The Nonnegative-Nonpositive Analysis of Continuous-Discontinuous Negation in Moroccan Arabic *

Nasreddine Bejja  Yahya Dkhissi
Chouaib Doukkali University - El Jadida
Morocco
bejja.n@ucd.ac.ma  yahya.dkhissi@gmail.com

Abstract

The inconsistency of the assumptions underlying analyses lacking a split in the negation domain has evidently invited a transition to explanations employing a split strategy derived from Soltan’s (2012) Split-Neg analysis of Cairene Egyptian Arabic. The shift’s general focus, however, has been more on extending the analysis to other Arabic varieties and less on identifying aspects of deficiency. The present study therefore aims to address the limitations of the Split-Neg analysis and propose a synta-semantic account of the continuous-

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discontinuous alternation of negation in Moroccan Arabic (MA). The Split-Neg analysis will be shown to allow for an unjustified move operation of lexical items to the Neg head, leaving merge with -š to be largely unexplained. Cast within a minimalist-cartographic approach, the proposal posits that there is a link between the non-positive and the non-negative dimensions in the syntactic structure in the form of two features: non-Positive (NONP) and non-Negative (NONN). The alternation between continuous and discontinuous negation will be attributed to different valuation options of NONP and NONN. In particular, negative continuousness is the result of NONN feature valuation in-situ and NONP feature valuation by movement. Negative discontinuousness, on the other hand, arises from NONN and NONP feature valuation by movement.

Keywords: syntax, Moroccan Arabic, (dis)continuous negation, Split-Neg, minimalist program, cartography

1 Introduction

Negation is a universal property of human language (Horn, 1989, p. xiii). Such generalization comes from the observation that natural languages tend to have some way of generating a representation of negation. Being an essential component of language, negation is a construction that falsifies a certain proposition (Radford, 2009, p. 468). In other words, negation is a linguistic phenomenon designed to reverse the polarity of a phrase or its parts.

In MA, negation has been described and investigated in relation to the aspects that contribute to its realization. On the descriptive end, Brustad (2000) offers an inventory of the different negative strategies available in the MA repertoire in comparison to other Arabic varieties. Lafkioui (2013) provides a focused inventory of the negation patterns in MA and goes on to tease out how some of these patterns are the result of MA-Berber contact. Chatar-Moumni (2012) conceptualizes ma- as a negator and -š as an undefined quantifier and argues that their association gives rise to sentential negation. Benmamoun et al. (2013) examine the syntactic location, relative to the tense projection, of sentential negation in MA and other Arabic varieties. On the explanatory end, Benmamoun (1992, 2000) explores the featural system that produces different patterns of negation in MA. Ouhalla (2002) addresses the logical form of negative clausal structure in MA. Benmamoun (2006) posits a licensing configuration to account for the interaction between negation and Negative Polarity Items (NPIs) in MA — a topic that, far from being of peripheral interest to the study of negation, allows for more nuanced understanding of the phenomenon. Slime (2017) analyses the underlying syntax behind the distribution of negative markers in MA. Loutfi (2019) provides a morpho-syntactic analysis of the interaction between negation and NPIs in MA. Soufî (2020) proposes what he refers to as the split negation hypothesis, taking the position that the great variation in negative constructions can better be understood when attributed to semantic, logical, and pragmatic causes. These studies among others illuminate that capturing the complexity of negation is an area of extreme unease and a thorny issue in the literature of MA syntax. In
this study, we take up the issue of how the continuous and discontinuous patterns of negation in MA are derived within a unified version of the Minimalist Program (MP) (Chomsky, 1995, 2015, 2019; Chomsky, Gallego, and Ott, 2019) and Cartography (Cinque and Rizzi, 2010; Rizzi, 1997, 2004).

In MA, the expression of negation is generally marked by two morphemes, *ma-* and *-š(i)* (Benmamou, 1992, p. 68). Sentences such as (1a) and (1c) below can be negated as in (1b) and (1d). The two morphemes typically take two forms: Continuous or discontinuous. The continuous formation refers to cases where morphemes of the same category are successively generated with no intervening morpheme of another category. As such, continuous morphemes form one item by simply attaching to themselves. The discontinuous formation, on the other hand, refers to cases where morphemes of the same category are interrupted by a morpheme(s) of another category. Accordingly, discontinuous morphemes form a more complex item by attaching to elements other than themselves. The continuous-discontinuous alternation is part of the overall behaviour of negation in MA. In fact, the realization of the negative markers can be either continuous *ma-ši X* as in (1b) or discontinuous *ma-X-š* as in (1d).

(1) a. huwa fəllaḥ (MA)
   he farmer
   “He is a farmer”

b. huwa ma-ši fəllaḥ (MA)
   he Neg-Neg farmer
   “He is not a farmer”

c. qrit had le-ktaab (MA)
   read-past this the-book
   “I read this book”

d. ma-qrit-š had la-ktaab (MA)
   Neg-read-past.1p-Neg this the-book
   “I did not read this book”

From (1b, d), it can be observed that when the predicate is non-verbal (e.g., *follah* ‘farmer’), the continuous pattern *ma-ši X* arises. By the same token, when the predicate is verbal (e.g., *qrit* ‘read’), the discontinuous pattern *ma-X-š* surfaces. Let us formalize this observation in the following way:

(2) **Predicate Type Generalization (PTG)**

   a. If the predicate is non-verbal, then apply the continuous pattern.
   
   b. If the predicate is verbal, then apply the discontinuous pattern.

The PTG operates in accordance with some properties of negation in MA since it is inferred from empirical data. However, as it can be expected, stipulation (2a) is not totally true for
all instances of negation in MA; take the example sentences in (3) below. MA employs both continuousness (3a) and discontinuousness (3b) to negate non-verbal predicates in this case predicate adjectives (e.g., mriḍ ‘sick’). The case in (3b) shows that adjectives do appear between the two negative markers and, thus, the discontinuous pattern can also be applied on non-verbal predicates in violation of (2a).

(3) a. ʿomar ma-ši mriḍ (MA)
Omar neg-neg sick
“ʿOmar is not sick.”
Benmamoun, 2000, p. 7
b. ʿomar ma-mriḍ-š (MA)
Omar neg-sick-neg
“ʿOmar is not sick.”
Benmamoun, 2000, p. 15

As it can also be expected, provision (2b) does not entirely hold true either. As shown in (4), MA uses both the discontinuous (4a) and continuous (4b) formation to negate sentences containing verbal predicates (e.g., smaʿ ‘hear’). The case in (4b) shows that the two negative markers can appear independent of the verb and, hence, the continuous pattern can also be applied on verbal predicates in violation of (2b).

(4) a. hadak ma-ta-y-smaʿ-š (MA)
that-person neg-asp-3m-listen-neg
“That person does not listen.”

b. hadak ma-ši ta-y-smaʿ ta-y-fut smiʿ lhih (MA)
that-person neg-neg asp-3m-listen asp-3m-exceed hearing level
“That person does not only hear; he has a sharp hearing ability.”

These two perplexing cases show that PTG is descriptively inadequate as it does not withstand close scrutiny against empirical evidence. The fact of the matter is that both negative continuousness and discontinuousness are, at large, used to negate both verbal and non-verbal predicates. This alternating behaviour of negation in MA leaves open the question of how the

1Soufi (2020) refers to cases such as (3a) as “dependent negative reading” while cases such as (3b) as “independent negative reading” (p. 72). The main difference is that the former depends on an additional statement for the meaning of the utterance to be complete, while the latter does not.

2A similar construction to the example sentence (4b) is the following example from MA. Negation takes the continuous form even though the predicate is verbal (i.e., kla ‘eat’): ma-ši kla ʾimmarr-ha! (neg-neg eat-3m.perf fill up-3m.perf-her) “He has not eaten; he gorged!” (Chatar-Moumni, 2012, p. 3)

3Although there are some cases where either continuous or discontinuous negation is allowed for a particular predicate, we refrain from using those instances as the starting point of the analysis. In what follows, we highlight two cases where only one pattern can be applied. Let us consider the following example: ma-f-rasi-š (neg-in-head-my-š) “[It’s] not in my head (i.e., I don’t know).” (Brustad, 2000, p. 291). The prepositional phrase (i.e., f-rasi) allows only for the discontinuous pattern to express the meaning “I don’t know”. The continuous form (i.e., ma-f-i-rasi), though it is possible, is not quite used to express that particular meaning. Let us now consider another example: Nadia ma-ši fa-l-madrasa (Nadia neg-neg in-the-school) “Nadia is not at school.” (Benmamoun, 2000, p. 73). In contrast, the prepositional phrase (i.e. fa-l-madrasa) accepts only the continuous pattern while the discontinuous pattern is rejected (i.e., *ma-fa-l- madrasa-š).
transition from one pattern to the other is syntactically possible irrespective of the predicate type and triggers a curiosity about what could be a genuine explanation to its peculiarity.

The present study builds on Soltan (2012)'s morpho-syntactic solution the Split-Neg analysis to propose a synta-semantic solution the non-negative-non-positive (NONN-NONP) analysis. The MA-POL-NEG algorithm developed within the analysis bears a potential theoretical refinement. While in MA negation is morpho-syntactic on the surface, we argue that the apparent diversity of negative patterns can be traced to synta-semantic reasons. The different valuation options of NONN and NONP features are shown to be behind the continuous-discontinuous alternation of negation in MA. On the one hand, negative continuousness is the result of NONN feature valuation in-situ and NONP feature valuation by internal merge. Negative discontinuousness, on the other hand, is the result of NONN and NONP feature valuation by internal merge. The successful unification of MP and cartography in the present account provides additional support to Cinque and Rizzi's (2010) hypothesis that the two models can be complementary.

The structure of the paper is as follows. Section 2 reviews previous analyses of negation in Arabic varieties, concluding that the Split-Neg analysis provides good grounds on which a unified analysis of the (dis)continuous alternation of negation can be approached. Sections 3 identifies the limitations the Split-Neg analysis. Sections 4 gives a tentative account for the continuous-discontinuous alternation of negation in MA followed by a refinement. Section 5 is the conclusion.

2 Existing approaches to continuous-discontinuous negation

The continuous-discontinuous alternation has been the subject of extensive research reviewed here with the goal of determining which account provides good grounds on which to approach a unified analysis of the negative alternation. The measure of evaluation used is simplicity following the Galilean-Chomskyan remark that simplicity is almost inseparable from depth of explanation. More specifically, Chomsky (2017) hold that all theories attempt to achieve “rich explanatory depth”, but only simple theories do (pp. 2-3). Simplicity is taken to mean the generation of the “minimal number of primitives as the basis for the constructional system under consideration” (Chomsky, 2021, p. 8). It is a priority then to ensure that the models of negation research done so far have “no machinery beyond what is needed to satisfy minimal

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Footnotes:
4 Boeckx and Piattelli-Palmarini (2005) use the expression “elegant deeper simplifications” to describe the same idea.
5 In the same vein, Epstein and Seely (2002) emphasize the vital role of seeking “deeper explanation through minimization of posited axioms” (p. 3). They distinguish between two practices in syntactic analysis: Doing justice to experience and getting to the root of the matter. Doing justice to experience involves covering the empirical facts of a language through as much stipulation as possible while getting to the root of the matter requires maximizing explanation through minimizing the postulated premises.
requirements of legibility” and that the models function “in as simple a way as possible” (Chomsky, 2000, pp. 112–113). In other words, the explanation of the two negation patterns must be composed of the least number of assumptions and derivational steps possible⁶. The attempts to explain the continuous-discontinuous alternation of negation in Arabic varieties can be categorized into Non-Split-Neg and Split-Neg analyses⁷.

2.1 Non-Split-Neg accounts

A Non-Split-Neg analysis is any analysis that treats the two negative exponents as generating under one projection. Chief among these analyses are Benmamoun’s (2000) complex head NegP analysis and Aoun, Benmamoun, and Choueiri’s (2010) Spec-NegP analysis. Each account is detailed in terms of its claims, skeletal structures, and limitations. Besides their non-split character, a second commonality between the two analyses is that the negation domain is located in a position lower than TP (i.e., low-Neg analyses) as shown in (5) below.

\[
\text{(5)}
\]

\[
\begin{array}{c}
\text{TP} \\
\text{Spec} \\
\text{T'}
\end{array}
\]

\[
\begin{array}{c}
\text{T} \\
\text{NegP} \\
\text{Spec} \\
\text{Neg}
\end{array}
\]

\[
\begin{array}{c}
\text{VP} \\
\text{V}
\end{array}
\]

2.1.1 Benmamoun’s (2000) complex head NegP analysis

One working assumption in the complex head NegP account is that the two negative markers are base-generated (i.e., externally merged) in the discontinuous formation under the head Neg as in (6) below⁸. This assumption was postulated to account for discontinuous negation.

⁶The appeal to minimization of assumptions for the outcome of maximization of understanding is not only used as an evaluative measure, but also as the impetus for our proposal.

⁷Projection splitting originates in Cartography. Advanced by Rizzi (1997, 2004), this framework provides “detailed structural maps” of syntactic structure (see also Cinque and Rizzi, 2010). These maps are constructed such that “each layer is split up into more functional hierarchies” that assign to each category a “precise position” (Van Gelderen, 2013, pp. 32–33).

⁸The operation Merge is irreducible in the sense that it is the “basic structure building operation” of the faculty of language (Collins and Stabler, 2016, p. 47). It is applied as many times as necessary, and the objects generated by Merge must be accessible to further iterations of Merge. The minimal means required to get recursive, hierarchical structure is merging two objects (i.e., binary branching) (Chomsky, Gallego, and Ott,
Benmamoun (2000) studied the feature system of negation and asserted that “negation carries a categorial [+D] feature that must be checked” (p. 90). That is, the merger between negatives and predicates is guided by the requirement to check the [+D] feature of negation. In addition, TP is generated with different categorial features depending on the tense of the sentence. In the past tense, T carries categorial [+V] and [+D] features; in the present tense, T carries only a [+D] feature.

The merge requires the verb to move and be placed between the negative morphemes under Neg. Subsequently, the negative verb ma-\text{-\textipa{š}} is moved to T. The past tense verb, for example, \textit{ktəb} (i.e., write) is merged with the discontinuous negative element \textit{ma-\ldots-š} on its way to T. As illustrated in (7), the past tense verb moves to T to check the [+V] feature on T. Due to relativised minimality, it merges with negation resulting in the complex \textit{ma-ktəb-š}. This complex in turn moves to T checking both the [+V] and [+D] features on T in the process.

Due to relativised minimality, the past verb must combine with the negators on its way to check the [+V] feature on T. Relativised minimality forces locality at the level of syntactic relations such that the movement of a head category is blocked by another head category (Rizzi, 1990, 2001; see also Ouhalla, 1990). Therefore, in this case the verb cannot move directly to tense because it will be blocked by the negative head Neg; instead, it needs to
merge with negation first then move to T.

The analysis successfully predicts that a sentence such as (8a) would be ungrammatical because the [+V] feature on T has not been checked overtly by the verb movement to Neg then to T. The account also predicts that a sentence such as (8b) would be ungrammatical because it violates relativized minimality since the verb skips merging with Neg on its way to T.

(8) a. *ʿomar ma-ši ktəb lə-bra (MA)
    'omar neg-neg write.past.3ms the-letter

b. *ʿomar ktəb ma-ši lə-bra
    'omar write.past.3ms neg-neg the-letter (Benmamoun, 2000, p. 81)

A second assumption underlying the complex head NegP account is that the two negative markers are base-generated in the continuous form under the head Neg as in (9). This assumption was posited to account for continuous negation.

(9)

```
\begin{center}
\begin{tikzpicture}
  \node (TP) {TP}
  \node (Spec) [below] {Spec} edge from parent node [auto] {T'}
  \node (Tp1o) [below] {T[+D]} edge from parent node [auto] {NegP}
  \node (Neg) [below] {Neg} edge from parent node [auto] {A P}
  \node (ma-ši) [below] {ma-ši} edge from parent node [auto] {Spec}
  \node (Omar) [left] {Omar} edge from parent node [auto] {A}
  \node (mrid) [right] {mrid} edge from parent node [auto] {Spec}
\end{tikzpicture}
\end{center}

(Benmamoun, 2000, p. 66)
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The way the [+D] feature on T is checked is through the movement of the subject to the specifier of TP, the fact which explains, according to Benmamoun (2000), why the subject takes precedence over negation in verbless sentences (p. 65).

When the complex head NegP analysis is examined, two problems arise. First, it is not clear what exactly makes the negative exponents enter the derivation not attached to each other in some cases (i.e., assumption one where ma—š is base-generated) and attached to each other in other cases (i.e., assumption two where ma-ši is base-generated). The form of bipartite negation (i.e., whether continuous or discontinuous) is assumed prior to the derivation but not as a result of the derivation. Second, it is not apparent how the analysis would account for (a) cases where continuous negation occurs with verbal predicates based on assumption one and (b) cases where discontinuous negation accompanies non-verbal predicates based on assumption two. Extending the proposal to those cases requires the addition of more postulations which could result in undermining the simplicity of the analysis.
2.1.2 Aoun, Benmamoun, and Choueiri’s (2010) Spec-NegP analysis

Aoun, Benmamoun, and Choueiri’s (2010) analysis is an adaptation of Pollock’s (1989) proposal for French negatives ne and pas. Pollock (1989) suggests that the pre-verbal ne is base-generated under Neg. The post-verbal pas, on the other hand, is a negative adverbial that is either base-generated in Spec-NegP (Pollock, 1989; Zanuttini, 1997) or base-generated in vP adjunct position then moved to Spec-NegP (Rowlett, 1998; Zeijlstra, 2004). What is important in both cases is that pas ends up in Spec-NegP. Another contribution that Pollock (1989) made, relevant here, is the split IP hypothesis. The hypothesis refers to the assumption that functional elements such as tense, agreement, and negation ought to behave as heads projecting their own phrasal category. The representation of negation, thereby, is NegP.

The working assumption in this analysis is that -š originates in the specifier position of NegP and is headed by ma- originated under Neg. This means that the inflectional negative markers are generated apart from each other but still within the same projection (i.e., NegP) and that language variation depends on how a particular I-language decides to bring together the host and its inflections. The specifier of NegP -š and the head of NegP ma- can be represented as in (10a).

\[ (10) \quad \begin{align*} \text{a.} & \quad \text{b.} \end{align*} \]

According to Aoun, Benmamoun, and Choueiri (2010), the verbal item is merged with the head of NegP on its way to T. Next, the specifier of NegP is cliticized to the complex ma-X under T. For example, the past tense verb mša is merged with ma-under Neg, and then the complex ma-mša is moved to T. The suggested verb movement is driven by the requirement of checking the [+V] feature on T. The enclitic -š is subsequently right-joined to the complex ma-mša as indicated in the skeletal structure (10b) above.

One problem identified by the originators of the analysis is that if no head is merged with ma-, then it is not apparent how ma- can move higher to the T position (Aoun, Benmamoun,
and Choueiri, 2010, p. 104). If the movement does not occur, the negative marker -š would precede ma- leading the derivation to crash since this construction does not exist in MA. Another overlooked problem that can be discerned is that the analysis does not allow for the complex ma-ši to surface. In other words, the analysis accounts only for those instances in MA where the negative markers are discontinuous. The inadequacies underlying accounts lacking a split in the negation domain has invited a transition to explanations employing the Split-Neg strategy.

2.2 Split-Neg accounts

A Split-Neg analysis is any analysis that treats the two negators as separate heads. This section considers how the Split-Neg analysis is applied to two Arabic varieties: Cairene Egyptian Arabic (CEA) and Raymi dialect.

2.2.1 Soltan (2014): Cairene Egyptian Arabic

Soltan’s (2011, 2012, 2014) Split-Neg analysis of Cairene Egyptian Arabic (CEA) is a high-neg analysis. Its point of divergence from the analyses discussed so far is that the negation domain is located in a position higher than TP as shown in (11a) below.

Building on the work of Zanuttini (1997) and Zeijlstra (2008) on negation, Soltan (2012) suggests that this slight modification on the position of the Neg-domain is not enough and that the Neg-domain is split into two separate heads: Polarity (Pol) and negation (Neg). This means that the negation has to be expressed via a polarity phrase (PolP) as represented in (11b) above. Instead of assuming a single projection of the negation domain where both negative markers are generated, Soltan (2012) assumes a two-layered projection: PolP and NegP.

The head Pol is where ma- is generated while -š occupies the head Neg position. It should
be noted that Pol is the locus of interpretable negation which carries an [iNeg] feature and that Neg is specified for [uNeg] feature which is checked or valued under Agree between Pol and Neg. Dealing with the negative markers as two separate heads can be backed up by the phenomenon of š-disappearance. If the second negative marker disappears (i.e., š) for some reason while the first one did not, it shows that the two negative markers have different inherent properties and that they have to be treated as independent heads.

In his study of CEA sentential negation, Soltan (2012) examined the negation properties in CEA and found that both negative continuousness as in (12a) and discontinuousness as in (12b) are used to negate verbal predicates.

(12) a. miš ḥa-safir (CEA)
   neg fut.imper-travel.1sg
   “I will not travel.” (Soltan, 2012, p. 118)

b. maa-saafir-i-š Maṣr 'umr-ii (CEA)
   neg-travel.perf.1sg-neg Egypt ever-my
   “I have never travelled to Egypt.” (Soltan, 2012, p. 121)

To solve the continuousness-discontinuousness problem found in previous analyses of negation, Soltan (2012) proposes the Split-Neg analysis for both the continuous pattern miš ha-saafir as in (13a) and the discontinuous pattern maa-saafir-i-š as in (13b).

For the continuous pattern miš ha-saafir in (13a) to be generated, the verb originates in V, moves to v, then moves to Asp where it is merged with the future marker [ḥa]. To value its uninterpretable [uNeg] feature, -š moves to Pol and is merged with mi, giving rise to the pattern miš ha-saafir. For the discontinuous pattern maa-saafir-i-š in (13b) to be generated, the verb originates in V, moves to v, then moves to T, and finally moves to Neg where it is merged with -š. To value its uninterpretable [uNeg] feature, the complex saafir-i-š moves to Pol and is merged with maa. As such, the derivation gives rise to the pattern maa-saafir-i-š.

The Split-Neg analysis has been extended to other Arabic varieties, one of which is Raymi dialect — a dialect spoken in Yemen in the village of Raymah.

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Agree is generally an operation that “relates features of syntactic objects” (Chomsky, Gallego, and Ott, 2019, p. 238). In status, features can be either Interpretable (iFs) or Uninterpretable (uFs). The operation Agree is needed to relate an unvalued feature of a Probe (P) to a matching, hierarchically closed, valued feature of a Goal (G). More specifically, Agree is a mechanism composed of two steps: Match and valuation (Chomsky, 2007). Match involves identifying similar features across the syntactic structure. That is, it matches uFs with their interpretable counterparts. Valuation, on the other hand, involves valuing unvalued uFs. As such, it establishes a relationship between a P (i.e., an attracting head) and a local G (i.e., an element sufficiently close to the probe). For an additional practical display of how Agree works in Arabic varieties, see Boutabia and Dkhissi’s (2021) account of definiteness spread in Standard Arabic (SA) construct states.

The strikethrough items in the skeletal structures refers the minimalist concept Copy. Copy is a consequence of Move. When the displacement operation Move takes a lexical item to another syntactic position for feature valuation reasons, a copy of the moved element remains in its original position to be deleted at or before reaching the interfaces (Chomsky, 2015).
2.2.2 Alqurashi and Abduljalil (2020): Raymi dialect

In their study of negation in Raymi dialect, Alqurashi and Abduljalil (2020) investigate the negation properties in Raymi dialect and found that both negative continuousness and discontinuousness are used to negate verbal predicates as in (14a, b) and non-verbal predicates as in (14c, d).

(14) a. maa-katab-ši Ali r-risalah (Raymi Dialect)
   neg-wrote.3m.sg-NEG Ali def-letter
   "Ali did not write the letter."

b. maa-ši katab Ali r-risalah
   neg-neg wrote.3m.SG Ali DEF-letter
   "Ali did not write the letter."

c. maa-huu-ši bi-lbayt. (Raymi Dialect)
   neg-he-neg in the house
   "He is not in the house."

d. maa-ši huu bi-lbiyat.
   neg-neg he in the house
   (Alqurash and Abduljalil 2020, p. 332)

Along the lines of Soltan’s (2012) Split-Neg analysis, Alqurashi and Abduljalil (2020) propose an analysis that solves the continuousness-discontinuousness problem found in non-Split-Neg analyses of negation. Their analysis accounts for the surfacing of negative continuousness as in (15a) and discontinuousness patterns (15b) with verbal predicates.

For the continuous pattern maa-ši katab in (15a) to be generated, the verb originates in V,
moves to v, then moves to T. To value its uninterpretable [uNeg] feature, ši moves to Pol and is merged with maa, causing the pattern maa-ši katab to emerge. For the discontinuous pattern maa-katab-ši in (15b) to be generated, the verb originates in V, moves to v, then moves to T, and finally moves to Neg where it is merged with ši. To value its uninterpretable [uNeg] feature, the complex [katab-ši] moves to Pol and is merged with maa, leading to the formation of the pattern maa-katab-ši.

Two fundamental differences between the Non-Split-Neg and Split-Neg approaches are the syntactic status assigned to the negative particles and the location assumed for the negation domain. Solving the continuousness-discontinuousness problem in both CEA and Raymi dialect was shown that it is approached in the literature by placing the negation domain above TP, splitting the negation domain, and advancing one feature. Without any additional postulations to threaten simplicity, the Split-Neg analysis accounts for both negative continuousness and discontinuousness and extends from CEA to Raymi dialect. For now, we take the fact that the Split-Neg analysis can work for negation in CEA and can be extended to another Arabic variety (i.e., Raymi dialect) as an indication that the analysis provides good grounds on which to achieve a unified analysis of the continuous-discontinuous alternation of negation. This point is challenged in the following section.

13 For a detailed argumentation in favor of projecting the negation domain above TP in MA, see Benmamoun et al., 2013.

14 The Split-Neg analysis was also extended to Jordanian Arabic (see Alqassas, 2015).
3 More on the Split-Neg analysis

This section is concerned with determining whether there are any flaws in the Split-Neg analysis. We go back to the two derivations in (13a, b) restated as (16a, b).

Before the discontinuous pattern \textit{maa-saafrit-š} is Spelled-Out as in (16a), the verb \textit{saafrit} “travel” originates in V, moves to T, and then moves to Neg where it is merged with -š. To value its uninterpretable \textit{uNeg} feature, the complex \textit{saafrit-š} moves to Pol and is merged with ma-. The copies of \textit{saafrit} receive a null Spell-out, giving rise to the discontinuous pattern \textit{maa-saafrit-š}.

The analysis, however, does not say much about why the movement of the verb from T to Neg is necessary (i.e., what features drive verb-to-Neg movement). For convenience of reference, we dub this problem the Negative-Positive (NEG-POS) problem. The POS head here is the verb \textit{saafrit} while the NEG head is the second negative marker -š. Notice that the NEG-POS problem has not surfaced in (16b) because the movement of a POS head to a NEG head is not required since the form under question is continuous negation. Continuous negation, under the Split-Neg analysis, is achieved through ši-to-ma movement and does not require any movement from a POS head. This is not the case in discontinuous negation. Therefore, it is safe to say that the NEG-POS problem is foregrounded in discontinuous negation and is absent in continuous negation. Since the phenomenon we are dealing with is an alternation linking two distinct behavioral patterns, we revise the aforementioned remark in the following way: The NEG-POS problem is foregrounded in discontinuous negation and is backgrounded or submerged in continuous negation. The difference between the two formulations is that the latter conveys that the NEG-POS problem exists in both negative forms to varying degrees. In light of these insights, we reconceptualize the Split-Neg analysis as a continuous negation analysis (i.e., an analysis that can only account for negative continuousness, as opposed to both continuousness and discontinuousness).

An essential characteristic of Soltan’s account is its morphosyntactic approach. While using the feature Neg to account for š-to-ma movement, Soltan (2012) uses a morphosyntactic algorithm to solve, what we call here, the NEG-POS problem. The algorithm is as follows:

\footnote{The operation Spell-Out or Transfer leads the derivation to split between the phonological form (PF) and logical form (LF). It maps the Syntactic Object(s) (SO) built by Merge onto (a) the phonological component or PF to be accessed by the Sensory-Motor (SM) system and (b) onto the semantic component or LF to be accessed by the Conceptual-Intentional (C-I) system (Chomsky, 2004). This mapping allows SOs to be assigned an appropriate phonological and semantic representation.}
a. In contexts where Neg is adjacent to a hosting head H, H moves to Neg and then to Pol, and the discontinuous *maa-H-š* pattern arises.

b. Otherwise, Neg incorporates into Pol, giving rise to the *miš*-pattern. (Soltan, 2012, p. 123)

Algorithm (17a) suggests that the discontinuous pattern is the result of the absence of an intervening element between an adjacent lexical head (e.g., *saafirit-i* “travel”) and Neg as in (18a) below, allowing the head to move to Neg and then to Pol. Algorithm (b) suggests that continuous patterns is the result of the presence of an intervening element (e.g., the future marker *ḥa* ‘will’) between a lexical head (e.g., *saafiri* ‘travel’) and Neg as in (18b) below, leading Neg to move to Pol.

(18) a. maa-*saafirt-i*-š Maṣr *umr-ii* (CEA)
   neg-travel.perf-1sg-neg Egypt ever-my
   “I have never travelled to Egypt.” (Soltan, 2012, p. 121)

b. *miš ḥa-saafir* (CEA)
   fut.imper-travel.1sg
   “I will not travel.” (Soltan, 2012, p. 118)

An examination of CEA data can show the partial nature of both algorithms. The example sentence in (19a) below contradicts how algorithm (a) (which is about discontinuous negation) works. In (19a), there is an intervening element (i.e., *ba* ‘do’) between Neg and the verb. This should mean, according to algorithm (b), that continuous negation should surface, yet it is the discontinuous pattern that has arisen. Similarly, the example sentence in (19b) below contradicts how algorithm (b) (which is about continuous negation) works. In (19b), there is no intervening element between Neg and the lexical item (i.e., *doktoor* ‘doctor’). This again should mean, according to algorithm (a), that we should get discontinuous negation. However, this is not evidenced in (19b); it is the continuous pattern that has arisen. We deem the morphosyntactic solution underlying the Split-Neg analysis unsatisfactory in dealing with the NEG-POS problem because of its partial representation of the negation patterns exhibited in CEA.16

(19) a. maa-*ba-saafir-š* kāṭīr (CEA)
   neg-asp-travel.1sg-neg much
   “I don’t travel much.” (Soltan, 2011, p. 259)

b. Aḥmad *miš doktoor* (CEA)
   neg doktoor
   “Ahmad is not a doctor.” (Soltan, 2011, p. 257)

After examining the Split-Neg analysis, a lack of justification behind an assumed movement was identified and dubbed the NEG-POS problem. Being originated in CEA and extended

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16 For another morpho-syntactic analysis of negation but in MA, see Loutfi (2019).
in Raymi dialect, the analysis has not caused a break down in the derivation for the simple reason that it allows to represent what ought to be happening (i.e., the movement to Neg or the lack thereof), but sidesteps representing how the ought to be ought to be (i.e., how lexical-head-to-Neg movement occurs and how it does not occur). Despite this lacuna, the analysis provides good grounds to achieve a unified analysis of the continuous-discontinuous alternation of negation. This is due to two important premises that the analysis assumes: (a) Splitting the negation domain into Pol and Neg and (b) positing a matching feature on both of them – interpretable on Pol and uninterpretable on Neg.

We regard resolving the NEG-POS problem as the key to achieve a unified analysis for negative continuousness and discontinuousness. The key question to frame the NEG-POS problem is to ask: How are the positive and the negative dimensions linked in the syntactic structure? The answer to this question, as we will show in the next section, will automatically answer the how question of the alternation between negative continuousness and discontinuousness. The question becomes perceptible once the interconnectedness of the positive and the negative syntactic fields is assumed. In what follows, we will argue that (a) a link between the positive dimension and the negative dimension is required and (b) the nature of the link is featural.

4 The NONN-NONP analysis

The split-Neg analysis remains in a much better position in approaching the state of a unified analysis for the continuous-discontinuous alternation than non-Split-Neg analyses. The account proposed here differs fundamentally from previous approaches in that we build on Soltan’s (2012) morpho-syntactic analysis to propose a synta-semantic analysis. The analysis is syntactic in that it assumes features that dictate syntactic structure. On the other hand, the analysis is semantic in that it assumes features that are properties of the semantic configuration — the polarity state — of lexical items.

The underlying assumption behind the split-Neg analysis is that the negation domain is split such that ma- and -š form separate heads with ma- generated under the head Pol and -š under the head Neg. As to why this specific distribution, Soltan (2014) writes that ma- “is specified for semantic negation” whereas -š “is marked solely for formal negativity” (p. 103). In this regard, Soltan (2014) seems to use semantic and formal negation to refer to the status of feature interpretability. Semantic negation receives an interpretable Neg feature while formal negation enters the derivation with uninterpretable Neg feature. The motivation behind positing the feature Neg in relation to semantic and formal negation is not one that is obvious in the account.

If we dealt with Split-Neg analysis as a set of assumptions, two of them are (a) an assumption on how negation is projected (i.e., negation domain split into two heads, Pol and Neg) and (b) an assumption on the status of feature interpretability for each of the two heads (i.e., interpretable on Pol and uninterpretable on Neg). While we can still accept both assumptions
as a step in the right direction, we propose an alternative account which advances two features, both of which are semantically motivated. The two features are the NEG feature and the POS feature. The postulation of these two features comes from a categorical difference that set theory establishes between two groups of entities: The positive (shortened here to POS) set composed of the elements \{1, 2, 3, ..., n\} where \(n=+\infty\) and the negative (shortened here to NEG) set comprised of the members \{-1,-2,-3, ..., n\} where \(n=-\infty\). The featural integration of the mathematical conceptions negative and positive under set theory into natural language requires a proper formalization.

The account proposed here assumes that the computational system of human language (CHL) makes use of three projections to generate negative sentences: Pol, Neg, and an adjacent head or phrase. To solve the NEG-POS problem, Pol has an interpretable NEG iNEG feature, Neg has an uninterpretable NEG uNEG [ ] feature and an interpretable POS iPOS feature. It also assumes that a particular adjacent head or phrase following Neg (be it a verb, adjective, noun, prepositional phrase, among others) has an uninterpretable POS uPOS [ ] feature. Employing the semantic aspect of lexical items in generating negation expressions stems from the observation that the variation in MA negation patterns cares less about the nature of the negated element (i.e., noun, verb, head, phrase, among others) and cares more about the polarity state of the negated element.

The motivation behind positing the [NEG] feature is both syntactic and semantic. At the level of syntax, MA negation being expressed using two very close negative markers, the first negative marker needs a feature (i.e., iNEG) that ensures attracting a second construction be it an independent \{§\} (i.e., continuous negation) or a \{\{positive\}+\{§\}\} (i.e., discontinuous negation). At the level of semantics, both ma- and -§ are negative.\(^{17}\) The construction \{\{positive\}+\{§\}\} is also necessarily a negative construction. Since -§ is a negative head, this means the following:

\[(20) \{-§\} = \{\text{negative}\}\]

The suffixal nature of -§ requires a merge with a head or a phrase, specifically a positive head. The internal merge proceeds in following way:

\[(21) \{\{\text{positive}\} + \{-§\}\} = \{?\}\]

Thus, taking (20) into consideration, it is only natural to conclude the following (i.e., two unlike signs, negative and positive, become negative):

\[(22) \{\{\text{positive}\} + \{\text{negative}\}\} = \{\text{negative}\}\]

As a result, both Pol and Neg carry [NEG] feature because both ma- and -§ are semantically negative. The set negative, accordingly, is composed of the following elements:

\(^{17}\)The MA negative ma- and SA exclamation maa are semantically different and, thus, featurally different. For example, maa in maa usdaqak! “I appreciate your honesty!” does not express negation.
(23) \{\textit{ma-}, -\textit{š}, \{positive\} + \{-\textit{š}\}\} \in \text{negative}^{18}

The justification behind introducing the [POS] feature is also both syntactic and semantic. At the level of syntax, the CHL needs to have clear procedural guidelines for what it is that it is negating, be it an individual constituent or a phrase. A minimalist approach would assume that polarity reversing of a constituent or phrase must be done through feature valuation. In other words, features perform polarity reversing. The way to ensure this is to posit an uPOS \[\textit{[ ]}\] feature on the head or phrase that follows immediately the Neg head. It is true that the CHL can assume that the head following the Neg head is automatically the one that is negated and that we do not need the POS feature. This might be true as a justification for the occurrence of continuous negation since the head does not move, but it is useless in accounting for discontinuous negation since the movement cannot be justified. It becomes a necessity then to assume that in all cases there is a POS feature, interpretable on Neg and uninterpretable on an immediate head or phrase.

From a semantic standpoint, POS feature reflects a property of both -\textit{š} and an adjacent head. The negative exponent -\textit{š} can be attached to both the negative head \textit{ma-} (hence the NEG feature) or a positive head (hence the POS feature). -\textit{š} must have a POS feature so that it can attract an adjacent positive head. A second substantiating factor for the postulation of POS feature on -\textit{š} is diachronic in nature. Benmamoun (2000) writes on the origin of the two negative markers in MA, and states that “\textit{ma-} evolved from SA [Standard Arabic] \textit{maa}, and -\textit{š} evolved from SA \textit{šay’}” (p. 77). In SA, \textit{šay’} is a positive head; therefore, conceptualizing -\textit{š} as ”positive” captures a relic of linguistic change (i.e., from \textit{šay’} to \textit{š}) and conceptualizing it as ”negative” captures its new cooperative role (i.e., being a companion for \textit{ma-}). The set positive, accordingly, is composed of the following elements:

(24) \{\textit{š}, \text{positive head/phrase}\} \in \text{positive}

In continuous negation, the POS feature is valued in situ (i.e., no movement is required) resulting in \textit{ma-ši}. In discontinuous negation, the feature is valued by movement resulting in \textit{ma-X-š} (X being a certain head). As a result, we propose the following algorithm:

(25) \textit{MA’s featural algorithm that generates the alternation between continuous and discontinuous negation (MA-POL-NEG algorithm)}:

\textit{Projection Generation}

\begin{itemize}
  \item \text{Pol} \land \text{Neg} \land \{\text{an adjacent head}\} \lor \{\text{an adjacent phrase}\}.^{19}
\end{itemize}

\textit{Feature Specification}

\begin{itemize}
  \item \text{Pol} has [iNEG] feature.
\end{itemize}
(c) Neg has uNEG [ ] feature and an [iPOS] feature.

(d) \{an adjacent head\} \lor \{an adjacent phrase\} has uPOS [ ] feature.

\textit{Agree Matching}

(e) Match between [iPOS] and uPOS [ ] features.

(f) Match between [iNEG] and uNEG [ ] features

\textit{Feature Valuation}

(g) The valuation of the uNEG [ ] feature of Neg by the [iNEG] feature of Pol is performed by movement to Pol.

(h) The valuation of the uPOS [ ] feature of a positive head by the [iPOS] of Neg is performed either:
\begin{enumerate}
  \item \{in situ\} \lor
  \item \{by movement to Neg\}
\end{enumerate}

The way \textit{MA-POL-NEG} algorithm works empirically is represented in (26a, b) below.\textsuperscript{20} The continuous pattern in (26a) is generated because of the features NEG and POS. Since the head Neg has to establish a relation with a positive head, both Neg and a enter the derivation with a [POS] feature, interpretable on Neg and uninterpretable on a. Under the algorithmic instruction 25-h-i, the uPOS [ ] feature of a is valued in situ by the [iPOS] of Neg.\textsuperscript{21} Pol and Neg enter the derivation with a [NEG] feature, interpretable on Pol and uninterpretable on Neg. Under the algorithmic instruction 25-g, the uNEG [ ] feature of Neg is valued by the [iNEG] feature of Pol by movement to Pol resulting in \textit{ma-ši mrid}.

Similarly, the discontinuous pattern in (26b) above is generated because of the features POS and NEG. Since the head Neg has to establish a relation with a positive head, both Neg and a enter the derivation with a [POS] feature, interpretable on Neg and uninterpretable on a. Under the algorithmic instruction 25-h-ii, the uPOS [ ] feature of a is valued by the [iPOS] of Neg by movement to Neg resulting in the complex \textit{mrid-š}. Pol and Neg enter the derivation with a [NEG] feature, interpretable on Pol and uninterpretable on Neg. Under the algorithmic instruction 25-g, the uNEG [ ] feature of Neg is valued by the [iNEG] feature of Pol by movement to Pol resulting in \textit{ma-mrid-š}.\textsuperscript{22}

\textsuperscript{20} Another algorithm that we have not explored here is that the positive head moves directly to Pol \textit{ma-}, then Neg -š moves to Pol \textit{ma-X} resulting in the discontinuous pattern. This algorithm was not explored here because of a lack of solid motivation and a deviation from simplicity. On the motivation part, it is not clear why the positive head decides to skip -š in violation of minimality. On the simplicity part, it is not apparent how can this algorithm be used to explain continuous negation without adding other superfluous stipulations.

\textsuperscript{21} Val indicates that the relevant feature is valued.

\textsuperscript{22} The presence of (i) in continuous negation and its absence in discontinuous negation may be due to the nature of what -š(i) is merged with. When -š(i) is independently merged with \textit{ma-}, i remains as in \textit{ma-ši}. On the other hand, when -š(i) is merged with an adjacent head (i.e., positive-š(i)), i disappears as in \textit{ma-X-š}.
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The link established between Neg and the head reveals an interesting insight about the nature of Neg. Neg is where the positive head receives negation, be it non-apparent (i.e., in situ in the continuous form) or apparent (i.e., by movement in the discontinuous form). Accordingly, we dub the Neg projection a Reverse Polarity Site (RPS):

(27) Reverse Polarity Site (RPS)
A syntactic site with a negative qualified for reversing the polarity of positive.

We take this property of the immediate projection following Pol (i.e., Neg) as the motivation behind splitting the negation domain into two projections: (a) the projection Neg that reverses the polarity of the sentence through reversing the polarity of one adjacent positive constituent either by movement or in situ and (b) the projection Pol that licenses this operation. The subsequent section explores the range of data that the current state of the analysis can account for.

4.1 Assortment of supporting data
In this section, we delve into the breadth of data that the analysis’s present state can accommodate. The ungrammaticality of continuous negation in (28) can be justified on the ground that algorithm 25-h-ii has not been applied. The valuation of the uPOS [ ] feature of the verb *ktəb ‘write’* by the [iPOS] feature of Neg -š received the algorithmic instruction 25-h-i.23 The

23 As to what makes 25-h-i and 25-h-ii appropriate for some and inappropriate for others, we deem the question to be outside the scope of this study. The main focus here is how the alternation occurs; why it occurs is a
verb has not moved to Neg to check its uPOS [ ] feature; instead, the checking is done in situ. Therefore, feature valuation by movement has not taken place resulting in ungrammaticality.

(28)  * ma-ši ktəb ʿomar lə-bra (MA)
      * neg-neg write.pst.3p.sg ʿomar the-letter

The derivation of discontinuous negation in (29) is not a natural occurrence of negation in MA because algorithm 25-h has not been applied appropriately. The valuation of the uPOS [ ] feature of the noun fəllaḥ by the [iPOS] feature of Neg -š does not receive the algorithmic instruction 25-h-i requiring the in-situ treatment. With feature valuation proceeding in the other direction and moving the noun to be internally merged with -š under Neg, the construction is feasibly possible but deviant.

(29)  ? huwa ma-fəllaḥ-š (MA)
     he Neg-farmer-Neg

If this reasoning is correct, the analysis would be able to predict the grammaticality of (30a, b) below. The grammaticality can be predicted under algorithm 25-d (i.e., the adjacent head has uPOS [ ] feature). When kan is generated under post-Pol T as in (30a), it makes itself the adjacent head to receive the uPOS [ ] feature. Under algorithm 25-h-ii, the uPOS [ ] feature of kan is valued by moving to š. Consequently, the uNEG [ ] feature of the complex kan-š is valued by moving to Pol under algorithm 25-g. On the other hand, when kan is generated under pre-Pol T as in (30b), the verb ka-yqra becomes the adjacent head to receive the uPOS [ ] feature. Under algorithm 25-h-ii, the uPOS [ ] feature of ka-yqra is valued by moving to š. Consequently, the uNEG [ ] feature of the complex ka-yqra-š is valued by moving to Pol under algorithm 25-g.

(30)  a. ma-kan-š
      neg-was.3p.sg.masc-neg
      “He was not reading
      ka-yqra
      imper-read
      l-ktab. (MA)
      the-book.”

b. kan
      was-he
      neg-imper-read.1p.sg-neg
      ma-ka-yqra-š
      l-ktab. (MA)
      “He was not reading the book.”
      (Ouhalla, 2002, p. 307)

The sentence in (31a) is an example of the interaction between negation, tense and aspect. Kuna ‘we were’ is generated under T while the aspectual future marker ɤadi ‘going’ is generated under Asp. Because kuna is the adjacent head to the negation domain, it is the one that gets negated. The uPOS [ ] feature of kuna is valued by movement to Neg. The uPOS [ ] feature of the complex kuna-š is valued by movement to Pol as in (31b).

The sentence in (32) is generated by the insertion of a temporal projection between the NegP and aP. Being the closest head to the negation domain, kan receives negation. The uPOS [ ] feature of kan is valued by movement to Neg. The uPOS [ ] feature of the complex kan-š is valued by movement to Pol as in (32b).
The sentence in (33) is generated by the insertion of an aspectual projection between the NegP and vP. Being the closest head to the negation domain, the head Asp ɤadi receives negation. The uPOS feature of ɤadi is valued by movement to Neg. The uNEG feature of the complex ɤadi-š is valued by movement to Pol as in (33b).

Within the context of imperatives, there is an asymmetry between positive and negative imperatives. The asymmetry can be seen in the absence of the imperfective agreement in positive imperatives (34a) and its required presence in negative imperatives (34b) overleaf. In other words, it is the distribution of agreement features that differentiates between positive and negative imperatives.
The head -š has to establish a relation with a positive head; therefore, both -š and laˈbu ‘play’ enter the derivation with a [POS] feature, interpretable on Neg and uninterpretable on laˈbu. Under algorithm 25-h-ii, the uPOS [ ] feature of laˈbu is valued by the [iPOS] of -š by movement to -š resulting in laˈbu-š as shown in (35) below. The uφ [ ] on laˈbu-š then enters in a Match and Value operations with the iφ [2.p.m/f] feature (imperfective agreement feature) on Pol giving rise to t-laˈbu-š.

Being part of the negation domain, both Pol and Neg must establish a featural relation. The exponents ma- and -š enter the derivation with a [NEG] feature, interpretable on Pol and uninterpretable on Neg. Under algorithm 25-g, the uNEG [ ] feature of Neg is valued by the [iNEG] feature of Pol by movement to Pol resulting in ma-t-laˈbu-š. The imperative case further corroborates the hypothesis that Neg is an RPS. The agreement feature must be phonologically realized under Neg before its movement to Pol. The following section teases out a class of cases which fall outside the explanatory domain of the analysis.
4.2 Accommodation of counterexamples

While the assumptions factored in the analysis so far can easily account for example sentence (36a) because it is just another typical instance of discontinuous negation, they are clueless in explaining š-disappearance in (36b, c).²⁴ The phrase (36a) is an instance of discontinuous negation or what we might name here Complete Discontinuous Negation (CDN). Phrases (36b, c) are instances of what we might call here Partial Discontinuous Negation (PDN), and are instances of š-disappearance that is not caused by Negative Polarity Items (e.g., ‘ammr ‘never’).

(36) a. ma-ʿrft-š (MA)
   neg-know.me-neg
b. ma-ʿart
   neg-know
c. ma-na-ʿrf
   neg-me-know
   “I don’t know”

Another case of PDN can be found in Lebanese and Jordanian as in (37a) and (37b), respectively. This time it is the first negative marker ma- that has received a null phonological realization. Negative marker dropping in languages with bipartite negation is not only related to linguistic factors, but also language change factors. Labenese and Jordanian are two languages that used to be completely bipartite but have shifted to employing single negation patterns. This type of negation-related language change is named Jesperson’s cycle (see Dahl, 1979; Jesperson, 1917). The cycle describes a diachronic evolution of negative markers from a pre-verbal negative marker in stage one, a discontinuous element by the insertion of a post-verbal negative marker in stage two (making it a bipartite negation), to a subsequent loss of the original pre-verbal negative marker in stage three.

(37) a. bi-t-ḥib-š šuɤl il-bayt (Lebanese)
   asp-3p.fem-like-neg work the-house
   “She does not like housework” (Abu-Haidar, 1979, cited in Benmamoun, 2000)
b. bədd-i-š
   want-1p.s-neg
   “I don’t want” (Jordanian)

ma- disappearance is not only an isolated case in Lebanese and Jordanian; it can also be found in MA. In example sentence (38a), the NPI ‘ammr ‘never’ triggers the absence of the second negative marker š. That is, the predicate that hosts negation following ‘ammr cannot contain š. It can also be noted that ‘ammr ‘never’ displays the properties of heads in the sense that it can carry agreement. In example sentence (38b), The negative marker ma- that is consistently

²⁴Examples (36b) and (36c) are other ways of saying (36a)
present disappears.\(^{25}\) It is not obvious whether the disappearance can be traced to the NPI or the NPI just happens to be there. It may as well be the first glimpse of Jesperson’s cycle caught in MA.

\[(38)\]  
\[
\begin{align*}
a. \quad & \text{‘āmmr-i ma-tlaqit-u (MA)} \\
& \text{never-my neg-met.1p.sg-him} \\
& \text{‘I never met him.’ (Aoun, Benmamoun, and Choueiri, 2010, p. 109)} \\
b. \quad & \text{‘āmmr-i tlaqit-u (MA)} \\
& \text{never-my met.1p.sg-him} \\
& \text{‘I never met him.’}
\end{align*}
\]

The disappearance functionality of \textit{ma}- and \textit{š}- places the current state of the analysis in a tight spot requiring a further revision. To accommodate the counterexamples, we resort to yet another distinction that set theory draws between two collections of objects: The positive and negative sets and the non-negative and non-positive sets as shown in (39) below.

\[(39)\]  
\[
\begin{align*}
a. \quad & \{1, 2, 3, \ldots, n; n=+\infty\} \in \text{positive} \\
b. \quad & \{-1,-2,-3,\ldots,n; n=-\infty\} \in \text{negative} \\
c. \quad & \{0, \text{positive}\} \in \text{non-negative} \\
d. \quad & \{0, \text{negative}\} \in \text{non-positive}
\end{align*}
\]

The set \{positive\} refers to a value greater than zero while \{non-negative\} refers to a value that is either greater than zero or zero (i.e., null). This marks the set \{positive\} as a subset of \{non-negative\}. Similarly, the set \{negative\} refers to a value lesser then zero whereas \{non-positive\} refers to a value that is either lesser than zero or zero (i.e., null). This marks the set \{negative\} as a subset of \{non-positive\}.

The above polarity states (i.e., positive, negative, non-negative, and non-positive) are related to our discussion here because negative markers disappear in contexts where they should not disappear. The negative marker \textit{ma}-, for example, disappears (i.e., receives a null phonological interpretation at PF) in few contexts in certain codes such as MA and in most contexts in other codes such as in some Lebanese and Jordanian dialects. This is indicative of the non-positive character of \textit{ma}-, allowing both realization and disappearance due to its semantic composition. However, in producing the negative continuous-discontinuous pattern in MA, \textit{ma}- does not typically disappear providing evidence that \textit{ma}- in this case is negative. For purposes of the current proposal, we will consider both \textit{ma}- and -\textit{š} as non-positive. This has the benefit of predicting both their presence and absence (i.e., nullification).

\(^{25}\)In Soufi (2020), a working assumption is that for “a sentence to be interpreted as involving negation, both elements [a semantic half (i.e., \textit{ma}-) and a logical half (i.e., NPI or -\textit{š})] should be present” (p. 64). Example sentence (38b) shows that negation takes place although the semantic half \textit{ma}- is not present.
On another note, The Neg adjacent head or phrase is necessarily positive (as opposed to non-negative) because negation cannot negate nothing at least according to the empirical evidence in MA. There must be, thereby, a head or a phrase that is present and that is negated. With that being said and for unification purposes, we consider the adjacent head or phrase as non-negative because it is more convenient to go for the governing set than for its constituents.

A revision of the earlier formalization of sets is necessary. This can be done in the following way:

(40)

a. \( \{\bar{s}, \text{non-negative head/phrase}, \emptyset\} \in \text{non-negative} \)

b. \( \{ma, \bar{s}, \{\text{non-negative}\} + \{\bar{s}\}, \emptyset\} \in \text{non-positive} \)

The implication of the new revision on earlier stipulations proceeds as follows: Pol has an interpretable Non-Positive \([i\text{NONP}]\) feature,\(^\text{26}\) Neg has an uninterpretable Non-Positive \(u\text{NONP} [ ]\) feature, and an interpretable Non-Negative \([\text{iNONN}]\) feature. Also, the particular adjacent head or phrase following Neg has an uninterpretable Non-Negative \(u\text{NONN} [ ]\) feature. The following is a revision of MA-POL-NEG algorithm:

(41) \text{MA’s featural algorithm that generates the alternation between continuous and discontinuous negation (MA-POL-NEG algorithm):}:

\[
\text{Projection Generation}
\]

(a) \( \text{Pol} \land \text{Neg} \land \{\text{an adjacent head}\} \lor \{\text{an adjacent phrase}\} \).

\[
\text{Feature Specification}
\]

(b) \( \text{Pol has } [i\text{NONP}] \text{ feature.} \)

(c) \( \text{Neg has } u\text{NONP} [ ] \text{ feature and an } [\text{iNONN}] \text{ feature.} \)

(d) \( \{\text{an adjacent head}\} \lor \{\text{an adjacent phrase}\} \text{ has } u\text{NONN} [ ] \text{ feature.}^\text{27} \)

\[
\text{Agree Matching}
\]

(e) \( \text{Match between } [i\text{NONP}] \text{ and } u\text{NONP} [ ] \text{ features.} \)

(f) \( \text{Match between } [\text{iNONN}] \text{ and } u\text{NONN} [ ] \text{ features.} \)

\(^{26}\)The feature NONP is another name for Soltan’s Neg feature since they trigger the same operation. The feature NONP is used instead of Neg because it is more appropriate in describing the mechanism that drives the valuation operation.

\(^{27}\)Even if we assume that the adjacent head or phrase enters the derivation with an uninterpretable POSitive (uPOS [ ]) feature (i.e., there must be a positive head or phrase in the sentence since negation cannot negate nothing) as initially assumed, Match between [iNONN] and uPOS[ ] would still occur because \{positive\} is a subset of \{non-negative\}. 

84
Feature Valuation

(g) The valuation of the uNONP feature of Neg by the [iNONP] feature of Pol is performed by movement to Pol.

(h) The valuation of the uNONN feature of a positive head by the [iNONN] of Neg is performed either:
   (i). {in situ} ∨
   (ii). {by movement to Neg}

Assuming NONP and NONN features as opposed to NEG and POS features allows to account for both the assortment of supporting data examined earlier and the accommodation of counterexamples. The supporting data can undergo a re-analysis by replacing NEG and POS features with NONP and NONN features. The stated derivational steps hold true simply because instead of selecting an element of the set (i.e., positive and negative), the selection is now based on the set itself (non-negative and non-positive, respectively).

In the continuous pattern, the valuation of uNONN by iNONN is performed in situ, and the valuation of uNONP by iNONP is performed by movement of -š to Pol. The copy of mrid receives a null Spell-out at PF giving rise to ma-ši mrid as in (42a) below. In the discontinuous pattern, the valuation of uNONN by iNONN is performed by movement of mrid to Neg, and the valuation of uNONP by iNONP is performed by movement of mrid-š to Pol. The two copies of mrid receive a null Transfer at PF giving rise to ma-mrid-š as in (42b) below. These operations proceed as laid out in the revised algorithmic instructions.

\[
\text{(42) a.} \quad \begin{array}{c}
\text{PolP} \\
\text{Pol} \\
\text{NegP} \\
\text{ma-ši} \\
\end{array} \quad \begin{array}{c}
\text{PolP} \\
\text{Pol} \\
\text{NegP} \\
\text{ma-mrid-š} \\
\end{array}
\]

The significance of the revision becomes apparent when accounting for the counterexamples. The instances (36a, b, c) restated here as (43a, b, c) can now be explained giving the non-positive nature of š. In other words, because -š is non-positive (i.e., it can be either null or realized as negative), its absence is expected. At any time, the NONP feature of Neg has two
choices: Either to allow the phonological realization of -š as negative as in (43a) or to nullify the phonological realization of -š as in (43b, c).

(43) a. ma-ʿrft-š
    neg-know.me-neg
(MA)
b. ma-ʿart
    neg-know
c. ma-na-ʿrf
    neg-me-know
   “I don’t know.”

The same logic applies for the PDN in Lebanese and Jordanian. Because the account proposed here assumes a NONP feature on both ma- and -š, the NONP feature has, at any time, two choices: Either to allow the phonological realization of ma- as negative or to nullify the phonological realization of ma. As a result, the account predicts the occurrence of cases where the first negative marker is dropped (e.g., in Lebanese and Jordanian Arabic).

The two CEA example sentences based on which the Split-Neg analysis was developed can be explained by resorting to the NONN and NONP features. For the continuous pattern miš ha-saafir ‘I will not travel’ in (44a) to arise, the valuation of uNONN is performed in situ, and the valuation of uNONP is performed by the internal merge of -š to the occupant of the Pol position. The discontinuous pattern miš ha-saafir ‘I will not travel’ in (44b) is the result of an internal-merge valuation of uNONN on saafirit-i to -š and of uNONP on saafirit-i-š to ma-. The nN-nP problem mentioned earlier refers to the unjustified verb-to-Neg movement in the Split-Neg analysis. The proposed account solves this problem — in a more specific way — by advancing the feature NONN which is responsible for the internal merge of lexical items to -š (i.e., verb-to-Neg movement).

(44) a. [PoP Pol NONP je-P Neg NONP [Val], INONN -š [IP T uNONN [Val] ha-saafir ... ]]
b. [PoP Pol NONP ma-saafirit-i-š [Neg-P Neg NONP [Val], INONN saafirit-i-š [IP T uNONN [Val] saafirit-i ... ]]

To account for the negative (dis)continuity patterns in MA, we drew upon Soltan’s morpho-syntactic analysis to introduce a synta-semantic analysis in the form of an algorithm named MA-POL-NEG. Maintaining the assumptions on how negation is projected and the status

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28 In order to maintain consistency, we rename the NEG-POS problem as the nN-nP problem (i.e., the non-Negative-non-Positive problem).
29 Using Soltan’s morpho-syntactic analysis as the basis for proposing the present synta-semantic analysis is necessary for two reasons. First, Soltan (2012) is the originator of splitting the negation domain into the two heads Polarity (Pol) and Negation (Neg) in Arabic varieties. Second, he is also the originator of the idea that both heads carry a matching feature — interpretable on Pol and uninterpretable on Neg. These two postulations form, among other pillars, the backbone of the proposed synta-semantic account — the NONN-NONP analysis.
of feature interpretability pinpointed in the Split-Neg analysis, we have introduced two concomitant features that addressed the nN-nP problem: NONP and NONN. The feature NONP maintains a relation between ma- and -š; the feature NONN links -š with an adjacent head or phrase. These features determine what item occurs before what (i.e., they are partly syntactic). These features also reflect the polarity state(s) of lexical items (i.e., they are partly semantic). For example, the NONN feature reflects a special property of the head generated under Neg. Being an RPS, Neg must have a feature that attracts non-negative items to be reversed.

5 Conclusion

This study explores the underlying syntax behind the continuous-discontinuous alternation of negation in MA. We have departed from Soltan’s morpho-syntactic account in a fundamental way in that we proposed a synta-semantic account. Cast within MP and cartography, the present account provides a principled explanation for the peculiar, alternating patterns of negation in MA by developing a valuation-driven featural system that can link the non-positive and non-negative dimensions in the syntactic structure. These features are NONP and NONN, and their valuation system is presented in the form of algorithmic instructions laid out in MA-POL-NEG. It was found that the different valuation options of NONN and NONP features are behind the continuous-discontinuous alternation of negation in MA. In particular, negative continuousness is the result of NONN feature valuation in-situ and NONP feature valuation by movement. Negative discontinuousness, on the other hand, is the result of NONN and NONP feature valuation by movement. The same algorithm was also able to account for what we call here PDN due to the nature of the features used (i.e., non-positive instead of negative and non-negative instead of positive). The account proposed offers a potential refinement to the syntax theory of Arabic sentential negation. The essence of the refinement is that although in MA negation is morpho-syntactic on the surface and almost all previous studies have approached the phenomenon morpho-syntactically, it is more likely to be synta-semantic at the core. In line with Rizzi and Cinque 2016, the successful unification of MP and cartography in the account herein further corroborates the hypothesis that the two frameworks are not contradictory.

Much research remains to be done. The simple-sounding question to ask concerning the function “or” in the algorithmic instructions 41-h proposed is why MA opts for one path (i.e., in situ valuation) rather than the other (i.e., movement valuation). It is still early to answer this question as it is uncertain whether this optionality is inherent to the faculty of language, whether it is only a part of the I-language investigated (i.e., MA), or whether it exists at all. The present model focuses on the how-question and will take up the why-question if later stages of the analysis progression point to a potential answer. An area warranting examination, however, is whether the NONN-NONP analysis can account for the presence-absence of the negative particles ma- and -š in the context of NPIs.
References


Jespersen, O. (1917). Negation in English and other languages. Høst (cit. on p. 82).


