over *all* possible worlds such as the modal 'must'. The fact that modals are either existential or universal has been referred to as 'quantificational force'.

According to possible world theory developed by Kratzer (1981 and 1991), modals are defined in terms of *accessibility relations*. Kratzer (1981, 1991) proposes to derive the contextual nature of such accessible relations by the notion of *conversational backgrounds*. There are two conversational backgrounds, *the modal base* and *the ordering source*. These two conversational backgrounds are discussed below.

5.5.1 The Modal Base

In Kratzer's theory, the modal base is the flavor denoted by the modal and it is either lexically or contextually determined. In a sentence like (69a), the modal base of the modal 'may' can be either a *deontic* i.e. in view of laws or *epistemic* i.e. in view of what is known/what the speaker knows. However, the modal base can also be lexically determined as in (70a and b).

(69) John may come.

(70)
(a) In view of the law, John must wear a uniform. (Deontic)

(b) In view of what I know, John must be in London. (Epistemic)

In (70a), the phrase 'in view of the law' gives the modal 'must' a deontic interpretation, while the phrase 'in view of what I know' gives it an epistemic interpretation. That is, in (70a) there is a deontic accessible relation while in (70b) it is an epistemic accessible relation. For example, in (70b), the phrase 'in view of what I know' determines that the modal base is epistemic and it refers to the set of facts the speaker knows. In Kratzer's theory, this modal base denotes a function *f* from worlds to sets of propositions: the function *f* of the phrase 'in view of what I know' sets the conversational background as epistemic. In possible world semantics this can be captured as: if the modal base is a function *f* assigned to the world *w*, then it follows that for any world *w*, *f*(*w*) is the set of propositions *p* which the speaker knows to be true in *w*.

The accessibility relation *R* between two worlds (*w*, *w*') is determined as follows (adapted from Lee 2011):

(71)

(a) $R\,(w, w')$ is true iff all propositions that are true in w are also true in w'

(b) $R_{f\,(\text{Epis})}\,(w, w')$: $w' \in \cap\, f(w)$

The accessibility relation R in (71a) means that w' is *accessible* from w iff all the propositions that are true in w are true in w' as well. Considering the f function of the modal base, we can use (71a) to account for the epistemic accessibility relation in (70b) as shown in (71b). The lexical entry in (71b) states that the accessibility relation R determined by an epistemic modal base f between w and w' is true iff all propositions that are known to be true in w are true in w' as well. As discussed earlier, $f(w)$ is the set of propositions p that the speaker knows to be true in w: $f(w)= \{ p_1, p_2, p_3 \ldots..\}$. In the standards of Kratzer's possible world theory, each p is a set of possible worlds: $w \in p$; it follows therefore that p_1 for example consists of $=\{w_A, w_B, w_C\}$, $p_2 =\{w_A, w_B, w_C, w_D\}$, $p_3 =\{w_A, w_B\}$. This means that $f(w)$ is a set of sets of worlds. Following Portner (2009) and for the sake of simplicity, we will intersect all propositions in this set as follows: $\cap\, f(w) = \{p_1 \cap p_2, \cap p_3 \ldots\}$ which equals $\cap\, f(w) =\{w_A, w_B, w_C\} \cap \{w_A, w_B, w_C, w_D\} \cap \{w_A, w_B\}$. That is, $\cap\, f(w)$ is the set of all accessible worlds in which all the propositions of $f(w)$ are true; it follows then that $\cap f(w)= \{w_A, w_B\}$. In other words, $\{w_A, w_B\}$ is the set of all accessible worlds in which all the propositions of $f(w)$ are true. Put differently, $\{w_A, w_B\}$ is the set of worlds w' epistemically accessible from w. We can formulate this semantics using (71) above:

(72) $R_{f\,(\text{Epis})}\,(w, \{w_A, w_B\})$: $\{w_A, w_B\} \in \cap\, f(w)$

Let w' represents the set $\{w_A, w_B\}$, then:

(73) $R_{f\,(\text{Epis})}\,(w, w')$: $w' \in \cap\, f(w)$

The lexical entry in (73) can represent the semantics of (70b) as follows: in all the possible worlds *w*' that are accessible from the speaker's knowledge *f*(*w*), the proposition *p* 'john is in London' is true in *w*'.

5.5.2 The Ordering Source

The second conversational background is the ordering source *g*. The ordering source is a tool that imposes a certain ranking or ordering on the worlds in the modal base *f*. This means that the two conversational backgrounds interact: the modal base comprises worlds that represent certain facts known to the speaker or true in a given law or regulations; the ordering source imposes an ideal ordering to those worlds according to the norms, ideals, beliefs, normal course of events in the world.

Formally speaking, the ordering source is a function from worlds to set of propositions like the modal base *f*. If we assume that the ordering source *g* is a function assigned to the world *w*, then it follows that *g*(*w*) is the set of propositions that imposes the ordering $\leq_{g(w)}$. This ordering relation is defined as follows in (74).

(74) $\forall\, w', w'' \in W: w' \leq_{g(w)} w''$ iff $\{p: p \in g(w): w'' \in p\} \subseteq \{p: p \in g(w): w' \in p\}$

The ordering relation in (74) states that for all the possible worlds (*w*', *w''*) in the set W, *w*' is better or closer to the ideal than *w''* iff all the propositions that are true in *w''* are also true in *w'*. Therefore, *w'* is more highly ranked or ranked the same as *w''*. To put differently, $w' \leq_{g(w)} w''$ means that *w*' satisfies all the propositions in *g*(*w*) as does *w''* (i.e. they are equally ideal); or that

w' satisfies more propositions in *g*(*w*) than *w''* i.e. *w*' is closer to the ideal or better than *w''* (the propositions that are satisfied in *w''* are a subset of those satisfied in *w'*).

The interpretation of the ordering source relation is the clearest under a deontic modal reading as in (75).

(75) You must drive properly.

Let us suppose that in (75) *g* is a deontic conversational background which comprises set of propositions that are true according to a certain law or regulations. Thus, these propositions are a set of driving regulations that any driver needs to follow if s/he wants to drive properly.[18] Let *g*(*w*) comprises the following propositions: p_1 = you need to have a driving license, p_2 = you need to have insurance, p_3 = you need to wear a seatbelt; *g*(*w*)= { p_1, p_2, p_3}. The ordering source *g* ranks all possible worlds from the most ideal to the least ideal as shown in Table (3).

Table (3) The Ordering of Possible Worlds According to the Propositions in *g*(*w*)

w	p_1	p_2	p_3
w_1	1	1	1
w_2	1	1	0
w_3	1	0	1
w_4	0	1	1
w_5	1	0	0
w_6	0	1	0
w_7	0	0	1
w_8	0	0	0

[18] Example is taken from Peterson (2010: 174, adapted from Nauze 2008).

According to the ordering in Table (3), the worlds in which all the propositions {p_1, p_2, p_3} are true are the best worlds or the high-ranked worlds; this is exemplified in w_1. The least ranked worlds are those in which none of the propositions {p_1, p_2, p_3} are true as in w_8. For instance, the ordering relation $w_1 \leq_{g(w)} w_3$ states that w_1 is better than w_3 because w_1 is a world in which all the regulations are obeyed (i.e. p_1, p_2, p_3 are obeyed) as contrasted to w_3 in which only two regulations are obeyed (i.e. only p_1 and p_3 are obeyed). In other words, w_1 is closer to $g(w)$ than w_3: a world such as w_1, where you have driving license, you have insurance and you wear seatbelt is closer to the norm or ideal $g(w)$ than a world such as w_3 where you only have a driving license and wear a seatbelt but not having insurance. This ordering relation is exemplified in (76).

(76) $\forall\, w_1, w_3 \in \mathrm{W}: w_1 \leq_{g(w)} w_3: \{\mathrm{p}: \mathrm{p} \in g(w): w_3 \in \mathrm{p}\} \subseteq \{\mathrm{p}: \mathrm{p} \in g(w): w_1 \in \mathrm{p}\}$

The ordering relation in (76) states that w_1 is better than w_3 because all the propositions that are true in w_3 (i.e. p_1 and p_3) are also true in w_1. That is to say p_1 and p_3 in w_3 are subset of the propositions p_1, p_2, p_3 in w_1 but not the other way around. Also, some worlds in Table (3) are not comparable. For example, w_3 and w_4 cannot be ordered by $g(w)$ because driving without a driving license as in w_3 does not comply more to $g(w)$ than driving without insurance as in w_4.

Given the two conversational backgrounds, modal base and ordering source, as well as the quantificational force of modals, the following is a semantic denotation of the modals *must* and *may* in English as represented in Kratzer's possible world theory (c stands for context, O stands for the ordering source relation $g(w)$ and B stands for the modal base relation $f(w)$).

(77)

(a) $[\text{must}]^{c,w} = \forall w'[w' \in O_{g(w)}(B(w)) \rightarrow p(w') = 1]$

(b) $[\text{may}]^{c,w} = \exists w'[w' \in O_{g(w)}(B(w)) \wedge p(w') = 1]$

(Adapted from Peterson 2010:173)

The denotation in (77a) represents a human *necessity* where p is true in *all* the accessible worlds *w*' from *f*(*w*) which come closest to the ideal represented by *g*(*w*). The denotation in (77b) represents a human *possibility* where p is true in *some* accessible worlds *w*' from *f*(*w*) which come closest to the ideal represented by *g*(*w*).

5.6 Modal Analysis of Evidential DAs

Given the empirical evidence of modal interpretation presented in section 5.4 and the theoretical grounding of possible world semantics in section 5.5, I analyze evidential DAs as encoding a modal meaning based on the two conversational backgrounds, the modal base and the ordering source in section 5.6.1. In section 5.6.2, I propose a formal semantic analysis of the modal component of DAs; I also incorporate the temporal relation in the proposed semantic formalization and then provide a semantic derivation.

5.6.1 Possible World Semantics: Application

The discussion in the previous section showed that Kratzer (1981, 1991) defines modal interpretation in terms of an accessibility relation which is determined by a modal base and an ordering source. In the remainder of this section, I apply these two notions to DAs in JA to capture their modal semantics.

5.6.1.1 The Modal Base

I argue that the modal base of evidential DAs is a set of propositions *p* that constitutes the available indirect evidence which the speaker perceives at evidence acquisition time, EAT (Izvorski 1997). This means that modal base in evidential DA contexts is a function from world-time pairs to set of propositions rather than a function from worlds to set of propositions as in the standards of Kratzer's theory (Lee 2011 and Smirnova 2012). In other words, f is the function that assigns to every possible world the set of propositions *p* which characterizes the indirect evidence the speaker has at EAT: *f*(*w*,*EAT)*. Suppose that *f*(*w*,*EAT)* consists of the following propositions {p_1, p_2}: *f*(*w*,*EAT)* = {p_1, p_2}. In other words, *f*(*w*,*EAT)* is the set of propositions p_1, p_2 which constitute the indirect evidence a speaker has at EAT. In the standards of Kratzer's possible world theory, each *p* is a set of possible worlds: $w \in p$; it follows therefore that p_1 for example ={w_A, w_B, w_C}, p_2 ={w_A, w_B, w_C, w_D}. We will intersect all propositions in *f*(*w*,*EAT)* as follows: $\cap$ *f*(*w*,*EAT)* = {$p_1 \cap p_2$} which equals $\cap$ *f*(*w*,*EAT)* ={w_A, w_B, w_C} $\cap$ {w_A, w_B, w_C, w_D}. That is, $\cap$ *f*(*w*,*EAT)* is the set of all accessible worlds in which all the propositions (p_1, p_2) of *f*(*w*,*EAT)* are true; it follows then that $\cap$ *f*(*w*,*EAT)*={ w_A, w_B, w_C}. In other words, {w_A, w_B, w_C} is the set of all accessible worlds in which all the propositions of f (*w*,*EAT)* are true.

The discussion above shows that the type of accessibility relation which holds in the modal base is of epistemic nature: the relation which holds between *w* and *w*' is true iff all the propositions that the *speaker knows* in *w* at EAT are also true in *w*'. Thus, the epistemic accessibility relation for the modal base of the evidential DAs corresponds to: 'Given what *i* (the speaker) knows at EAT *p*.

The context given in (78) demonstrates how *f* (*w*,*EAT)*, the modal base, of DA assigns to every world a set of *p* that constitutes indirect evidence; the DA in (78) is used to express a consequent-state inferential reading, CSI.

(78) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that there appears to be some luggage in the door step and the light is on. Then, Adam tells Sami:

(a) majdi jaai.
Majdi come-DA
'[I infer that] Majdi **has come**.'

The modal base *f* (*w*,*EAT)* of this inferential reading is given in (79).

(79)

(a) *f* (*w*,*EAT)* = {p_1, p_2}:

- p_1 = Luggage is on doorstep

- p_2 = Light is on

It follows that *f* (*w*,*EAT)*= {Luggage is on doorstep and light is on}

(b) $\cap$ *f*(*w*,*EAT)* = {$p_1 \cap p_2$} which equals $\cap$ *f*(*w*,*EAT)* ={w_A, w_B, w_C} $\cap$ {w_A, w_B, w_C, w_D}= {w_A, w_B, w_C}:

- w_A: Majdi has come home.

- w_B: Lights of Majdi's house are always on and his luggage has been brought before he arrived home.

- w_C: Majdi rushed to the airport and he forgot to switch off lights and take his luggage.

- w_D: When Majdi left to the airport, there was a power cut. Now, the power is on again, that is why the lights are on.

In (78), the speaker perceives indirect evidence i.e. the light is on and luggage is on the doorstep at EAT. Each piece of evidence corresponds to a proposition *p* that the speaker knows to be true in *f* (*w*,*EAT)* at EAT: p_1 = Luggage is at doorstep, and p_2 = Light is on. As discussed earlier, the modal base *f* (*w*,*EAT)* comprises the set of propositions that characterize the *indirect evidence* perceived by the speaker at EAT; it follows therefore that *f* (*w*,*EAT)* = {p_1, p_2} which equals *f* (*w*,*EAT)*= {luggage is on doorstep and light is on}. This meaning is captured by (79a).

The speaker then uses this evidence at EAT to make inference given by the DA *jaai* 'has come'. In other words, given the fact that at EAT the speaker perceives that the light is on and there is luggage at doorstep, he would then come up with a hypothesis about what has happened with respect to this evidence at EAT. This would give the speaker multiple scenarios or *possible worlds* as indicated by the set of possible worlds given under {w_A, w_B, w_C, w_D} in (79b). For example, considering the evidence at EAT (light is on and luggage is at doorstep), one possible scenario that explains what happened with respect to this evidence is that 'someone has come home' as given by w_A, so on and so forth.

One question remains here, which is 'what is the set of accessible worlds in which all propositions of *f* (*w*,*EAT)* are true?' in other words, what are the worlds, among those given under {w_A, w_B, w_C, w_D}, in which both p_1 = Luggage is at doorstep, and p_2 = Light is on are true? The answer comes from the definition of accessibility relation given in (71a), repeated here as (80).

(80) *R* (*w*, *w*') is true iff all propositions that are true in *w* are also true in *w*'.

That is, $\{w_A, w_B, w_C, w_D\}$ are accessible from $f(w,EAT)$ iff all propositions (p_1 = Luggage is at doorstep, and p_2 = Light is on) that are true in $f(w,EAT)$ are also true in each world in $\{w_A, w_B, w_C, w_D\}$. A closer look at (79b) reveals the fact that only worlds $\{w_A, w_B, w_C\}$ are accessible from $f(w,EAT)$. That is because *all* the propositions p_1 (Luggage is at doorstep) and p_2 (Light is on) in the modal base $f(w,EAT)$ are true in each world in $\{w_A, w_B, w_C\}$. However, w_D is not among those accessible worlds because only p_2 (the light is on) is true in this world and not p_1 (luggage is at doorstep). It follows then that the set of all accessible worlds in which all propositions of $f(w,EAT)$ are true is $\{w_A, w_B, w_C\}$: $\cap f(w,EAT) = \{w_A, w_B, w_C\}$. This discussion is captured by the notation given in (79b).

The same logic also applies to the modal interpretation denoted by DAs under a result-state inferential reading, RSI. In sentence (81), the DA is used to trigger inference about ERs (the doer of the action, the patient/theme or the manner of the action). In (81) the speaker is making inference about the doer of the action i.e. who parked the car (See section 4.4.3.4 chapter 4 for detailed discussion).

(81) **majdi** Saaf es-sayarah.
Majdi park-DA the-car
'Evidently, Majdi has parked the car.'
Intended: '[I infer that] it is **Majdi** who parked the car.'

In (81), the speaker perceives a car parked at EAT. He uses this evidence to make inference about who parked the car: He infers that it is Majdi who parked it. Let us assume that the speaker knows that the following propositions are true too: {Speaker knows that the car belongs to Majdi; he knows that Adam and Sami are his friends; he knows that Majdi allows only his friends to drive his car (Adam and Sami), he also knows that Ali is not his friend}. The modal base $f(w,EAT)$ of this inferential reading is given in (82).

(82)

(a) $f\,(w,EAT) = \{p_1\}$:

- p_1 = Majdi's car is parked

It follows that $f\,(w,EAT)$= {Majdi's car is parked}

(b) $\cap\, f(w,EAT) = \{\cap p_1\}$ which equals $\cap\, f(w,EAT) = \{w_A, w_B, w_C\}$:

- w_A: Majdi has parked the car.
- w_B: Adam has parked the car.
- w_C: Sami has parked the car.
- w_D: Ali has parked the car.

In (81), the speaker perceives indirect evidence i.e. Majdi's car parked at EAT. This evidence corresponds to a proposition *p* that the speaker knows to be true in $f\,(w,EAT)$ at EAT: p_1 = Majdi's car is parked. Since the modal base $f\,(w,EAT)$ comprises the set of propositions that characterize the *indirect evidence* perceived by the speaker at EAT; it follows therefore that $f\,(w,EAT) = \{p_1\}$ which equals $f\,(w,EAT)$= { Majdi's car parked}. This meaning is captured by (82a).

The speaker then uses this evidence at EAT to make inference given by the DA. In other words, given the fact that at EAT the speaker perceives that Majdi's car is parked, he would then come up with a hypothesis about *who* has parked the car with respect with this evidence at EAT. This would give the speaker multiple scenarios or *possible worlds* as indicated by the set of possible worlds given under $\{w_A, w_B, w_C, w_D\}$ in (82b). For example, one possible scenario is that 'Sami has parked the car' as given by w_C. In (82), only worlds $\{w_A, w_B, w_C\}$ are accessible from $f\,(w,EAT)$ that is because the proposition p_1 (Majdi's car has been parked) in the modal base $f\,(w,EAT)$ is true in each world in $\{w_A, w_B, w_C\}$: p_1 (Majdi's car has been parked) is true in

w_A where Majdi is the one who parked the car (since it is his car, it follows that he might have parked it); p_1 is also true in w_B and w_C where Majdi's friends, Adam and Sami, parked Majdi's car respectively (since Majdi only allows his friends to drive his car and Adam and Sami are his friends, it follows that they might have parked his car). However, w_D is not among those accessible worlds because p_1 is not true in w_D: given the fact that only Majdi's friends can drive the car, Ali is ruled out because he is not a friend of Majdi. It follows then that the set of all accessible worlds in which all propositions of $f(w,EAT)$ are true is $\{w_A, w_B, w_C\}: \cap f(w,EAT) = \{w_A, w_B, w_C\}$ as demonstrated in (82b).

So far, I have only discussed the modal base of the evidential utterances in (78) and (81). However, the propositions that are asserted in (78) and (81) are true only in w_A and not in w_B, w_C: the asserted proposition in (78) is true in w_A where 'Majdi *has come* home' (as denoted by the DA *jaai* 'has come') and not in w_B, w_C; also, the asserted proposition in (81) is true in w_A where '*Majdi* has parked the car' (as denoted by sentence (81) '*majdi Saaf es-sayarah'*) and not in w_B or w_C. In other words, if $\{w_A, w_B, w_C\}$ is the set of accessible worlds in which the propositions in $f(w,EAT)$ are true for sentences (78) and (81); then the question that might arise here is 'why did the speaker pick out w_A over w_B and w_C ?'. To answer this question, we need an ordering source that can restrict the ranking of these accessible worlds.

5.6.1.2 The Ordering Source

Similarly to modal base, I argue that the ordering source is a function from world-time pairs to a set of propositions rather than a function from worlds to a set of propositions as in Kratzer's theory. I further argue that the ordering source $g(w,EAT)$ of evidential DAs is of a stereotypical (ST) and doxatic (DOX) nature: $g_{ST/DOX}(w,EAT)$ (Peterson 2010, Lee 2011 and

Smirnova 2012). In Kratzer's theory, a stereotypical ordering source is a set of propositions which represent the normal course of events or ideals that are fixed with regards to the use of things in the actual world. The interpretation of modal base can also be conditioned to the *speaker's* set of beliefs. This meaning corresponds to a doxatic ordering source. In other words, the doxatic ordering source imposes a restriction on the worlds in the modal base determined by ideals conditioned by the speaker's belief state. The contrast between the two is given in example (83), (Adapted from Peterson 2010:176).

(83) John must be fishing.

a- *f*(*w)*EPISTEMIC: { John's rubber boots are missing; his truck is not in the driveway; it is fishing season}

b- *g*(*w)* STEREOTYPICAL: { Rubber boots are used for fishing; rubber boots are not ideal for hunting or cherry-picking}

c- *g*(*w)* DOXATIC:{ Knowing how much John likes fishing}

The stereotypical ordering source restricts the worlds in the modal base in (83a) by the set of propositions that characterize fixed ideas about how things are used in the actual world such as the fact that rubber boots are normally used for fishing not cherry-picking or hunting (83b). On the other hand, the doxatic ordering source imposes restriction on the worlds in the modal base depending on the speaker's belief state such as the fact that the speaker knows that John likes fishing (Peterson 2010).

I argue that with evidential DAs the speaker uses the ST and DOX ordering source to rank the worlds in the modal base *f* (*w,EAT).* In other words, the speaker uses all the ideals set by the normal course of events (ST) or those which he believes to be true in his belief state (DOX) at EAT to rank the accessible worlds in the modal base. Following Lee (2011), I propose that the ordering source for evidential DAs is $g_{ST/DOX}(w,EAT)$. Let us examine how the ordering source

ranks the worlds in the modal base in (79) and (82) given in the previous section. I will start with example (79).

As discussed earlier in example (79), the set of accessible worlds in which all propositions of $f(w,EAT)$ are true is $\{w_A, w_B, w_C\}$: $\cap f(w,EAT) = \{w_A, w_B, w_C\}$. However, the proposition that is asserted in the evidential utterance in (78a) is true only in w_A. This means that we need the ordering source to restrict the ranking of the accessible worlds in $\{w_A, w_B, w_C\}$ more properly: we need a tool that picks out the best world or the most ideal world, in this case w_A. Given the fact that the ordering source is a set of propositions, the ordering source $g_{ST/DOX}(w,EAT)$ for the utterance given in (78a) is given in (84).

(84) $g_{ST/DOX}(w,EAT) = \{ p_3, p_4, p_5\}$

- p_3 = If light is on and luggage is at doorstep, then someone has come home.
- p_4 = Lights of Majdi's house are not always on; and he is a person who likes to keep his luggage with him everywhere he goes.
- p_5 = Majdi is usually a careful person; he does not forget to switch off lights and neither does he forget his stuff.

The set of propositions in $g_{ST/DOX}(w,EAT)$ imposes a ranking on the set of accessible worlds $\{w_A, w_B, w_C\}$ in that w_A is picked out as the best world or the closest world to the ideals set by $g_{ST/DOX}(w,EAT)$. That is to say, w_A is the only world that is compatible with the set of propositions in $g_{ST/DOX}(w,EAT)$. If we consider w_B, we can see that this world is ruled out by p_4. The same thing applies to w_C which is ruled out by p_5. However, all the propositions $\{p_1, p_2, p_3\}$ are true in w_A; it follows then that w_A is picked out as the most ideal world that corresponds to proposition set in $g_{ST/DOX}(w,EAT)$. To put differently, all the propositions that are true in w_B and

w_C are subset of the propositions that are true in w_A. It follows then that w_A is the best-ranked world according to the definition of ordering source given in (74) earlier, repeated here as (85).

(85) $\forall\, w', w'' \in W: w' \leq_{g(w)} w''$ iff $\{p: p \in g(w): w'' \in p\} \subseteq \{p: p \in g(w): w' \in p\}$

To apply on our example here:

(86) $\forall\, w_A, w_B, w_C \in f(w,EAT): w_A \leq_{g\text{ST/DOX}(w,EAT)} w_B, w_C$ iff $\{p: p \in g_{\text{ST/DOX}}(w,EAT): w_B, w_C \in p\} \subseteq \{p: p \in g_{\text{ST/DOX}}(w,EAT): w_A \in p\}$

According to the above discussion, it follows then that:

(87) $w_A \leq_{g\text{ST/DOX}(w,EAT)} w_B, w_C$

Putting together these two pieces (the modal base and the ordering source), we can say: in the evidential utterance in (78a), the speaker perceives indirect evidence at EAT that is specified in the modal base. The speaker then thinks of hypotheses that explain the course of events with regard to the available evidence at EAT. These hypotheses correspond to multiple scenarios or possible worlds as in $\{w_A, w_B, w_C\}$ in the modal base. These worlds are then ranked by the speaker according to the ideals or his set of belief at EAT i.e. according to the ordering source. Having all these considerations together, the speaker comes up with the most ideal scenario or world that suits the ideals or his belief in the ordering source at EAT, in this case the scenario given in w_A i.e. 'Majdi has come home'.

The example in (81) is semantically derivable in the same fashion. As discussed earlier in (82), the set of accessible worlds in which all propositions of $f(w,EAT)$ are true is $\{w_A, w_B, w_C\}$: $\cap f(w,EAT) = \{w_A, w_B, w_C\}$. However, the proposition that is asserted in the evidential utterance

in (81) is true only in w_A. This means that we need the ordering source to restrict the ranking of the accessible worlds in $\{w_A, w_B, w_C\}$ more properly: we need a tool that picks out the best world or the most ideal world, in this case w_A. Given the fact that the ordering source is a set of propositions, the ordering source $g_{ST/DOX}(w,EAT)$ for the utterance in (81) is given in (88).

(88) $g_{ST/DOX}(w,EAT) = \{ p_2\}$

- p_2= If the car belongs to X, then X is the one who drives/parks it.

$g_{ST/DOX}(w,EAT)$ in (88) imposes a ranking on the set of accessible worlds $\{w_A, w_B, w_C\}$ in that w_A is picked out as the best world or the closest world to the ideals set by $g_{ST/DOX}(w,EAT)$. That is because according to the ordering source in (88) and given the fact that the speaker knows that the car belongs to Majdi as assumed earlier, it follows then that the best ranked world is the one given in w_A i.e. *Majdi* has parked the car. If we consider w_B and w_C, we can see that these worlds are ruled out by p_2 in the ordering source: the car does not belong to Adam or Sami; therefore, w_B and w_C are ruled out.

In this context, we can say that the speaker perceives indirect evidence at EAT that is specified in the modal base. The speaker then thinks of hypotheses that explain the course of events with regards to the available evidence at EAT, in this case the one who parked the car. These hypotheses correspond to multiple scenarios or possible worlds as in $\{w_A, w_B, w_C\}$ in the modal base. These worlds are then ranked by the speaker according to the ideals or his set of beliefs at EAT i.e. according to the ordering source. Putting all these considerations together, the speaker comes up with the most ideal scenario or world that suits the ideals or his beliefs in the ordering source, in this case the scenario given in w_A i.e. '*Majdi* has parked the car'.

5.6.2 Compositional Analysis

5.6.2.1 Semantic Formalization

In order to capture the modal interpretation of evidential DAs discussed in the previous sections, I propose the following semantic denotation given in (89).

(89) $[[\text{DA}]] = \lambda p\, \lambda w\, \lambda EAT\, [w: \forall w'[w' \in (f, g_{\text{ST/DOX}}, (w, EAT)) \rightarrow p(w')(EAT)]]$

The semantic denotation in (89) states that the proposition *p* in the scope of the evidential DA is true in all the accessible worlds *w*' that are compatible with what the speaker knows in the actual world at EAT. To put this differently, *p* in the scope of the evidential is true in a world *w*' with respect to the modal base $f(w, EAT)$ and the ordering source $g_{\text{ST/DOX}}(w, EAT)$ iff *p* is true in all the worlds *w*' that are epistemically accessible from *w* and are the closest to the ideals and speaker's belief with respect to the indirect evidence at EAT. The proposed semantic notation is compatible with the discussion of possible world semantics laid out in the previous sections: according to the semantic denotation in (89), there is a set of possible worlds *w*' in which all the facts known by the speaker in the modal base (i.e. indirect evidence) are true; these worlds are then ranked by the ideals and speaker's belief in the ordering source; the worlds that are ranked higher (closer to the ideals) are the set of worlds in which *p* is true.

The proposition *p* in the scope of the evidential modal component in (89) varies depending on what inferential reading is used: under RSI (Result-state) only ERs (event arguments such as doer of action, theme and manner of action) are targeted by speaker's inference. However, in CSI (Consequent-state) the event itself can be target of inference (see

section 4.4.3.4, chapter 4 for detailed discussion). The semantic denotations for this contrast between the two inferential readings are proposed in (90).

(90)

(a) RSI: $[[DA]] = \lambda p\, \lambda w\, \lambda EAT\, [w: \forall w'[w' \in (f, g_{ST/DOX}, (w, EAT)) \rightarrow p_{(ERs)}(w')(EAT)]]$

(b) CSI: $[[DA]] = \lambda p\, \lambda w\, \lambda EAT\, [w: \forall w'[w' \in (f, g_{ST/DOX}, (w, EAT)) \rightarrow p_{(e)}(w')(EAT)]]$

The notation in (90a) asserts that under RSI the proposition *p* in the scope of the belief world includes only ERs (event arguments such as the doer of the action, the object, etc...). However, in (90b) the proposition *p* in the scope of the belief world includes the event itself since the event can be target of inference under CSI reading. I will provide discussion on how the above denotations derive semantic explanation of RSI and CSI examples in the next section.

The modal component in (89) encodes a *universal* quantificational force i.e. it states that the *p* is true in *all* the accessible worlds *w*' that are compatible with what the speaker knows in the actual world at EAT. Note here that the quantificational force of evidential DAs in JA is not lexically specified as it is the case for example with English modals. In English, the modal *must* encodes a universal or strong modal force since it is used to indicate necessity interpretation. However, the modal *might* specifies a weaker or existential modal force since it is used to indicate possibility interpretation. Another difference lies in the fact that the modal base with DAs, unlike English modals, is lexically specified i.e. the modal base has an epistemic nature which is compatible with the evidential (knowledge of the speaker) reading.[19] This contrasts with English modals where the modal base is ambiguous with a range of different interpretations: epistemic, deontic, dynamic, etc… One question remains that is 'what accounts for the *universal* quantificational force of the modal reading in (89)?' Most of the evidential systems which have

[19] See Izvorski (1997) for more discussion on the relation between epistemic and evidentials.

received formal modal analysis in the literature have proposed a universal quantificational force for the modal interpretation of the evidentials at issue (cf. Peterson 2010, Lee 2011, Smirnova 2012, Matthewson et al. 2007 among others). I follow this line of research in proposing a default universal modal force for the evidential DA in JA. Another motivation comes from the fact modal operators with non-overt modal force (modal force is not overtly expressed) such as attitude verbs or conditional clauses (cf. Kratzer 1986) have normally been analyzed as restrictors of universal force by default (Izvorski 1997). The universal quantificational force of evidential DAs is consistent with those non-overt modal operators since as discussed above modal force with DAs is not lexically specified i.e. the modal force is not overtly expressed.

Finally, in the semantic denotation in (89), the two conversational backgrounds are viewed as functions of world-time pairs to sets of propositions. In other words, the temporal component specified by the use of EAT plays a central role in the modal interpretation of evidential DAs. Furthermore, and as discussed in chapter 4, the temporal relations, namely anterior and posterior relations, are also important in establishing the inferential/modal reading of evidential DAs. I will address this issue in the next section where I incorporate the temporal component into the formal semantic analysis of DAs proposed in (89).

5.6.2.2 Temporal Incorporation

Evidential DAs involve a temporal component in their semantics as discussed in chapter 4. Evidential DAs in JA introduce a temporal contribution to the indirect evidence requirement: the indirect evidence is specified temporally rather than morphologically. The indirect evidence induced by DAs is a result of two temporal relations, anterior and posterior relations: the fact that the event is either in *anterior* or *posterior* relation to EAT guarantees that the *speaker does not*

perceive the event; in other words, the event is outside the domain of EAT (See section 4.4.2.2, chapter 4 for detailed discussion).

Moreover, I have argued that the indirect evidence, which is specified by anterior and posterior temporal relations, is what triggers the inferential reading with DAs. The reasoning of this is as follows: The fact that the event is either anterior or posterior to EAT guarantees that the *speaker does not perceive the event*; rather, the speaker uses the indirect evidence (i.e. the evidence available at EAT) as his/her basis to make *inference about the anterior or posterior event* (See section 4.4.3. chapter 4 for detailed discussion).

The incorporation of the EAT in the temporal presentation of DAs is crucial since it contributes to the evidential meaning of DAs i.e. EAT includes the indirect evidence which is necessary to establish the indirect evidential meaning of DAs. It also contributes to the relative temporal interpretation of evidential DAs as shown in chapter 4. Putting all the pieces together, EAT, TU, anterior and posterior relation, and relative tense, I have assumed an intentional analysis of temporal representation i.e. AT relation (Condoravdi 2002). An AT relation consists of four sentences radicals: *P* a property of eventuality, *t* an interval or reference time of eventuality, *w* the world at which the eventuality holds and *e* the event. The temporal relation for locating eventualities with respect to its reference time is solely dependent on the eventuality properties as specified in the lexical entries in (141 ch.4), repeated here as (91).

(91) AT(*t*,*w*,*P*):

(a) Eventive = $\exists e\,[P(w)(e) \,\&\, \tau(e,w) \subseteq t]$

(b) Stative = $\exists e\,[P(w)(e) \,\&\, \tau(e,w) \circ t]$ (Condoravdi 2002:70)

I proposed the following semantic representations to account for all the temporal readings of DAs, repeated here as (92) and (93).

(92) Anterior Temporal Relation:

(a) EAT ⊆ TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(b) EAT < TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(c) TU < EAT & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(93) Posterior Temporal Relation:

(a) EAT ⊆ TU & EAT < T & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(b) EAT < TU & EAT < T & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(c) TU < EAT & EAT < T & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

The aforementioned discussion asserts the fact that temporal specification is crucial in the establishment of evidential (i.e. indirect evidence) and modal reading (i.e. the speaker does not perceive the event because the event is either *anterior* or *posterior* therefore he makes an inference about it). It follows therefore that the inclusion of the temporal component is essential for any evidential or modal analysis of DAs. To this end, I incorporate the temporal relations proposed in (92) and (93) into the modal denotations I proposed in (90a and b). Before I do that, two points are in order. First, it is worth mentioning that the semantic representations of temporal relations in (92) and (93) are only semantically felicitous when EAT is either at TU as shown in (92a and93a) or prior to EAT (92b and 93b), but not when EAT is posterior to TU (92c and 93c). In other words, the posterior temporal relation between EAT and TU (TU<EAT) pertains to contexts where the speaker makes inference about an anterior or posterior event based on the

assumption that he *will* acquire the relevant evidence in the future. Evidential DAs are not allowed in these contexts where the speaker makes the evidential implication first then acquires the evidence as shown in (94). This temporal configuration is semantically possible but pragmatically implausible as shown in (94).

(94) ‘ana bukrah raH aguul ennuh majdi Saaf es-sayarah, bs mumkin 3ali elli
I tomorrow will say that Maji park-DA the-car, but might Ali who
Safha.
park-PERF-it
‘[??/# Tomorrow, I will infer that] Majdi will have parked the car but maybe Ali who would have parked it.’

Sentence (94) is not acceptable in an *inferential context* where speaker makes inference about the event based on evidence that *will* be available at hand. This sentence shows that in order to express an indirect evidential reading using DAs in JA, the speaker is supposed to have acquired the evidence first in order for him to express the evidential reading and not the other way around. It follows, therefore, that the lexical entries given in (92c and 93c) are not incorporated in the modal denotation in (90a and b).

Second, the semantic denotation in (90a) shows that under RSI only ERs (event arguments such as doer of action, theme and manner of action) are targeted by speaker’s inference. However, the semantic presentation of temporal relation in (92) and (93) includes only event (e) as its main argument and not ERs. Therefore, I propose the following lexical entry in (95) to be included in the semantic representation of temporal relations, especially anterior relation, to account for the ERs inference under RSI. The motivation for including (95) in anterior rather than posterior relation comes from the fact the RSI is compatible only with anterior relation rather than posterior relation as will be shown shortly.

(95) ER ∈ P(e)

Based on this discussion, I redefine the semantic representation of the anterior temporal relation (92) under RSI as in (96A), while maintain the same representation under CSI (96B). The semantic representation of posterior temporal relation is also maintained as in (97).

(96) Anterior Temporal Relation (final):

(A) RSI:

(a) EAT ⊆ TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T & ER ∈ P(e)]

(b) EAT < TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T & ER ∈ P(e)]

(B) CSI:

(a) EAT ⊆ TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(b) EAT < TU & T < EAT & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(97) Posterior Temporal Relation (final):

(a) EAT ⊆ TU & EAT < T & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

(b) EAT < TU & EAT < T & AT(t,w,P): ∃e [P(w) (e) & τ(e,w) ⊆/∘ T]

The representations in (96) and (97) constitute the final version of temporal relations: they include the lexical entry (95) needed to account for the inference under RSI as in (96A); the lexical entries given in (92c and 93c) are ruled out due to the pragmatic implausibility as discussed earlier.

Now, I incorporate the final versions of the temporal relations given in (96) and (97) into the proposed modal denotation given in (90 a and b) as shown in (98 a and b); (≤ captures the past (EAT < TU) and present (EAT ⊆TU) relation between EAT and TU).

(98)

(a) RSI:

[[DA]]= $\lambda p\ \lambda w\ \lambda t\ \lambda EAT$ [EAT $\leq$ TU & T < EAT & $\exists e$ [$P(w)$ (e) & $\tau(e,w) \subseteq/\circ$ T & ER $\in P$(e)] & w: $\forall w'[w' \in (f, g_{ST/DOX}, (w,EAT)) \rightarrow \exists ER[P(w')(ER)]]]$

(b) CSI:

[[DA]]= $\lambda p\ \lambda w\ \lambda t\ \lambda EAT$ [EAT$\leq$ TU & w: $\forall w'[w' \in (f, g_{ST/DOX}, (w,EAT)) \rightarrow$ (T < EAT/EAT < T & $\exists e$ [$P(w')$ (e) & $\tau(e, w') \subseteq/\circ$ T])]]

The semantic denotations in (98a and b) provide a unified semantic account of DAs in JA: they comprise the modal and temporal components. The temporal component is provided by temporal relation between EAT and TU (present or past) and EAT and T (anterior or posterior). The modal component is represented by the universally-quantified conjunct which includes the modal base and the ordering source, (f, $g_{ST/DOX}$). The significance of this denotation lies in the fact that there exists an interaction between the modal and the temporal components and that both components contribute to the inferential evidential meaning of DAs under RSI and CSI.

The semantic denotations in (98a and b) are contrastive. First, under RSI (98a), the event (e) is not embedded in the belief world i.e. not embedded in the universally-quantified conjunct. That is because, as discussed earlier in chapter 4, under RSI the event is realized in the actual world i.e. it cannot be target of inference. However, under CSI (98b), the event is part of the belief world since it can be target of inference. Second, contra to CSI where anterior and posterior relations are used (i.e. T < EAT and EAT < T respectively), only the anterior temporal relation (i.e. T < EAT) is used under RSI (98a). This is due to the nature of the result-state which is only compatible with the anterior rather than the posterior temporal relation. That is to say, my analysis of RSI in (98a) appeals to our world knowledge with regard to the type of evidence available or not in a particular temporal relation: we cannot have a result-state (which

characterizes the evidence in my analysis) of an event that has not occurred yet much like, in a similar fashion, we cannot have a direct sensory evidence of an event that has not yet occurred as is the case with direct evidentiality. In other words, *considering the entailing relation between the result-state and event*, result-state is an outcome of an event that has already occurred; this entails that for the EAT to hold a result-state, there needs to be an event that has already occurred prior to EAT (see chapter 4, section 4.4.3.4 for detailed discussion).

Next, I use the proposed semantic denotations in (98a and b) to provide a semantic derivation of some illustrative examples.

5.6.2.3 Semantic Derivation

Sentence (81), repeated here as (99), represents RSI reading as discussed earlier.

(99) **majdi** Saaf es-sayarah.
Majdi park-DA the-car
'Evidently, Majdi has parked the car.'
Intended: '[I infer that] it is **Majdi** who parked the car.'

The semantic derivation of this sentence is given below.

First, this sentence comprises a temporal component: the speaker acquires the evidence (in this case car parked) at EAT. Let us assume that the EAT is temporally specified at TU (now). The speaker uses the evidence at EAT which coincides with TU to make an *inference* about an *anterior event* as evident by the post-state interpretation of DAs. Since the sentence presents RSI, it follows then that the speaker can only target ERs in his inference, in this case the doer of the event i.e. Majdi. This anterior temporal relation is formally captured using the temporal lexical entry in (96a) under RSI as follows:

(100)

(a) $\lambda p\, \lambda w\, \lambda t$ [AT [Park (w) (t)]]

→ (b) $\lambda p\, \lambda w\, \lambda$t [AT [Park ($w$) ($t$)]: $\exists e$ [Park (w) (t) & $\tau(e,w) \subseteq$ T & **Majdi** $\in$ Park (e)]]

→ (c) $\lambda p\, \lambda w\, \lambda$t [EAT $\subseteq$ TU & T < EAT & $\exists e$ [Park (w) (e) & $\tau(e,w) \subseteq$ T & **Majdi** $\in$ Park (e)]]

The temporal semantic derivation in (100) corresponds to the semantic denotation in (96a) under RSI. The lexical entry in (100b) identifies the temporal structure of the event at issue (park) such that the event is instantiated in T and corresponds to the two variables (w) (t); this event also comprises the ER (i.e. Majdi). In (100c), a final temporal derivation is given where the two temporal relations, relation between EAT and TU and T and EAT, are specified. The former (EAT $\subseteq$ TU) captures the temporal reading of the whole utterance (i.e. present) and the latter captures the anterior temporal relation of the proposition in the scope of the evidential operator i.e. T < EAT. In (101) below, the derived temporal entry in (100c) is incorporated in the modal denotation in (98a) which represents the final temporal and modal denotation of RSI utterances.

(101) [[Saaf]]= $\lambda p\, \lambda w\, \lambda$t λEAT [EAT $\subseteq$ TU & T < EAT & $\exists e$ [Park (w) (e) & $\tau(e,w) \subseteq$ T & **Majdi** $\in$ Park (e)]] & w: $\forall w'[w' \in (f, g_{ST/DOX}, (w, EAT)) \rightarrow \exists ER[$**Majdi** ($w'$)($ER$)]]]

The lexical entry in (101) represents the final temporal and modal denotation of the RSI in sentence (99) above. The temporal conjunct reads as: the speaker acquires the evidence, in this case car parked at EAT which is temporally specified at TU (now). The evidence at EAT is a result of an anterior temporal relation between T (in which the event of parking is instantiated) and EAT. Since the sentence represents RSI, then the speaker uses the evidence at EAT to make an *inference* about *ERs of the anterior event*. The modal conjunct reads as: among the accessible

worlds *w*' that are compatible with what the speaker knows in the modal base *f* (*w*,*EAT*), those that are ranked higher by the ordering source $g_{ST/DOX}$(*w*,*EAT*) are the worlds in which '**Majdi** has parked the car' is instantiated. In other words, '**Majdi** has parked the car' is true in all the worlds *w*' that are epistemically accessible from *w* and are the closest to the ideals and speaker's belief with respect to the indirect evidence at EAT.

The same logic also extends to other RSI utterances as in (102) and (103).

(102) embareH**,** lageet **majdi** Saaf es-sayarah, bs mumkin 'aHmad (elli) Safha.
Yesterday, find-PERF.1SG **Majdi** park-DA the-car but might Ahmad who PERF-park-it
'Yesterday, I found that Majdi had parked the car, but maybe Ahmad did.'
Intended: 'Yesterday, [I inferred that] it was Majdi who had parked the car.'

(103) majdi Saaf **es-sayarah**, bs huwwa mumkin elli Safuh et-treela.
Majdi park-DA **the-car**, but he maybe what PERF-park-it the-truck
'Majdi has parked the car, but maybe he parked the truck.'
Intended: '[I infer that] what Majdi has parked is the car.'

The semantic denotation given in (101) can be extended to account for the semantic derivation of sentences (102) and (103). The only difference is that in (102), EAT is prior to TU i.e. the time at which the speaker collected the evidence is prior to TU and not coincides with TU as in (99). Also, in (103), the speaker is making inference about another ER, in this case **the car**. Thus, the semantic denotation proposed in (98a) can formally capture the semantics of (102) and (103) as given in (104) and (105) respectively.

(104) [[Saaf]]= λ*p* λ*w* λt λ*EAT* [EAT < TU & T < EAT & ∃*e* [Park (*w*) (*e*) & *τ*(*e*,*w*) ⊆ T & **Majdi** ∈ Park (*e*)]] & *w*: ∀*w*'[*w*'∈ (*f*, $g_{ST/DOX}$, (*w*, *EAT*)) → ∃*ER*[**Majdi** (*w*')(*ER*)]]]

(105) [[Saaf]]= λ*p* λ*w* λt λ*EAT* [EAT ⊆ TU & T < EAT & ∃*e* [Park (*w*) (*e*) & *τ*(*e*,*w*) ⊆ T & **Car** ∈ Park (*e*)]] & *w*: ∀*w*'[*w*'∈ (*f*, $g_{ST/DOX}$, (*w*, *EAT*)) → ∃*ER*[**Car** (*w*')(*ER*)]]]

The above discussion demonstrates derivation for RSI utterances. Below, I provide semantic derivation for CSI utterances. Sentence (78), repeated here as (106), expresses a CSI reading as discussed earlier.

(106) Context: Majdi is out of town. Adam and Sami approach Majdi's house and see that there appears to be some luggage in the door step and the light is on. Then, Adam tells Sami:

(a) majdi jaai.
Majdi come-DA
'[I infer that] Majdi **has come**.'

First, this sentence comprises a temporal component: the speaker acquires the evidence i.e. light is on and luggage at doorstep at EAT which is temporally specified at TU (now). The speaker uses the evidence at EAT to make *inference* about an *anterior event* i.e. Majdi having come home. Since the sentence presents CSI, it follows then that the speaker can target the event itself (i.e. coming home). This anterior temporal relation is formally captured using the temporal lexical entry in (96a) under CSI as follows:

(107)
(a) λ*p* λ*w* λ*t* [AT [Come (*w*) (*t*)]]

→ (b) λ*p* λ*w* λt [AT [Come (*w*) (*t*)]: ∃*e* [Come (*w*) (*t*) & *τ*(*e*,*w*) ⊆ T]]

→ (c) λ*p* λ*w* λt [EAT ⊆ TU & T < EAT & ∃*e* [Come (*w*) (*e*) & *τ*(*e*,*w*) ⊆ T]]

The lexical entry in (107b) identifies the temporal structure of the event at issue (come) such that the event is instantiated in T and corresponds to the two variables (*w*) (*t*). In (107c), a final temporal derivation is given where the two temporal relations (relation between EAT and TU and T and EAT) are specified. The former (EAT ⊆ TU) captures the temporal reading of the whole utterance (i.e. present) and the latter captures the anterior temporal relation of the proposition in the scope of the evidential operator i.e. T < EAT. In (108) below, the derived temporal entry in (107c) is incorporated in the modal denotation in (98b) which represents the final temporal and modal denotation of CSI utterances as shown in (108).

(108) [[jaai]]= λ*p* λ*w* λt λ*EAT* [EAT⊆ TU & *w*: ∀*w*'[*w*'∈ (*f*, $g_{ST/DOX}$, (*w*,*EAT*)) → (T < EAT & ∃*e* [**Come** (*w*') (*e*) & τ(*e*, *w*') ⊆ T])]]

The lexical entry in (108) represents the final temporal and modal denotation of the CSI in sentence (106a) above. The temporal conjunct reads as: the speaker acquires the evidence (i.e. CS: light is on and luggage at doorstep) at EAT which is temporally specified at TU (now). The evidence at EAT is then used by the speaker to make an *inference* about an *anterior event*: Given the fact that the light is on and luggage is at doorstep, the speaker *infers* that what causes these results at EAT is an *anterior event*, which the speaker believes to be 'Majdi having come home'. The modal conjunct reads as: among the accessible worlds *w*' that are compatible with what the speaker knows in the modal base *f* (*w*,*EAT*), those that are ranked higher by the ordering source $g_{ST/DOX}$(*w*,*EAT*) are the worlds in which 'Majdi **has come'** is instantiated. In other words, 'Majdi **has come**' is true in all the worlds *w*' that are epistemically accessible from *w* and are the closest to the ideals and speaker's belief with respect to the indirect evidence at EAT.

The same logic extends to sentence (109). The only difference is that in (109), the speaker makes inference about a *posterior* event rather than anterior event as shown by the future adverbial *bukrah* 'tomorrow'.

(109) majdi jaai bukrah.
Majdi come-DA tomorrow
'Majdi is coming tomorrow.'
Intended: '[I infer that] Majdi is coming tomorrow.'

The temporal derivation of this sentence is given in (110).

(110)
(a) $\lambda p\, \lambda w\, \lambda t$ [AT [Come (w) (t)]]

→ (b) $\lambda p\, \lambda w\, \lambda t$ [AT [Come (w) (t)]: $\exists e$ [Come (w) (t) & $\tau(e,w) \subseteq$ T]]

→ (c) $\lambda p\, \lambda w\, \lambda t$ [EAT $\subseteq$ TU & EAT < T & $\exists e$ [Come (w) (e) & $\tau(e,w) \subseteq$ T]]

The semantic derivation in (110c) is then incorporated into the modal denotation in (98b) which represents the final temporal and modal denotation of CSI utterances.

(111) [[jaai]]= $\lambda p\, \lambda w\, \lambda t\, \lambda EAT$ [EAT$\subseteq$ TU & w: $\forall w'[w' \in (f, g_{ST/DOX}, (w, EAT)) \rightarrow$ (EAT < T & $\exists e$ [**Come** (w') (e) & $\tau(e, w') \subseteq$ T])]]

The temporal conjunct reads as: the speaker acquires evidence at EAT which is temporally specified at TU (now). The evidence can be any CS which the speaker believes to be evidence for the posterior event. The evidence at EAT is then used by the speaker to make *inference* about the *posterior event*. The modal conjunct reads as: among the accessible worlds w' that are compatible with what the speaker knows in the modal base f (w, *EAT*), those that are

ranked higher by the ordering source $g_{ST/DOX}(w, EAT)$ are the worlds in which 'Majdi **is coming'** is instantiated.

5.7 Conclusion

This chapter discussed the interaction of indirect evidentiality and epistemic modality in. It provided further typological support for the close overlap between evidentiality and epistemic modality based on data taken from a Semitic language, JA. It also provided further support for the proposed evidential account for DAs in the previous chapter: the fact that DAs show a modal reading lends support to the indirect/inferential reading of DAs.

The results of the diagnostics of the level of meaning show that DAs pattern with epistemic modals and modal evidentials in St'át'imcets and not with non-modal or illocutionary evidentials like the Quechua evidentials. Further support for a modal interpretation of DAs was provided based on the interaction of DAs and modal subordination and the behavior of DAs in counterfactual copular contexts. On the basis of the empirical findings of these diagnostics, I conclude that a modal analysis would account for the behavior of evidential DAs i.e. DAs are propositional level operators since they contribute to the truth condition of the proposition expressed. Therefore, I analyze DAs as quantifiers over possible worlds, adopting Kratzer's possible world theory (1981, 1991). The analysis provides a unified account of DAs where the evidential, modal and temporal components are incorporated. The modal base includes the indirect evidence and the ordering source ranks the accessible worlds and picks out the most ideal world depending on what the speaker knows at EAT with regard to the indirect evidence. The temporal component is also incorporated into the proposed semantic denotation of DAs

since it is crucial in establishing the indirect evidence requirement and consequently the inferential reading of DAs.

Chapter Six

Conclusion, Implications and Further Research

6.1 Conclusion

The main goal of this dissertation was to investigate indirect evidentiality and its interaction with modality and temporality in JA. To this end, I have discussed the morphosyntactic and semantic nature of DAs as the hallmark of indirect evidentiality in JA. I have shown that the semantics and morphosyntax of DAs is far more complex than what had been envisaged in the previous literature which had mainly focused on the temporal and non-verbal features of DAs. I proposed an indirect evidential account to capture the semantics and morphosyntax of DAs in JA. I explored the evidential meaning of DAs with regard to its interaction with temporal relations and modal contribution; and then proposed a unified semantic account that incorporates the two components together, the temporal and the modal components. Typologically, the evidential account has shown that evidentiality can be specified temporally. It also contributed to the literature of Semitology by providing evidence that evidentiality does exist as a separate category in JA, a Semitic language.

The current study provided a comprehensive criticism of the theoretical and descriptive approaches of the semantics of DAs in the literature. Previous approaches of DAs in most Arabic dialects are mainly concerned with explaining the temporal behavior of DAs. The temporal problem of DAs is concerned with the varied temporal interpretations DAs license in the absence of an overt copula, unlike other verbless sentences, and the different aspectual reading encoded by DAs. I argued that all these approaches fail to account for the evidential meaning of DAs in JA.

Morphosyntactically, I investigated the mixed morphosyntactic behavior of DAs in JA. The intermediate behavior of DAs has been discussed under verbal and non-verbal analyses. I have shown that none of these analyses can account for the morphosyntax of DAs in JA which exhibit both verbal and non-verbal features.

I have provided arguments against the non-verbal analysis based on agentivity/stativity tests, IL vs SL predicates and morphosyntactic diagnostics including word order and interaction with copular verbs. I have discussed the implications of these counterarguments for the two major classifications of DAs which have been proposed in the literature under the non-verbal analysis, specifically the nominal and adjectival classifications. I showed that DAs cannot be classified as nominal or adjectival.

I have also argued that DAs cannot be accounted for by verbal analysis. The discussion concludes that DAs have the features [-Person, -Definiteness] which corroborate their morphosyntactic status as a distinct type of predication in JA that is different from verbal and non-verbal predicates which are characterized by [+Person, -Definiteness] and [-Person, +Definiteness] respectively. Based on this fact, I showed that DAs constitute a major challenge to the 'verbal vs non-verbal' view of predication in Arabic in general and in JA in particular. In this regard, I proposed an alternative view of predication in JA based on the modal vs non-modal distinction. I subsumed DAs under the category of 'evidential predicates' and supported this claim by the behavior of PPs in JA which exhibit a similar evidential and morphosyntactic behavior.

I concluded that predicates in JA allow for three-way classifications: non-verbal, verbal and evidential predicates instead of the two-way view (verbal and non-verbal predicates). The three-way classification is better accounted for by a modal vs non-modal distinction instead of the conventional verbal and non-verbal view which only accounts for verbal and non-verbal predicates and which leaves the evidential predicates (DAs and PPs) unaccounted for.

Semantically, I proposed an alternative indirect evidential account to capture the semantics of DAs in JA contra to the previous literature. DAs have the three basic features of indirect evidentiality: (a) speaker-dependency: they have a speaker-oriented meaning, (b) type of evidence: indirect evidence i.e. the speaker did not witness the event; rather s/he was told about it or inferred it and (c) speaker's attitude towards the proposition: information is not ascribed to the speaker since s/he did not witness the event.

DAs have a habitual reading from the perspective of the speaker. The evidence comes from the fact that the habitual interpretation with DAs is anchored to the speaker rather than to the subject as evident from the entailment test. Under the actuality entailment test, the habitual reading with DAs is anchored to the speaker and is true only in the speaker's belief world rather than in the real world. The contrast between the imperfective and DAs also appears in their sensitivity to verifying instances. The imperfective usually does not require a verifying instance where the imperfective is acceptable even when the 'event' has not taken place. However, sentences with the DAs are acceptable only when the 'event' is verified. Another major argument in support of the evidential speaker-oriented reading of DAs comes from the distinction between subjective and objective evidence. When objective evidence (evidence known to a group of people) is asserted such as describing a universal fact, only the imperfective

is allowed; whereas the only situation in which a sentence with a DA is allowed is when subjective evidence is at issue: when the speaker himself has found or discovered the situation.

DAs assert an indirect evidence requirement similar to indirect evidentials i.e. the speaker did not perceive the event. One piece of evidence comes from the fact that DAs are acceptable under a cancelation test that negates seeing the event on the part of the speaker. Perfective sentences are infelicitous in these contexts. Another piece of evidence comes from the fact that DAs are not acceptable in contexts where the speaker perceives the event itself. However, the imperfective and the perfective are acceptable when the speaker perceived the event. Typologically, I have shown that evidential DAs in JA introduce a temporal contribution to the indirect evidence requirement: the indirect evidence is specified temporally rather than morphologically or lexically. In this regard, JA differs from other evidential languages where direct and indirect evidence is specified by separate morphemes. The indirect evidence induced by DAs is a result of two temporal relations: the event is anterior to the EAT (evidence acquisition time) or posterior to it. The former corresponds to a post-state reading and the latter corresponds to a futurate reading.

As an indirect evidential, DAs trigger inferential readings: RSI and CSI inferential readings. The former indicates that there is an entailment between the state (i.e. evidence) and the event, and therefore a speaker can only target ERs in his or her inference and the inference about the event itself is blocked. In the CSI inferential reading, on the other hand, the lack of entailment allows inference to target the event. By this meaning, DAs differ from other inferential evidential systems where only a CSI reading is triggered; no RSI reading has been attested in these systems. The inferential reading of DAs stems from an epistemic modal component DAs exhibit since they

pattern with modals and propositional attitude predicates. The inferential reading is further supported by the fact that DAs show an irrealis reading under the actuality entailment test.

I also analyzed how DAs pattern with other inferential evidential predicates (evidential proper) such as *shakluh* 'it looks like' in JA. I argued that both forms show the core features of indirect evidentiality: speaker-oriented reading, indirect evidence and inferential interpretation. This analogous behavior lends further support to the indirect evidential analysis of DAs.

I probed the evidential meaning of DAs further by claiming that DAs express a mirative reading and show sensitivity to the first person. These are one of the notable semantic features of indirect evidentiality cross-linguistically (Aikhenvald 2004). Unlike the perfective and the imperfective, only DAs are felicitous in contexts where a mirative interpretation is expressed; also only DAs show sensitivity to first person. In addition, DAs are used as reported evidentials. Reported evidentials are one of the major types of indirect evidentiality. The reported evidential covers the type of information acquired through hearsay or someone else's report. In contexts where the speaker acquires his knowledge through hearsay or someone else's report, JA usually employs DAs to communicate the lack of direct evidence. JA speakers use perfectives sometimes to encode hearsay reports similar to DAs. When this happens, JA makes explicit reference to the speaker's attitude towards the information s/he obtains through hearsay: with DAs, the speaker does not vouch for the information s/he was told about; the speaker distances himself from being responsible for the truth of the reported assertion. This modal reading is expected in the case of DAs since DAs induce indirect evidence where the speaker does not witness the event at issue. With perfectives, on the other hand, the speaker vouches for the truth of his/her assertion as s/he might have hard evidence based on which s/he is certain that the event took place.

I extended my indirect evidential proposal to account for the semantics of passive participles (PPs) in JA. I showed that PPs are indirect evidentials since they pattern with DAs in almost all the indirect evidential arguments. Based on this fact, I concluded that active and passive participles are the hallmark of evidentiality in JA. This conclusion has its own significance not only for the literature of Arabic but for the literature of Semitology as well. This is due to the fact that Semiticists have long held that evidentiality as a separate category does not actually exist in Semitic languages. Contrary to this belief, I have shown that participle morphology is the hallmark of the evidential category in JA, which is a Semitic language. The fact that there exists a separate morphological paradigm of participles that differ from other predicates and that this morphological structure exhibits evidential semantics supports my claim regarding the existence of the evidential category in JA and consequently in Semitology.

This study also bears on the interaction of indirect evidentiality and epistemic modality. It provided a formal semantic account of the modal reading of DAs based on Kratzer's possible worlds theory (1981, 1991). The analysis provides a *unified* account of DAs where the evidential, modal and temporal components are incorporated. The modal analysis of evidential DAs lends typological support for the close overlap between evidentiality and epistemic modality. It also provides further support to the indirect evidential account of DAs advocated in the current work.

The results of the diagnostics of the level of meaning show that DAs pattern with epistemic modals and modal evidentials and not with non-modal or illocutionary evidentials. Further support for the modal analysis has been provided based on the interaction of DAs and modal subordination and the behavior of DAs in counterfactual copular contexts. On the basis of the empirical findings of these diagnostics I concluded that a modal analysis would account for the behavior of evidential DAs i.e. DAs are propositional level operators since they contribute to the truth condition of the

proposition expressed. To this end, I analyzed DAs as quantifiers over possible worlds where the modal base includes the indirect evidence and the ordering source ranks the accessible worlds and then picks out the most ideal world depending on what the speaker knows at EAT. I have also incorporated the temporal component in the modal analysis of DAs since anterior and posterior temporal relations are essential to the establishment of the indirect evidence requirement and consequently to the inferential reading of DAs.

6.2 Implications of the Study

The current evidential analysis of DAs has important implications for linguistic studies of JA. It also provides some insights into the typological and cross-linguistic research on evidentiality as well.

One significant implication is related to the temporal and aspectual system in JA. This is shown by introducing another temporal component, the EAT (evidence acquisition time), which serves to revisit the temporal and aspectual denotations of perfect and future readings in JA. In this regard, the perfect and future readings split into evidential vs non-evidential: the evidential perfect is denoted semantically by DAs where the event is anterior to the EAT; however, the non-evidential perfect is denoted pragmatically by the perfective form where no EAT is used. The same fact holds for the future reading: the evidential future is denoted by DAs where the time of the described eventuality is in posterior relation to the EAT; whereas the non-evidential future is denoted by either future particles such as *raH* 'will/going to' or by the imperfective where the time of the described eventuality is in a posterior relation to the TU not the EAT. I speculate that the same pattern applies to all other temporal and aspectual specifications in JA. Thus, the overall picture of temporality in JA that emerges from the new temporal dichotomy of

evidential vs non-evidential proves to be more complex than what most previous approaches of temporality in Arabic had envisaged.

Furthermore, the current study has shown another level of interaction between temporality and evidential interpretation. This is manifested by the anterior and posterior temporal establishment of the indirect evidence requirement and the fact that evidential DAs trigger a relative tense reading. This type of interaction allows evidentials to be subsumed under the formal theory of tense, aspect and modality. The incorporation of this new evidential component and its interaction with all these three components (tense, aspect and modality) will lead to new empirical and theoretical insights into the linguistics of JA in particular and the dialects of Arabic in general, especially those to which the current evidential account can be extended. One possible theoretical insight would be the fact that the notion of evidentiality (indirect and direct) in JA is *temporally* established rather than being morphologically or lexically substantiated as attested cross-linguistically (Aikhenvald 2004). In other words, the indirect evidence requirement is established via anterior and posterior temporal relations as exemplified by the use of DAs. Conversely, the direct evidential interpretation (direct evidence) is established via an 'overlap' temporal relation between the reference time and the event time as exemplified by the use of the imperfective and the perfective verbal forms.

The current work has some typological and cross-linguistic implications as well. Typologically, Aikhenvald's (2006) has claimed that evidentiality (the type of evidence) is specified cross-linguistically by two means: the first is concerned with expressing evidentiality by morphological closed-classes; the other is concerned with evidentiality that is specified through lexicalization such as adverbs and sensory verbs. However, the fact that evidentiality in JA is temporally specified re-evaluates this typological claim by enforcing another means of

expressing evidentiality, which is the temporal means. The temporal specification lends further support to other evidential systems which were recently attested as temporally-specified-evidential systems such as Korean (Lee 2011) and Bulgarian (Izvorski 1997 and Smirnova 2012) among others. However, while JA patterns with these languages in that the type of evidence is constrained in a temporal dimension, it also differs from them in that the indirect (inferential) evidentiality in JA is not only consequent-state based but also result-state based. I speculate that this two-way split in the evidence type (consequent-state vs result-state) might prove to be applicable to other evidential languages, especially those in which evidentiality is *temporally* specified and *modally*-oriented similarly to JA.

Cross-linguistically, the evidential relative tense analysis has implications for the *present perfect puzzle*. It has been noted that contrary to past tense, sentences with present perfect cannot felicitously license past-time adverbials especially those that denote a specific (definite) past time reference such as *yesterday*, *last year*, etc… as in (1); this phenomenon has been referred to in the literature as *present perfect puzzle* (Klein 1992 among others)[20].

(1) *John has left yesterday.

Notably, the unacceptability of specific past time adverbials with present perfect sentences as in (1) has not been attested for all languages. Cross-linguistically, there are some languages where the use of past adverbials with present perfect sentences is not constrained such as German, Korean, Icelandic, and Italian among others.[21] A similar observation has been made

[20] There have been various accounts for this phenomenon in the literature such as Klein (1992), Katz (2003) and Pancheva and Stechow (2006) among others.

[21] See Giorgi and Pianesi (1997) and Chung (2005) for various analyses of why Italian and Korean are not subject to the present perfect puzzle.

in Arabic as well. For instance, Brustad (2000) has noted that in several dialects of spoken Arabic past-time adverbials are perfectly acceptable with present perfect sentences expressed by DAs as in (2a and b). Mughazy (2004) has observed a similar pattern for Egyptian Arabic as well as in (3). The same fact also obtains for DAs in JA as in (4). I have shown in chapter 4 that past adverbials such as *embareH* 'yesterday' can describe the EAT and T as well i.e. it licenses the relevant state at EAT and the anterior event included in T. When *embareH* 'yesterday' licenses the EAT, T is licensed by another past adverbial. However, when it licenses T, the EAT coincides with TU i.e. the result-state holds at TU (present) while at the same time allowing a past-time adverbial, *embareH* 'yesterday'.

(2)

(a) elyoom raani faayeq min s-seta.
today here-I-am having- woken up from the- six
'Look here, today I have gotten up at six.'

(Moroccan Arabic, Brustad (2000:180))

(b) elyoom faaye' 's-saa3a ssite.
today having-woken up the hour six
'Today I have gotten up at six o'clock.'

(Lebanese Arabic, Brustad (2000:180))

(3) 'ana dilwa'ti mixalaS er-risaala min sana.
I now finish-DA the-dissertation from year
'Now I have finished the dissertation a year ago.'

(Egyptian Arabic, Mughazy (2004:7))

(4) 'ana faatiH el-maHal embaareH.
I open-DA the-store yesterday
'I have opened the store yesterday.'

(JA)

The relative evidential tense analysis tentatively accounts for the licensing of past-time denoting adverbials in (2-4) by the assumption that evidential relative tense includes two reference points, the EAT and T: the result-state holds at EAT which coincides with TU and thus licensing the present reading, and T is anterior to EAT and thus licensing the past adverbial. Note here that the present perfect interpretation can also be denoted by the perfective form of the verb in JA as in (5a). However, when past-time denoting adverbials are used with perfective form, the present perfect reading is neutralized (5b) and the sentence is acceptable only under an aorist reading i.e. completed event with no current relevance to the TU.

(5)

(a) ‘ana hassa faataHt el-maHal.
I now open-PERF the-store
‘I have just opened the store .’

(b) ‘ana faataHt el-maHal embaareH.
I open-PERF the-store yesterday
≠ ‘I have opened the store yesterday.’
= ‘I opened the store yesterday.’

The above observation implicates that there is a two way split with regard to past adverbial modification under the present perfect interpretation between evidential perfect predicates such as DAs that allow past adverbial modification, and non-evidential perfect predicates such as perfectives that do not allow past adverbial modification. I assume that this distinction might prove to be cross-linguistically applicable. One piece of evidence comes from the observation of Bulgarian as noted in Izvorski (1997) where only evidential prefects allow modification by past adverbials (6a) as contrasted to the canonical (non-evidential) present perfect where past adverbial modification is precluded (6b). Examples are taken from Izvorski (1997:11).

(6)

(a) Te došli (včera)/ (snošti).
they come-PE yesterday/ last night
'They apparently came yesterday/last night.'

(b) Te sa došli (?? včera)/ (??snošti).
they are come-P.PART yesterday/ last night
'They have come yesterday/last night.'

6.3 Further Research

This dissertation has shown that participle constructions express an indirect evidential meaning which interacts with the semantic categories of temporality and modality. This evidential analysis is based on data from JA. Similarly to JA, most of the Arabic dialects I have reviewed outside the scope of this dissertation (Palestinian, Syrian, Egyptian, Moroccan, Gulf Arabic, etc…) include active participle constructions which denote anterior i.e. the perfect reading and the posterior i.e. futurate reading (See Caubet 1990 and Brustad 2000 for comprehensive overviews).Yet, it remains to be investigated whether the current evidential account of participles in JA is extendable to other Arabic dialects and whether the type of interaction between evidentiality and temporal and modal components found in JA is attested in these dialects as well.

In this dissertation I focused on the semantic nature of evidentiality in JA. However, there is much that needs to be discussed as far as the syntactic nature of evidentiality in JA is concerned. Any syntactic analysis of evidential DAs in JA has many questions to consider. First, the current study has shown that DAs pattern with modals. However, one might speculate that the category of evidentiality in JA splits into modal vs non-modal evidentials as it is the case with many other evidential systems (c.f. Faller 2002, Peterson 2010 among others). The question that might arise here is how such a split maps onto the syntactic configuration of evidentials in JA. We can assume

that the modal evidentials map onto the IP-level since they pattern with modals and the non-modal evidentials onto the CP-level since they pattern with speech act operators. Yet, this proposal needs further investigation. Second, there is the question of whether an evidential projection exists in JA; and if so, what syntactic relation does this have with the fact that DAs (as proposed in the current study) do not belong to either verbal or non-verbal predicates. Third, what is the difference between the syntactic configuration of evidential sentences in JA and the non-evidential sentences?

Bibliography

Abney, S. P. (1987). The English Noun Phrase in its Sentential Aspect. Doctoral Dissertation, Massachusetts Institute of Technology.

Abusch, D. (1997). 'Sequence of tense and temporal de re', *Linguistics and Philosophy* 20(1):1-50.

Aikhenvald, A. Y. (2004). *Evidentiality*. New York: Oxford University Press.

Aikhenvald, A.Y. and Dixon, R. M. W. (ed.). (2003). *Studies in Evidentiality*. Amsterdam and Philadelphia: John Benjamins.

Aksu, A. and Slobin, D. I. (1982). 'Tense, aspect and modality in the use of the Turkish evidential', *Tense-aspect: Between Semantics and Pragmatics*: 185-200.

----------. (1986). 'A psychological account of the development and use of evidentials in Turkish', in Chafe, W. L. and Nichols, J. (eds.), *Evidentiality: The Linguistic Coding of Epistemology*, Norwood, NJ: Ablex, 159-167.

Al-Agarbeh, R. (2011). Finiteness in Jordanian Arabic: A Semantic and Morphosyntactic Approach. Doctoral Dissertation, University of Kansas.

Alexiadou, A., Rathert, M. and von Stechow, A. (ed.). (2003). *Perfect Explorations*. Berlin and New York: Mouton De Gruyter.

Al-haisoni, E., Jarrah, M. A. and Shehadeh, M.S. (2012). 'An investigation of evidentiality in the Arabic language', *International Journal of Linguistics* 4: 260-273.

Arche, M. J. (2006). *Individuals in Time: Tense, Aspect and the Individual/Stage Distinction*. Amsterdam/ Philadelphia: John Benjamins.

Bakir, M. (1980). Aspects of Clause Structure in Arabic. Doctoral Dissertation, Indiana University.

Becker, M. (2000). The Development of the Copula in Child English: The Lightness of *Be*. Doctoral Dissertation, University of California, Los Angeles.

Belazi, N. (1993). Semantics and Pragmatics of the Tunisian Tenses and Aspects. Doctoral Dissertation, Cornell University.

Benmamoun, E. (2000). *The Feature Structure of Functional Categories: A Comparative Study of Arabic Dialects*. Oxford: Oxford University Press.

Bhat, D.N.S. (1994). *The Adjectival Category: Criteria for Differentiation and Identification*. Amsterdam/ Philadelphia: John Benjamins.

Bhatt, R. (1999). Covert Modality in Non-Finite Contexts. Doctoral Dissertation, University of Pennsylvania.

Binnick, R. (1990). *Time and the Verb*. Oxford: Oxford University Press.

Boeder, W. (2000). 'Evidentiality in Georgian', in Chafe, W. L. and Nichols, J. (eds.), *Evidentiality: The Linguistic Coding of Epistemology*, Norwood, NJ: Ablex, 275-328.

Bolinger, D. (1967). 'Adjectives in English: attribution and Predication', *Lingua* 18: 1-34.

Boneh, N. (2004). 'Resultative (perfect) in Syrian Arabic', in Crouzet, O., Demirdache, H. Wauqier-Gravelines, S. Nantes (eds), *Proceedings of JEL* 2004 [Domaines]. University of Nantes, France

----------. (2005). Syrian Arabic Active Participles, Subject Resultatives and the Perfect. Ms. The Hebrew University of Jerusalem.

----------. (2010). 'Perfect constructions in Syrian Arabic', in Cabredo-Hofherr, Particia & Laca, Brenda (eds.), *Layers of Aspect*, CSLI Publications, Stanford, 23-42.

Brennan, V. (1993). Root and Epistemic Modal Auxiliary Verbs. Doctoral Dissertation, University of Massachusetts at Amherst.

Brustad, K. (2000). *The Syntax of Spoken Arabic: A Comparative Study of Moroccan, Egyptian, Syrian, and Kuwaiti Dialects*. Washington D.C: Georgetown University Press.

Burgess, Don. (1984). 'Western Tarahumara', in Langacker, R.W. (ed.), *Studies in Uto-Aztecan Grammar* Vol. 4, Dallas: Summer Institute of Linguistics, 1-149.

Bybee, J. L. (1985). *Morphology: A Study of the Relation Between Meaning and Form*. John Benjamins.

Bybee, J. L. and Fleischman, S. (eds). (1995). *Modality in Grammar and Discourse*. Amsterdam/ Philadelphia: John Benjamins.

Carlson, G. N. (1977). Reference to Kinds in English. Doctoral Dissertation, University of Massachusetts at Amherst.

Caubet, Dominique. (1991). 'The active participle as a means to renew the aspectual system: A comparative study in several dialects of Arabic', in A. Kaye (ed.), *Semitic Studies in Honor of Wolf Leslau* Vol.1,Wiesbaden: otto Harrassowitz, 209-224.

Chafe, W. L. and Nichols, J. (ed.). (1986). *Evidentiality: The Linguistic Coding of Epistemology*. Norwood, NJ: Ablex.

Chierchia, G. (1995). 'Individual-level predicates as inherent generics', *The Generic Book, 125*.

Chierchia, G. and McConnell-Ginet, S. (1990). *Meaning and Grammar*. Cambridge, MIT Press.

Chirikba, V. (2003). 'Evidential category and evidential strategy in Abkhaz', *Typological Studies in Language* 54: 243-272.

Chung, K. (2005). Space in Tense: The Interaction of Tense, Aspect, Evidentiality and Speech Act in Korean. Doctoral Dissertation, Simon Fraser University.

Comrie, B. (1976). *Aspect*. Cambridge: Cambridge University Press.

---------. (1985). *Tense*. Cambridge: Cambridge University Press.

---------. (1987). *The World's Major Languages*. Oxford: Oxford University Press.

Condoravdi, C. (2002). 'Temporal interpretation of modals', *The Construction of Meaning*, 59-88.

Copley, B. (2009). *The Semantics of the Future*. New York: Routledge.

Cowell, M.W. (1964). *A Reference Grammar of Syrian Arabic*. Washington, DC: Georgetown University Press.

Curnow, T.J. (2002). 'Types of interaction between evidentials and first-person subjects', *Anthropological Linguistics*, 178-196.

-------- (2003). 'Nonvolitionality expressed through evidentials', *Studies in language*, 27(1), 39-59.

Dahl, Östen. (1985). *Tense and Aspect Systems*. New York: Blackwell.

Davidson, D. (1967). 'The logical form of action sentences', *Essays on Actions and Events* 5: 105-148.

Davis, C., Potts, C. and Speas, M. (2007). 'The pragmatic values of evidential sentences', in Gibson, M. and Freidman, T. (eds.), *Proceedings of SALT* 17, Ithaca, NY: CLC Publications.

Dendal, P. and Tasmowski, L. (2000). 'Introduction: evidentiality and related notions', *Journal of Pragmatics* 33 (3): 339-348.

de Haan, F. (1999). 'Evidentiality and epistemic modality: Setting the boundaries', *Southwest Journal of Linguistics*, 18(1): 83-101.

----------. (2001). 'The relation between modality and evidentiality', *Linguistische Berichte* 9: 201-216.

DeLancey, S. (2001). 'The mirative and evidentiality', *Journal of Pragmatics*, 33(3): 369-382.

Dixon, R. M. (2003). 'Evidentiality in Jarawara', in Aikhenvald, A. and Dixon, D. R. (eds.), *Studies in Evidentiality*, Amsterdam: John Benjamins, 165-188.

Dowty, D. R. (1986). 'The effects of aspectual class on the temporal structure of discourse: semantics or pragmatics?, *Linguistics and Philosophy* 9(1): 37-61.

Drubig, H. B. (2001). On The Syntactic Form of Epistemic Modality. Ms., University of Tübingen.

Eisele, J. C. (1988). The Syntax and Semantics of Tense, Aspect, and Time Reference in Cairene Arabic. Doctoral Dissertation, University of Chicago.

----------. (1990). 'Time reference, tense, and formal aspect in Cairene Arabic' in Mushira, Eid and John, McCarthy (eds.) *Perspectives on Arabic Linguistics I: Papers from the First Annual Symposium on Arabic Linguistics,* Amsterdam/Philadelphia, John Benjamins, 192-233.

---------. (1999). *Arabic Verbs in Time: Tense and Aspect in Cairene Arabic*. Wiesbaden: Harrassowitz.

Eksell, K. (1985). 'On the function of the verbal active participle in northern Arabian narrative texts', *ACTA ORIENTALIA* 46: 7-22.

El-Bakry. F. (1990). Active Participles in Colloquial Egyptian Arabic: A Functional Analysis. Doctoral Dissertation, Georgetown University.

El-Hassan, S. A. (1977). 'Educated spoken Arabic in Egypt and the Levant: A critical review of diglossia and related concepts' *Archivum Linguisticum Leeds* 8(2): 112-132.

Enç, M. (1996). 'Tense and modality', in Lappin, S. (ed.), *The Handbook of Contemporary Semantic Theory,* Oxford: Blackwell, 345-358.

Faller, M. T. (2002). Semantics and Pragmatics of Evidentials in Cuzco Quechua. Doctoral Dissertation, Stanford University.

----------. (2003). 'The evidential and validational licensing conditions for the Cusco Quechua enclitic-m', *Belgian Journal of Linguistics* 16: 7-21.

----------.(2006). 'Evidentiality below and above speech act', in Carita Paradis and Lena Egberg (eds.), *Functions of Language,* Special Volume.

----------. (2007). 'The ingredients of reciprocity in Cuzco Quechua' *Journal of Semantics* 24(3): 255-288.

Fassi Fehri, A. (1993). *Issues in the Structure of Arabic Clauses and Words*. Dordrecht: Kluwer.

Ferguson, C. A. (1959). 'Myths about Arabic', *Georgetown Monograph Series on Language and Linguistics* 12: 75-82.

von Fintel, K. (2001). 'Counterfactuals in a dynamic context', in Kenstowicz, M. (ed.), *Ken Hale: A Life in Language*, Cambridge, MA: MIT Press, 123-152.

von Fintel, K. and Iatridou. S. (2005) 'Anatomy of a Modal', in Gajewski, J., Hacquard, V., Nickel, B. and Yalcin, S. (eds.), *New Work on Modality, MITWPL* 51, Cambridge, MA: MITWPL.

von Fintel, K., & Gillies, A. S. (2007). 'An opinionated guide to epistemic modality', *Oxford Studies in Epistemology* 2: 32-62.

Fleischman, S. (1982). 'The future in thought and language: Diachronic evidence from Romance', *Cambridge Studies in Linguistics London*, 36.

Friedman, V. A. (1986). 'Evidentiality in the Balkans: Bulgarian, Macedonian, and Albanian', in Chafe, W.L. and Nichols, J. (eds.), *Evidentiality: The Linguistic Coding of Epistemology*, Norwood, NJ: Ablex, 168-187.

Garrett, E. J. (2001). Evidentiality and Assertion in Tibetan. Doctoral Dissertation, University of California, Los Angeles.

Gennari, S. (2003). 'Tense meaning and temporal interpretation', *Journal of Semantics* 20: 35-71.

Giannakidou, A. and Mari, A. (2012). 'Italian and Greek futures as evidential operators', To appear in Proceedings CLS 48.

Giorgi, A. and Pianesi, F. (1997). *Tense and Aspect: From Semantics to Morphosyntax*. Oxford: Oxford University Press.

Givón, T. (1982). 'Evidentiality and epistemic space', *Studies in Language* 4(3):23-49.

----------. (1984). *Syntax*: *An Introduction*. Amsterdam: John Benjamins.

Greenberg, Y. (2002) 'Two types of quantificational modalized genericity and the interpretation of bare plurals and indefinite singular NPs', in B. Jackson et al. (eds.), *Proceedings of SALT XII*, 104-123.

Grimshaw, J. (1990). *Argument Structure*. The MIT Press.

Hacquard, V. (2006). Aspects of Modality. Doctoral Dissertation, Massachusetts Institute of Technology.

Haspelmath, M. (1993). 'Passive participle across languages', in Fox, B. and Hopper, P. J. (eds.), *Voice*: *Form and Function*, Amsterdam: John Benjamins, 151-178.

Heim, I. (1982). 'Presupposition Projection and the semantics of attitude verbs', *Journal of Semantics* 9: 183-221.

Herweg, M. (1991). 'Perfective and imperfective aspect and the theory of events and states', *Linguistics* 29(6): 969-1010.

Higginbotham, J. (2000). Events and event talk: An introduction', in Higginbotham, J., Fabio Pianesi and Achille Verzi (eds.), *Speaking of Events*, New York: Oxford University Press.

Higginbotham, J. and Ramchand, G. (1996). The Stage-Level/Individual-Level Distinction and the Mapping Hypothesis. Ms., University of Oxford.

Holes, C. (2004). *Modern Arabic*. Washington D.C: Georgetown University Press.

Hopper, P. J., and Traugott, E. C. (1993). *Grammaticalization*. Cambridge, Cambridge University Press.

Hoyt , F. (2007), 'An Arabic Wackernagel clitic? The morphosyntax of negation in Palestinian Arabic', in Mughazy, M. (ed.), *Perspectives on Arabic Linguistics* XX, Amsterdam: John Benjamins, 105-134.

Ifantidou-Trouki, E. (1993). 'Sentential adverbs and relevance', *Lingua* 90(1): 69-90.

Isaksson, B. (2000). 'Expressions of evidentiality in two Semitic languages - Hebrew and Arabic', in Chafe, W.L. and Nichols, J. (eds.), *Evidentiality: The Linguistic Coding of Epistemology*, 383-397.

Izvorski, R. (1997). 'The present perfect as an epistemic modal', in A. Lawson and E. Cho (eds.), *Proceedings of SALT* ,Vol. 7, CLC Publications, 222-239.

Jakobson, R. (1971). 'Shifters verbal categories and the Russian verb', in R. Jakobson, *Selected Writings*, Vol II, The Hague: Mouton, 130-147.

Jelinek, E. (1981). On Defining Categories; AUX and Predicate in Egyptian Colloquial Arabic. Doctoral Dissertation, University of Arizona.

---------. (2002). 'Agreement, clitics and focus in Egyptian Arabic', in Jamal Ouhalla and Ur Shlonsky (eds.), *Themes in Arabic and Hebrew syntax*, London: Kluwer Academic Publishers, 71-106.

Johanson, L. (2003). 'Evidentiality in Turkic', in Aikhenvald, A. and Dixon, D. R. (eds.), *Studies in Evidentiality*, Amsterdam: John Benjamins, 273-291.

Johanson, L. and Utas, B. (ed.). (2000). *Evidentials: Turkic, Iranian and Neighbouring Languages*, New York: Mouton de Gruyter.

Kamp, H., and Rohrer, C. (1983).'Tense in texts', in Bauerel, R., Schwarze, C. and Von Stechow, A. (eds.), *Meaning, Use and Interpretation of Language*, Berlin: Mouton de Gruyter, 250-269.

Karawani, H. (2008). Palestinian Passive Participles. MA, Thesis, Hebrew University.

Katz, G. (2003). 'A modal account of the present perfect puzzle', in Young, R.B and Zhou, Y. (eds.), *Proceedings of Semantics and Linguistic Theory* XIII, CLC Publications: Ithaca, NY, 141-161.

Kaufmann, S., Condoravdi, C., and Harizanov, V. (2006). 'Formal approaches to modality', in Frawley, W. (ed.), *The Expression of Modality*, Berlin and New York: Mouton de Gruyter, 71-106.

Kearns, K. (2000). *Semantics*. New York: Palgrave Macmillan.

Keenan, L. (1979). 'On surface form and logical form', *Studies in the Linguistic Sciences* 8(2):163-203.

Kinberg, N. (1992). 'Semi-imperfectives and imperfectives: a case study of aspect and tense in Arabic participial clauses', *Lingua* 86(4): 301-330.

Klein, W. (1992). 'The present perfect puzzle', *Language* 68(3): 525-552.

----------. (1994). *Time in Language*. London: Routledge and Kegan Paul.

Kozinceva, N. (2000). 'Perfect as a means of expressing evidentiality in Modern Eastern Armenian, in Johanson, L. and Utas, B. (eds.), *Evidentials: Turkic, Iranian and Neighbouring Languages*, New York: Mouton de Gruyter, 401-417.

Kratzer, Angelika. (1977). 'What *must* and *can* must and can mean', *Linguistics and Philosophy* 1**:** 337-355.

---------. (1981). 'The notional category of modality', in H. J. Eikmeyer and H. Rieser (eds.), *Words, Worlds, and Contexts*. *New Approaches in Word Semantics*. Berlin: de Gruyter, 38-74.

---------. (1988). 'Stage-level and individual-level predicates', in Krifka, M. (ed.), *Generecity in Natural Language*, Tübingen: University of Tübingen, 247-284.

--------. (1991). 'Modality', in A. von Stechow and D. Wunderlich (eds.), *Semantics: An International Handbook of Contemporary Research*, Berlin: De Gruyter, 639-650.

---------. (1995). 'Stage-level and individual-level predicates', in Carlson, G. and Pelletier, F. (eds.), *The Generic Book*, Chicago: University of Chicago Press, 125-175.

---------. (1996). 'Severing the external argument from the verb', in J. Rooryck and L. Zarin (eds.), *Phrase Structure and the Lexicon.* Dortrecht: Kluwer.

---------. (1998). 'More structural analogies between pronouns and tenses', in D. Strolovich and A. Lawson (eds.), *Proceedings of SALT VIII*. Ithaca, NY: CLC Publications, Cornell University.

----------. (1986). 'Conditionals', *CLS* 1-15.

Kremers, J. M. (2003). The Arabic Noun Phrase: A Minimalist Approach. Doctoral Dissertation, Utrecht: LOT.

Krifka M., F. J. Pelletier, G. N. Carlson, A. ter Meulen, G. Link and G. Chierchia. (1995). 'Introduction', in G. N. Carlson & F. J. Pelletier (eds.) *The Generic Book*, Chicago: The University of Chicago Press.

Kripke, S. (1962). 'Semantical analysis of modal logic I, normal propositional calculi', *Zeitschrift fur mathematische Logic und Grundlagen der Mathematik* 9:67-96.

Lazard, G. (1999). 'Mirativity, evidentiality, mediativity, or other' *Linguistic Typology* 3(1): 91-109.

Lee, J. (2011a). 'The Korean evidential *-te*: A modal analysis', *Empirical Issues in Syntax and Semantics* 8: 287-311.

Lee, J. (2011b). Evidentiality and its Interaction with Tense: Evidence from Korean. Doctoral Dissertation, The Ohio State University.

Levine, B. C. and Hovav, M. R. (1995). *Unaccusativity: At the Syntax-Lexical Semantics Interface*. Cambridge, Mass.: MIT Press.

Lewis, D. K. (1973). *Counterfactuals*. Cambridge, MA: Harvard University Press.

Li, C. N., Thompson, S. A. and Thompson, R. M. (1982). 'The discourse motivation for the perfect aspect: The Mandarin particle *le*, in Hopper, Paul (ed.), Between Semantics and Pragmatics, Amsterdam/Philadelphia: John Benjamins, 19-44.

Lyons, J. (1977). *Semantics.* Cambridge: Cambridge University Press.

Mari, A. (2010). 'On the evidential nature of the Italian future', Ms. IJN http://jeannicod.ccsd.cnrs.fr/docs/00/67/85/49/PDF/Evidential_Future_Italian.pdf.

Matthewson, L. (2004). 'On the methodology of semantic fieldwork', *International Journal of American Linguistics* 70: 369-415.

Matthewson, Lisa, Henry Davis and Hotze Rullmann. (2007). 'Evidentials as epistemic modals: Evidence from St'át'imcets', *The Linguistic Variation Yearbook* 7:201-254.

McCready, E. (2010). 'Evidential universals', *Evidence from Evidentials, Vancouver: University of British Columbia*: 105-127.

McCready, E. and Ogata, N. (2007). 'Evidentiality, modality and probability', *Linguistics and Philosophy* 30(2): 147-206.

Mitchell, T. F. (1978).' Educated spoken Arabic in Egypt and the Levant, with special reference to participle and tense', *Journal of Linguistics* 14(2): 227-58.

Mitchell, T. F. and El-Hassan, S. A. (1994). *Modality, Mood, and Aspect in Spoken Arabic: With Special Reference to Egypt and the Levant*. London and New York: Kegan Paul International.

Mughazy, M. (2004). Subatomic Semantics and the Active Participle in Egyptian Arabic. Doctoral Dissertation, University of Illinois at Urbana-Champaign.

Mushin, I. (2001). *Evidentiality and epistemological stance: Narrative retelling*. Amsterdam/Philadelphia: John Benjamins.

Murray, S. E. (2010). Evidentiality and the Structure of Speech Acts. Doctoral Dissertation, Rutgers University.

Nedjalkov, V. P. (ed.). (1988). *Typology of Resultative Constructions*. Amsterdam: John Benjamins.

Nikolaeva, I. (2000). 'The semantics of northern Ostyak evidentials', *JSFO (Journal de la Société Finno-Ougrienne)* 88: 131-59.

Nuyts, J. (2001a). 'Subjectivity as an evidential dimension in epistemic modal expressions', *Journal of Pragmatics* 33(3): 383-400.

Nuyts, J. (2001b). *Epistemic Modality, Language and Conceptualization*. Amsterdam and Philadelphia: John Benjamins.

Ogihara, T. (1996). *Tense, Attitudes, and Scope*. Dordrecht: Kluwer Academic Publishers.

Palmer, F. R. (1986). *Mood and Modality*. Cambridge: Cambridge University Press.

Pancheva, R. and A. von Stechow. (2004). 'On the present perfect puzzle 'in K. Moulton and M. Wolf (eds.), *Proceedings of NETS* 34, GLSA: Amherst, MA, 469-484.

Papafragou, A. (2000). *Modality: Issues in the Semantics-Pragmatics Interface*. Elsevier.

----------. (2006).' Epistemic modality and truth conditions', *Lingua* 116(10): 1688-1702.

Partee, B. (1973). 'Some structural Analogies between tenses and pronouns in English', *The Journal of Philosophy* 70: 601-609.

----------. (1984). 'Nominal and temporal anaphora', *Linguistics and Philosophy* 7:243-286.

----------. (1988). Possible worlds in model-theoretic semantics: A linguistic perspective, in Allen, S. (ed.), *Possible Worlds in Humanities, Arts, and Sciences*: *Proceedings of Nobel Symposium*, Berlin and New York: Walter de Gruyter, 93-123.

Parsons. T. (1990). *Events in the Semantics of English*. Cambridge: MIT Press.

Perlmutter, D. (1978) 'Impersonal Passives and the Unaccusative Hypothesis,' in J. Jaeger et al., (eds.), *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*, University of California, Berkeley, 4, 157-189.

Peterson, T. R. G. (2010). Epistemic Modality and Evidentiality in Gitksan at the Semantics-Pragmatics Interface. Doctoral Dissertation, University of British Columbia.

Portner, P. (2003). 'The (temporal) semantics and (modal) pragmatics of the perfect', *Linguistics and Philosophy* 26(4): 459-510.

----------. (2005). *What is Meaning? Fundamentals of Formal Semantics*. Oxford: Blackwell.

----------. (2009). *Modality*. Oxford: Oxford University Press.

Potts, C. (2005). *The Logic of Conventional Implicature*. Oxford: Oxford University Press.

Pullum, G. K. (1988). 'Topic…comment: citation etiquette beyond thunderdome', *Natural Language and Linguistic Theory* 6: 579-588.

Raposa, E. and Uriagareka, J. (1995). 'Two types of small clauses (Toward a syntax of theme/rheme relations)', *Syntax and Semantics* 28: 179-206.

Reichenbach, H. (1947). *Elements of Symbolic Logic*. New York: The Free Press.

Roberts, C. (1987). *Modal Subordination, Anaphora, and Distributivity*. New York: Garland

----------. (1989). 'Modal subordination and pronominal anaphora in discourse', *Linguistics and Philosophy*, 12(6): 683-721.

Rullmann, H., Matthewson, L. and Davis, H. (2008). 'Modals as distributive indefinites', *Natural Language Semantics* 16:317-357.

Schenner, M. (2010). 'Evidentials in complex sentences: foundational issues and data from Turkish and German', in M. Schenner R-M. Dechaine, T. Peterson and U. Sauerland (eds.), *Evidence From Evidentiality*, Vancouver: University of British Columbia Working Papers in Linguistics.

Schlichter, A. (1986). 'The origins and deictic nature of Wintu evidentials', in Chafe, W.L. and Nichols, J. (eds.), *Evidentiality: The linguistic Coding of Epistemology*, *Norwood: Ablex*.

Searle, J. R. (1969). *Speech Acts: An Essay in the Philosophy of Language*. Cambridge: Cambridge university press.

Searle, J. R. and Vanderveken, D. (1985). *Foundations of Illocutionary Logic*. CUP Archive.

Sener, N. (2011). Semantics and Pragmatics of Evidentials in Turkish. Doctoral Dissertation, University of Connecticut.

Shlonsky, U. (1997). *Clause Structure and Word Order in Hebrew and Arabic: An Essay in Comparative Semitic Syntax.* New York/Oxford: Oxford University Press.

Simons, J. T, Mandy, Beaver, D. and Roberts. C. (2010). 'What projects and why', in Lutz, D. and Li. N (eds.), *Proceedings of Semantics and Linguistic Theory (SALT)* 20, Ithaca, NY: Cornell University.

Smirnova, A. (2012). 'Evidentiality in Bulgarian: Temporality, epistemic modality and information source', *Journal of Semantics*: 1-54.

Smith, C. (1997). *The Parameter of Aspect*. Dordechet/Boston/London: Kluwer Academic Publishers.

Speas, T. and Tenny, C. (2003). 'Configurational properties of point of view roles' in Sscuillo, Anna Maria Di (ed.), *Asymmetry in Grammar*, Amsterdam: John Benjamins, 315-344.

Speas, P. (2008). 'On the syntax and semantics of evidentials', *Language and Linguistic Compass* 2(5): 940-965.

Stephenson, T. (2005). 'Assessor sensitivity: Epistemic modals and predicates of personal taste', in Gajewski, J., Hacquard, V., Nickel, B. and Yalcin, S. (eds.), *New Work on Modality, MIT working papers in linguistics*, Cambridge, Massachusetts: MITWPL, Vol. 51,179-206.

Stone, M. (1994). 'The reference argument of epistemic *must*', *Proceedings of IWSC* 1:181-190.

Tatevosov, S. (2001). 'From resultatives to evidentials: Multiple uses of the perfect in Nakh-Daghestanian languages', *Journal of Pragmatics* 33: 443-464.

Thompson, S. A. (1988). A discourse approach to the cross-linguistic category 'adjective', in J. A. Hawkins (ed.), *Explaining Language Universals*, Oxford: Basil Blackwell, 167-85.

Traugott, E. C. (1989). 'On the rise of epistemic meanings in English: An example of subjectification in semantic change', *Language*: 31-55.

von Stechow, A. (1995). Tense in Intentional Contexts: Two Semantic Accounts of Abusch's Theory of Tense. Ms, University of Tübingen.

Verkuyle, H. (1999). 'Tense, aspect and aspectual composition', in Hellen, L. and Vulchanova, D. (eds.), *Topics in South-Slavic Syntax and Semantics*, Amsterdam: John Benjamins, 123-162.

Waldie, R., Peterson, T., Rullmann, H., and Mackie, S. (2009). 'Evidentials as epistemic modals or speech act operators: Testing the tests', in *Proceedings of the 14th Workshop on Structure and Consituency in Languages of the America (WSCLA)*, Vancouver: University of British Columbia Working Papers in Linguistics.

Werner, T. (2006). 'Future and non-future modal sentences', *Natural Language Semantics* 14(3): 235-255.

Westmoreland, R. (1995). 'Epistemic *must* as evidential', in Dekker, P. and Stokhof, M. (eds.), *Proceedings of the 10th Amsterdam Colloquium* II, ILLC, Amsterdam, 683-702.

Willett, T. (1988). 'A cross-linguistic survey of the grammaticizations of evidentiality', *Studies in Language* 12: 51–97.