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Resumption in Standard Arabic revisited

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Abstract

Objectives: This study investigates prevailing assumptions concerning resumption in Standard Arabic (SA) based on corpus and experimental data. The focus is on the actual use of gap and resumption strategies, sensitivity to islands, and the availability of reconstruction effects in wh-interrogatives and relative clauses.

Methods: To address these issues, two South African (SA) corpora were examined, and both a grammaticality judgment task and a forced-choice task were conducted. The study sample consisted of 70 females and 55 males, ranging in age from 25 to 63 years (with a median age of 48). The task was emailed to the participants, who were instructed to complete it at their convenience and then return it via email to the researcher.

Results: The results reveal that, first, both wh-interrogatives and relative clauses pattern similarly in these issues. Second, both gap and resumption strategies show sensitivity to strong islands. Third, resumption does not ameliorate constructions with strong islands. Fourth, reconstruction is available in the absence of strong islands.

Conclusions: These results imply that both SA constructions are derived via the same movement.

Keywords: Island, reconstruction, resumption, Standard Arabic

إعادة النظر في عود الضمير في اللغة العربية الفصحى

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ملخّص

الأهداف: تتناول هذه الدراسة بعض الافتراضات السائدة فيما يتعلّق بظاهرة عود الضمير في اللغة العربية الفصحى في ضوء معلومات مستقاة من مدّونات ودراسات تجريبية من حيث: عود الضمير وحذفه، والحساسية للجزر، وتوفر آثار إعادة التفسير في الجمل الاستفهامية والموصولة.

المنهجية: ولدراسة هذه القضايا، تمّ البحث ضمن مدّونتين للغة العربية الفصحى، إضافة أداة تقييم وتحكيم نحوي لجمل وتراكيب لغوية ذات صلة بموضوع البحث وأداة أخرى ترتكز على اختيار التفسير الأنسب من مجموعة تفسيرات معطاة للجمل قيد البحث. تألفت عينة الدراسة من 70 أنثى و55 ذكرا ، تتراوح أعمارهم بين 25 و 63 عاما (بمتوسط عمر 48 عاما). تم إرسال المهمة عبر البريد الإلكتروني إلى المشاركين ، الذين تم توجيههم لإكمالها في الوقت الذي يناسبهم ثم إعادتها عبر البريد الإلكتروني إلى الباحث.

النتائج: وتشير النتائج، أولا، الى أنّ الجمل الاستفهامية والموصولة قد أظهرتا نمطا متشابها تجاه القضايا قيد البحث. ثانيا، استراتيجيتي عود الضمير وحذفه أظهرتا حساسية تجاه الجزر. ثالثا، لم تبدِ استراتيجية عود الضمير تحسينا في الجمل التي احتوت جزرا قوية. رابعا، إعادة التفسير ليست متاحة في حال وجود جزر قوية.

الخلاصة: وتتضمن هذه النتائج أنّ كلا التركيبين يتمّ اشتقاقهما نحوياً بوساطة الحركة.

الكلمات الدالة: الجزر، إعادة التفسير، عود الضمير، اللغة العربية الفصحى.

1. Introduction

Previous literature on resumption in Arabic has a number of significant yet perplexing generalizations that require reconsidering in light of the most recent findings on resumption. There are three types of resumptive pronouns in Arabic: strong pronouns, *huwa* 'he', epithets, *ha-al-ɣabi* 'this-the-idiot', and weak pronouns, *-uh* 'him' (Shlonsky, 1992; Aoun, 2000; Choueiri, 2002). For the sake of narrowing down the issue under investigation, this paper illuminates exclusively weak resumptive pronouns (henceforth RPs). The paper is devoted to Standard Arabic (SA), a variety used mainly in formal settings and taught at schools and colleges.

The paper is organized as follows: Section 2 highlights the main assumptions germane to the themes of the study from previous theoretical and experimental research on Arabic regarding weak RPs. Section 3 initiates the research questions. Section 4 presents the results elicited from two Arabic corpora. Section 5 addresses the design and findings of the grammaticality judgment task. Section 6 details the methodology and findings of the task designed to examine the availability of reconstruction. Section 7 concludes with general discussion and theoretical implications to resumption in SA.

2. Resumption in previous studies on SA

This section expounds the issues *ad rem* in SA and some varieties of Arabic where necessary focusing on SA *wh*-interrogatives and relative clauses, the constructions of interest in thisstudy, within the most recent findings of theoretical and experimental research (Demirdache, 1991; Malkawi and Guilliot, 2007; Aoun *et al.* 2010; McCloskey, 2017; Choueiri, 2018; Tucker *et al.*, 2019). It targets the most recent findings of theoretical and experimental research. Natural languages manifest a characteristic ability to create grammatical and interpretative relationships between two linguistic items at distance such as a *wh*-filler in the left periphery of a *wh*-interrogative and an element in the position embedded that is syntactically and semantically related to this displaced element. Natural languages exhibit several dependency-resolving strategies such as resumption, the use of overt pronominal variable represented throughout the study with a bold, italicized pronoun, or a gap, the null variable indicated by an underscore or an elided copy throughout the paper. An RP is referred to in the literature on SA syntax as *ad'-d'ami:r al-ʕa:ʔid*; a gap is referred to as *ħaðif* 'deletion' (Sibawayhi, 1966; Ibn Jinni, 1970; Hassan, 2008). The default strategy in forming long-distance dependency between the *wh*-filler and tail of *wh*-interrogatives is assumed to be the gap strategy (1a), yet it is the resumption strategy in relative clauses (1b). (The IPA symbols are adopted for transcribing all the examples in this study.)

1.   a. ma:ða   qa:l-at   Maryam-u   ____?
            what   said-3sgf Mariam-nom   ____?
            'What did Mariam say _____?'

        b. samiʕi-tu   al-ħadi:θ   al-laði   qa:l-at-***hu***   Maryam-u
           heard-1sg   the-speech the-that.3sgm   said-3sgf-***it***   Mariam-nom
        'I heard what Mariam said.***it***.'

        b. samiʕi-tu   al-ħadi:θ   al-laði   qa:l-at-***hu***   Maryam-u
           heard-1sg   the-speech the-that.3sgm   said-3sgf-***it***   Mariam-nom
        'I heard what Mariam said.***it***.'

The *wh*-filler *ma:ða* 'what' is interpreted with a gap in (1a); the relativized Noun Phrase (henceforth NP) is interpreted with a weak RP, *-hu* 'it', in (1b) cliticized to the transitive verb *qa:l* 'said'.

The sentences investigated in this study target only the direct object position of transitive verbs for two reasons. First, the subject position is not investigated because SA is a *pro*-drop language; therefore, it is difficult to test whether the null

subject is a gap or a typical *pro*. Second, SA does not allow proposition stranding and so the position of the object of prepositions is also excluded as the gap is not allowed in such a position as demonstrated below by the ungrammaticality of the following sentence.

    2. *man   takallamat   zeina   maʕa __?

       who   talked.3sgf   Zeina   with __

       'With whom did Zeina talk?'

       (Example (i) from footnotes from Aoun *et al.* 2010: 141)

    Nonetheless, these default strategies are not exclusively used in these dependencies as a gap strategy is also legitimate in SA restrictive relative clauses when the relativized Determiner Phrase (henceforth DP) is definite (Aoun *et al.*, 2010, and references therein). Below is an illustration.

    3. al-kita:bu   allaði   sa-yaʃtari __   sa:mi   mawgu:dun   fi-il-maktabati

       the-book   that   will-buy.3sgm __   Sami   exists.msg   in-the-bookstore

       'The book that Sami will buy is found at the bookstore.'

       (=Example (5) from Aoun *et al.* 2010: 166)

    In *wh*-interrogatives, the resumption strategy is constrained by the type of the *wh*-filler. Although all the *wh*-fillers related to the object of transitive verbs are nominal including: *man* 'who', *ma:ða* 'what', *kam*+NP 'how much/many + NP', and *ʔayya*+NP 'which + NP', they do not exhibit consistent behavior regarding the gap and the resumption strategies. Specifically, resumption strategy is only available for *man* 'who' and *ʔayya* 'which'. Below is an illustration.

    4. man/ʔayya   mari:d'in   za:r-at-***hu***   na:dia?

       who/which   patient   visited-3fsg-***him***   Nadia

       'Who/Which patient did Nadia visit?'

       (=Example (8b) from Aoun *et al.* 2010: 132)

    5. a.*ma:ða   ʔiʃtarat-hu   laila   min   al-maktabati?

        what   bought-2fsg-it   Laila   from   the-bookstore?

        'What did Laila buy from the bookstore?'

       b.*kam   kita:bin   qaraʔa-hum   at-tala:mi:ðu?

        how-many   book   read.3sgm-them   the-students

        'How many books did the students read?'

       (= Example (19a-b) from Aoun *et al.* 2010: 135)

    RPs result in grammaticality with *man* 'who' and *ʔayya* 'which' (4), but lead to ungrammaticality with *ma:ða* 'what' and *kam* 'how much/many' in SA (5a-b).

    Another assumption is that gaps show sensitivity to islands whereas RPs do not. Islands are syntactic constraints that ban A'-movement, and so sensitivity to islands is a diagnostic of A'-movement (Ross, 1967; Chomsky, 1977). Accordingly, a *wh*-filler cannot be related to a gap inside an island (Example 6), but the RP inside an island should be acceptable (Example 7). This is the amelioration effect of resumption in the sense that a sentence that is ungrammatical with a gap becomes acceptable with an RP.

6. *raʔay-tu   al-lawħata   allati   taʕrifi:na   [man ʔiʃtara:]   *wh*-island
   saw.1sg   the-painting   that   know.2fsg   [who bought.3msg]
   'I saw the painting that you know who bought.'
   (=Example (12) from Aoun *et al.* 2010: 169)

7. naʕrifu   ar-ragula   (allaði)   tatasaʔalu:na   ʕam-man   sa-yuqa:bilu-hu
   know.1pl   the-man   that   wonder.2pl   about-who   will-meet.3sgm-him
   'We know a/the man that you are wondering who will meet him.'
   (= Example (21b) from Aoun *et al.* 2010: 174)

Recently, RPs have been assumed to show sensitivity to islands in some Arabic varieties like Lebanese Arabic in definite relative clauses with restricted types of relativized NPs like idioms (See Aoun et al. 2010: 175-180). Tucker *et al.* (2019) examined the sensitivity of resumption in *wh*-interrogatives in SA using experimental approach. Their findings revealed that the ameliorating effect of resumption in SA is not as assumed to be in the previous theoretical work on Arabic syntax and it is influenced by the type of the filler such that RPs exhibit ameliorating effects with complex *wh*-fillers like *ʔayya* 'which + NP' but not with the bare *wh*-filler like *ma:ða* 'what'. The problem with Tucker et. al's (2018) study is that it relies on eliciting native speakers' intuition through rating the acceptability of sentences in SA, and so the results should be considered with caution since SA is a language that is taught at school so it is evidently questionable if there are native speakers of this variety of Arabic to start with. Moreover, the main criterion they adopted in recruiting their participants was merely their ability to read SA well without any consideration of whether they have sufficient background in SA syntax to judge the sentences against. This actually adds to the problem in the sense that what their participants actually rated as acceptable or not in SA was judged against their own vernacular (i.e., Emeriti) rather than SA. In spite of these issues concerning the participants, Tucker *et.*al's study has pioneered the implementation of more formally designed experiments to address issues in SA. I would argue that more and more formally designed experiments should be adopted in investigating not only the spoken varieties of Arabic but also SA which is a variety of Arabic on its own just like other varieties and conducting more experiments may contribute to better understanding of the syntactic mechanisms involved in deriving its structure. Nonetheless, one way to overcome the problem of Tucker et al's (2018) study can be by recruiting participants more carefully and instead of asking non-experts about the acceptability of sentences in SA, experts in SA syntax are more likely expected to give more accurate judgment. This is exactly what the current study aims at achieving. Only experts in SA linguistics were recruited and the instructions in the tasks were stated plainly and clearly that judgment should be made against the syntax of SA. One limitation to be addressed before proceeding is that even though I contacted several scholars of SA syntax in the Arab world including Egypt, Saudi Arabia, Morocco, and so forth and sent them the tasks via emails, only participants from Jordan turned the tasks in. Unfortunately, I heard nothing from the other scholars outside Jordan. Nonetheless, the current large number of participants is considerable and maybe further similar research including scholars across the Arab world can take part in future research.

Relevant to the present study are both diagnostics of A'-movement: sensitivity to islands and availability of reconstruction. Reconstruction hinges on the assumption that the reconstructed interpretation is only available if the reconstructed element has already undergone displacement (movement) (Sternefeld, 1997; Heim, 1994; Katz, Kim and Winhart, 1998; Lebeaux, 1991; Chomsky, 1995; Sauerland, 1998; Fox, 2000; Barss, 2001). The empirical data regarding reconstruction in Arabic are also disputable. Aoun (2000) observed that reconstruction effects are attained in restrictive relative clauses in Lebanese Arabic just in case there is no island separating the RP from its antecedent.

8. a. ʃift   iʂ-ʂu:ra   tabaʕ ʔibn-a$_i$ lli (ʔiltu ʔinno) [kill mwazzafe]$_i$
      saw.1sg   the-picture of   son-her   that (said.2pl that) [every employee.f]
      badda   tʕalliʔ-*a*   bi-maktab-a$_i$

　　　　want.3sgf　　hang.3sgf-*it*　　in-office-her

　　　　'I saw the picture of her son which (you said that) every employee wants to hang in her office.'

　　b. *ʃift　　　iş-şu:ra　　tabaʕ　Ɂibn-ai　lli　zɁiltu　　laɁinno　[kill　mwazzafe]i

　　　　saw.1sg　the-picture　of　　son-her　that　upset.2pl　because　[every employee.f]

　　　　badda　　　　　tʕalliɁ-*a*　　　bi-il-maktab

　　　　want.3sgf　　hang.3sgf-*it*　　in-the-office

　　'*I saw the picture of her son which you were upset because every employee wants to hang (it)

　　　in the office.'

　　(=Example (23a-b) from Choueiri, 2018: 140)

The interpretation of the RP *-a* 'her' in the relativized phrase *iş-şu:ra tabaʕ Ɂibn-a* 'the picture of her son' as referring to the quantifier phrase *kill mwazzafe* 'every employee' within the relative clause holds in (8a) but not in (8b) due to the presence of the adjunct island in the latter.

They claim that the RP co-varies with the Quantifier Phrase (QP) inside the relative clause giving the distributive or functional reading that obtains on the condition that the pronoun occurs in the c-command domain of an QP (May, 1985). Since this interpretation holds in (8a), Aoun proposes that there is an A'-movement *a priori*. However, in (8b), the distributive or functional reading is not available and this entails that there are no reconstruction effects. Aoun (2000) claim that the sensitivity to islands besides the unavailability of reconstruction effects are two pieces of evidence to assume that the long-distance dependency between the *wh*-filler and the RP is established via A'-movement Contrary to Aoun (2000), Guilliot and Malkawi (2006) and Malkawi and Guilliot (2007) claim that reconstruction effects are found with weak RPs regardless of the presence of strong islands in JA.

9. [ta:lib-[ha]i　l-kassu:l]j　ma　　ḥakeina　　maᶜ　[wala mᶜalmɪh]ı　gabl-ma

　　student-her　the-bad　　Neg　talked.1pl　with　no　teacher　　before

　　tʃu:f-uhj /　-uhj　huwwaj　　l-mudiirah

　　saw.3sf-him/ -him　he　　　the-principal.3sf

　　'Her bad student, we didn't talk to any teacher before the principal saw him.'

This observation led them to argue that reconstruction should not be linked to A'-movement in Arabic because it holds regardless of the availability of A'-movement. Surveying previous literature concerning resumption unravels inconsistent findings. Therefore, the current study aims at revisiting these issues in SA adopting formal experimental methods with more controlled stimuli.

3. objectives and research questions

This section highlights the kernel goals and research questions of the study. The first objective is to identify the actual default strategies, gaps and resumption, in *wh*-interrogatives and relative clauses in account of the following research questions:

1.Do gap and resumption strategies actually alternate in SA in constituent questions headed by the *wh*-fillers: *man* 'who', *ma:ða* 'what', *Ɂayya* 'which', and *kam* 'how'?
2. Do gap and resumption strategies actually alternate in SA in relative clauses with different relative pronouns such as *ma:* 'that,' *man* 'who,' and *allaði:* 'that' along with its cognates?

The second objective is to explore the ameliorating effect of resumption besides the sensitivity of the gap and resumption

strategies to islands targeting the research questions below:

3. Do RPs exhibit sensitivity to islands in SA constituent *wh*-interrogatives and definite relative clauses?

4. Do *wh*-interrogatives and relative clauses pattern differently or similarly with respect to sensitivity to islands?

5. Are there any differences in RPs' behavior that can be attributed to the type of the island, dependency, *wh*-filler, or relative pronouns?

The third objective is to examine the availability of reconstruction effects in presence and absence of islands to answer this question:

6. Is reconstructed reading available only when islands are absent in SA?

The results of the three tasks are, then, examined in light of the assumptions of the previous theoretical studies. Sections (4-6) present the methodologies and findings of the three tasks undertaken.

4. SA Corpus

A corpus can be an accurate and a comprehensive source for providing researchers with what is typical and common in a language at issue by providing an abundant number of actual examples and language use in different domains such as literature, media, and books. The underlying goal of using the corpora is to account for the first and second research questions. I profoundly explored two corpora: The Quranic Arabic Corpus and International Corpus of Arabic. These two corpora are chosen purposefully. The former is chosen as a representative sample of Classical Standard Arabic, whereas the latter is selected as a representative sample of Modern Standard Arabic in an endeavor to highlight any potential differences in the frequency of the gap versus the resumption strategies in the dependencies at issue between Classical and Modern Standard Arabic. Nonetheless, the rest of the study is devoted to Modern Standard Arabic as it is the variety that is more common for modern scholars of Arabic who judged the sentences in the tasks adopted.

The section presents the frequency of gap versus resumption in both dependencies. The first corpus used was the Quranic Arabic Corpus (Source: Dukes and Habash, 2010). It is an annotated linguistic resource that involves 77,430 words of Quranic Arabic,Version 0.4, and it incorporates verses from the Holy Quran all in Classical SA. I searched the Quranic Arabic via lists of lemmas. The table below shows the distribution.

Table 1: The frequency of RP/Gaps in object positions in wh-interrogatives and relative clauses in the Quranic Arabic Corpus – Classical SA

Wh-fillers	Total occurrences of the direct object	Object-RP	Object-Gap
Constituent Questions			
man 'who'	0	0	0
ma:ða 'what'	21	0 (0%)	21 (100%)
ʔayya 'which'	17	0 (0%)	17 (100%)
kam 'how'	15	1 (6.7%)	14 (93.3%)
Relative Clauses			
ma: 'that'	37	12 (32%)	25 (68%)
man 'who'	363	7 (2%)	356 (98%)
allaði: 'that'	57	19 (33.3%)	38 (66.7%)

The table elucidates the total number of occurrences of RPs and gaps in the direct object position of transitive verbs in the questions headed by the *wh*-fillers: *man* 'who', *ma:ða* 'what', *ʔayya* 'which', and *kam* 'how'. The respective frequency of resumptive strategy with these fillers is: 0, 0%, 0%, and 6.7%'; however, the frequency of gap strategy is: 0, 100%, 100%, and 93.3%. The difference in frequency of gap strategy in contrast with the frequency of resumptive strategy is surprisingly tremendous. This is, further, enhanced in contrast with the frequency of these strategies in the corresponding position in relative clause dependency with the relative pronouns at issue: *man* 'who', *ma:* 'what', *allaði* 'that' with its

cognates like *allaði:n* 'that.3plm', and so forth. The respective frequency of gap strategy with these pronouns is: 68%, 98%, and 66.7% in contrast with the counterpart frequency of the resumptive strategy: 32%, 2%, and 33.3%.

The other corpus that was searched for Modern SA was International Corpus of Arabic (Source: Alansary *et al.*, 2007) that includes words: 100,000,000. This corpus covers vast text genres such as media, journalism, electronic articles, books, etc. It includes a variety of actual production in Modern SA. Due to the huge number of real examples, I selected 3000 examples with *wh*-dependency and 3000 examples of relative clauses in which the dependency with gap and resumption strategies. The sample was chosen from different genres and different Arab countries.

Table 2: The frequency of RP/Gaps in object positions in *wh-interrogative and relative clauses* in the International Corpus of Arabic – Modern SA

Wh-fillers	Total occurrences of the direct object	Object-RP	Object-Gap
Constituent Questions			
man 'who'	389	190 (48.8%)	199 (51.2%)
ma:ða 'what'	1791	436 (24.3%)	1355 (75.7%)
ʔayya 'which'	639	211 (33.1%)	428 (66.9%)
kam 'how'	181	28 (15.5%)	153 (84.5%)
Relative Clauses			
ma: 'what'	350	266 (76%)	184 (24%)
man 'who'	373	259 (69.4%)	114 (30.6%)
allaði: 'that'	2277	1761 (77.3%)	516 (22.7%)

The frequency of gap strategy employed in constituent questions surveyed with the *wh*-fillers: *man* 'who', *ma:ða* 'what', *ʔayya* 'which', and *kam* 'how' is: 51.2%, 75.7%, 66.9%, and 84.5%. Conversely, the respective frequency of the counterpart resumptive strategy is: 48.8%, 24.3%, 33.1%, and 15.5%. As relative clauses are concerned, the frequency of gap strategy versus resumptive strategy of the investigated relative pronouns is: *ma:* 'what' 24% vs. 76%, *man* 'who' 30.6% vs. 69.4%, and *allaði* 'that' with its cognates 22.7% vs. 77.3%.

All in all, the approximate frequency of gap strategy is one-third, whereas the frequency of resumptive strategy is two-third. A number of generalizations can be drawn. In Classical SA, gap strategy is preferred to resumption strategy almost exclusively in *wh*-interrogatives while to a great extent in relative clauses. The representative sample from Modern SA unearths that both gap and resumption strategies alternate in *wh*-interrogatives and relative clauses with an obvious increase in the use of resumption to almost one-third in *wh*-interrogatives while to nearly two-third in relative clauses. Furthermore, the percentages demonstrate that there is no crystal-clear difference in the preference of employing gap or resumption strategies that can be attributed to the type of the *wh*-filler nor to the type of the relative pronoun. Nonetheless, an important observation surfaces from the result unravels a seemingly historical change towards preferring the resumption strategy to gap strategy more than was the case in Classical Arabic in both dependencies at issue, both strategies are still available, however.

5. The Ameliorating effect of resumption in SA

Hinging on relevant literature, the main diagnostic of the assumed ameliorating effect of resumption can be measured by lack of sensitivity to islands such that island constructions with RPs should be quantitatively more acceptable than with gaps. Accordingly, I designed a grammaticality judgment task along the details below.

5.1. Design and material

Since the main objective of this task is to experimentally revisit the issue of the ameliorating effect of resumption, I adopted a 2*2*4 factorial design to test *wh*-interrogatives given (16) conditions, and 2*2*6 factorial design to test relative

clauses resulting in (24) conditions. Both designs involved the same three independent variables along with their values provided within parentheses: ISLAND (Non_Island vs Island), TAIL, the dependency-resolving strategy, (RP vs. Gap), and FILLER_TYPE with the values (*man* 'who', *ma:ða* 'what', *Ɂayya* 'which + NP' and *kam* 'how much/many + NP') for the *wh*-interrogatives, but the values for the relative clauses involved:

10. a. *allaði:* 'that.3sgm' referring to an inanimate relativized, singular, and masculine NPs like *ad-dawa* 'the medicine'.
b. *allaði:* 'that.3sgm' referring to an animate relativized, singular, and masculine 287 NPs like *aʃ-ʃa:b* 'the young man'.
c. *allati:* 'that.3sgf' referring to an inanimate relativized, singular, and feminine NPs 289 like *al-lawħata* 'the painting'.
d. *allati:* 'that.3sgf' referring to an animate relativized, singular, and feminine NPs 291 like *al-fatatu* 'the young lady'.
e. *man* 'who'referring to human relativized NPs in general without mentioning 293 overtly the relativized NP.
f. *ma:* 'what' referring to inanimate relativized NPs in general without mentioning overtly the relativized NP.

The islands investigated were Complex NP island, *wh*-island, adjunct island, and *whether* island. Four experiments were constructed varying in the type of island investigated in each part as sketched in the following table.

Table 3: the distribution of islands per experiment per part

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Part I (wh-interrogatives)	Adjunct island	Complex NP island	*Whether* island	*Wh*-island
Part II (relative clauses)	*Whether* island	*Wh*-island	Adjunct island	Complex NP island

Each experiment involved two parts: Part I tested *wh*-interrogatives and Part II tested relative clauses. The four islands were distributed across the experiments and their parts. Each experiment started with (3) practice items, and included fillers on 1.5;1 ratio with target items. Each participant was required to judge one item on each condition. Therefore, the total number of items in each experiment was (103) distributed as: (3) practice items, (16) experimental items besides (24) fillers in the first part, whereas (24) experimental items along with (36) filler items in the second part. The practice and filler items were designed to evenly include grammatical sentences that were supposed to be rated high, ungrammatical items that were supposed to receive low ratings and in-between sentences that were assumed to receive rating in the middle of the scale. The same practice and filler items were used in all the experiments. I created (6) lexically matched sets of items distributed into (6) lists in a Latin-Square design that were pseudo-randomized on these lists in order not to provide consecutive items presented on the same condition. Below is an illustrative item set on *wh*-interrogatives.

11. a. man taðunni:na   Ɂanna ilkullyyata   raʃʃaħ-at-**hu**/_   lilħuṣu:li ʕala il-ga:Ɂzati?
    who thought.2sgf that   the-department nominated-**him**/_ to.get   on the-prize
    'Who did you think that the department nominated-**him**/_ to get the prize?'

   b. man samiʕiti   aʃʃa:Ɂata [Ɂanna ilkullyyata   raʃʃaħat-**hu**   lilħuṣu:li ʕala il-ga:Ɂzati?]
    who heard.3sgm the.rumor [that   the-department nominated-**him** to.get   on   the-prize?]
    'Who heard the rumor [that the department nominated-**him** to get the prize]?'

   c. man saɁalat iʃra:q   [lima:ða raʃʃaħat-**hu**/_   ilkullyyata   lilħuṣu:li ʕala ilga:Ɂzati]?
    who asked Ishraaq [why   nominated-**him**/_ the-department to.get   on   the-prize]?
    'Who did Ishraaq ask why the department nominated-**him** to get the prize]?'

d. man ɣad'ibat iʃra:q   [liʔanna ilkullyyata   raʃʃaħat-***hu***/ _   lilħuʂu:li ʕala il-ga:ʔzati]?
   who raged Ishraaq [because the-department nominated-***him*** to.get   on   the-prize]?
   'Who did Ishraaq rage because the department nominated-***him*** to get the prize]?

e. man sa:ʔalat iʃra:q   [iða   ilkullyyata   raʃʃaħat-***hu***/_   lilħuʂu:li ʕala il-ga:ʔzati]?
   Who asked Ishraaq [whether the-department nominated-***him***/_ to.get   on   the-prize]?
   'Who did Ishraaq ask why the department nominated-***him*** to get the prize]?

The *wh*-filler *man* 'who' is related to a gap and an RP inside an embedded non-island *inna* 'that-clause' (11a), a Complex NP island (11b); *wh*-island (11c), adjunct island (11d), and *whether* island (11e). The full task is available with the author upon request.

The target sentences in the second part of each experiment were constructed in accordance with the design adopted for the first part yet testing relative clauses. I chose typical relative pronouns such as *allaði:* and *allati:* and *wh*-like relative pronouns, *man* 'who'and *ma:* 'what', in order to explore any potential differences in the grammaticality of gaps versus RPs in each context. Below is a sample item set with *allaði:* 'that'.

12. a. ʔiʃtaryitu   ʔd-dwa:ʔa   alði: waʂafa-***hu***/ __   ʔttabi:ib-u.
      bought-1sg the-medicine that.3sgm prescribed.3sgm-***it***/ __ the-doctor.sgm-nom
      'I bought the medicine that the doctor prescribed (***it***)/ _.'

   b. ʔiʃtaryitu   ʔd-dwa:ʔa alði: samiʕ-tum
      bought-1sg   the-medicinethat.3sgm   heard-2plm
      [alxabar   ʔanna ʔttabi:ib-u   waʂafa-***uh***/ _]
      [the.news   that   the.doctor-nom   prescribed-***it***/_]
      'I bought the medicine that you heard [the news that the doctor prescribed _].'

   c. ʔiʃtaryitu   ʔd-dwa:ʔa   alði: saʕalat-um [lima:ða: waʂafa-***hu***/ __ ʔttabi:ib-u]
      bought-1sg the-medicine that.3sgm asked-2plm [why   prescribed-it/_ the.doctor]
      'I bought the medicine that you asked [why the doctor prescribed _].'

   d. ʔiʃtaryitu   ʔd-dwa:ʔa   alði: ɣad'ibat-um [liʔanna ʔttabi:iba waʂafa-***uh***/ _]
      bought-1sg the-medicine that.3sgm angered-2plm [why   the.doctor prescribed-***it***/_]
      'I bought the medicine that you angered [why the doctor prescribed (***it***)/ _].'

   e. ʔiʃtaryitu   ʔd-dwa:ʔa   alði: tasa:ʔalat-um
      bought-1sg   the-medicine that.3sgm wondered-2plm
      [ma ʔiða: ka:na   ʔttabi:ib-u   qad   waʂafa-***hu***/ __]
      [whether   was   the.doctor-nom   part.   Prescribed-***it***/ _]
      'I bought the medicine that Aya angered [whether the doctor prescribed (***it***)/ _].'

The relative pronoun *allaði: 'that'* introduces a relative clause which modifies the relativized NP *ʔd-dwa:ʔa* 'the medicine' that is related to a gap and an RP inside an embedded non island *inna* 'that-clause (12a), a Complex NP island (12b); *wh*-island (12c), adjunct island (12d), and *whether* island (12e).

The length of the dependency between the *wh*-filler or the relative pronoun and the dependency-resolving strategy, gap or resumption, spanned over one clause boundary only with the filler in the matrix clause and the RP/ gap occurred inside

the embedded clause. I did not include further embedded clauses because the increased complexity of the target items may distract the participants' attention from the real task and so distort the results by not being able to attribute the potential low ratings to the presence or absence of islands or to the complexity and length of sentences.

5.2. Participants

Since SA is mainly a formal language that is taught at schools and universities, it is hard to assume that it has native speakers. Therefore, only scholars and graduate students of Arabic linguistics in the departments of Arabic Language and Literature in a number of universities in Jordan and Saudi Arabia who volunteered were included in the sample of the study. The number of participants was (33), (30), (31), and (31), respectively. The study sample included (70) female and (55) male within the age-range 25-63 (the median age = 48). The task was emailed to the participants who were told to do it on their own pace and email it back to the 393researcher.

5.3. Results

This section presents the results. All scores were *z*-transformed to manipulate potential scale bias. A linear-mixed effects model was undertaken with ISLAND, TAIL and FILLER_TYPE incorporated as fixed effects and participants and items as random effects for each type of island, dependency, and filler. The following figure displays the interaction plots reporting the means and standard errors of the *wh*-interrogatives.
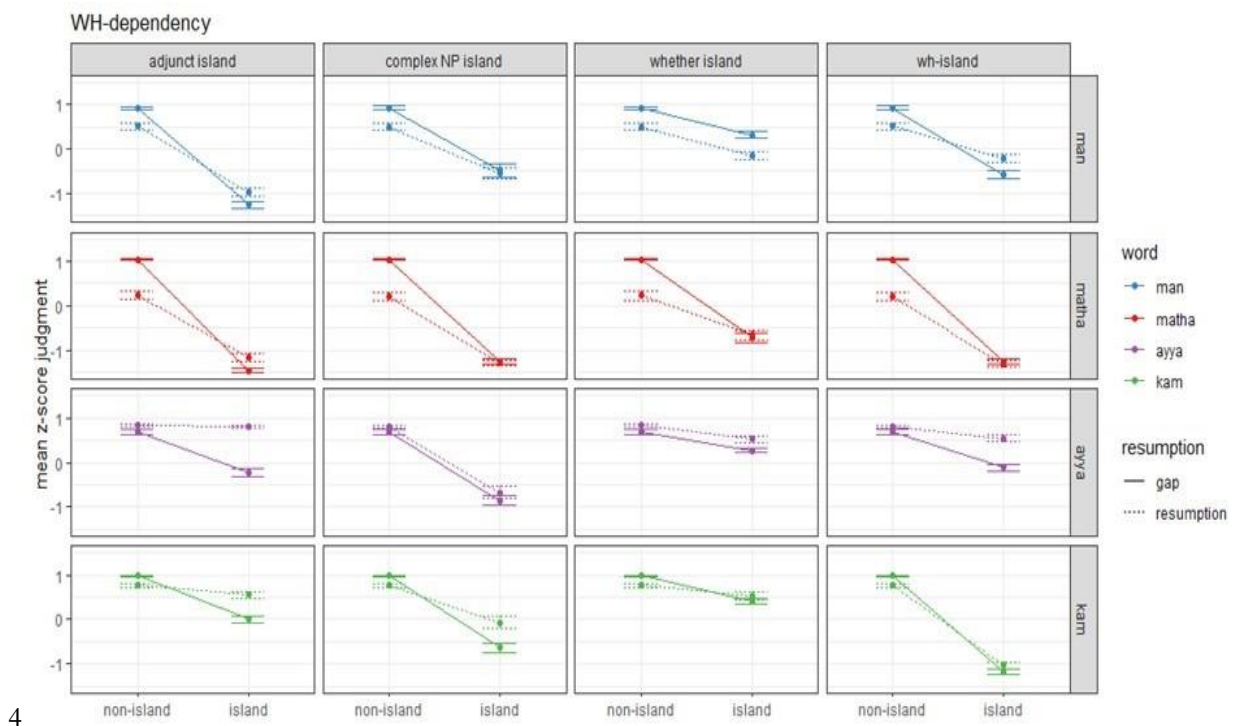
Figure 1: The interaction plots of the results of the *wh*-dependency in SA.

The results concerning adjunct island revealed that a main effect of ISLAND ($F = 6.05$, $p < .05$), yet there was no main effect of TAIL ($F = 3.44$, $p = .074$), no main effect of FILLER_TYPE ($F = 3.03$, $p = .091$), nor were there any interaction effects of ISLAND*TAIL, and TAIL*FILLER_TYPE (all Fs < 1); however, there was an interaction effect of ISLAND*FILLER_TYPE ($F = 7.19$, $p < .05$). The results of Complex NP island showed a main effect of ISLAND ($F = 9.53$, $p < .05$), but no main effect of TAIL or FILLER_TYPE, nor were there any interaction effects. The results of testing *whether* island unravelled no main effects or interaction effects of the independent variables at issue. Finally, the results of

rating the *wh*-island unmasked a main effect of ISLAND ($F = 7.67$, $p <.05$), but no main effect of the other independent variables and no interaction effects.

Consequently, a number of conclusions can be drawn. First, both gap and resumption strategies are available with all types of fillers (*man* 'who', ma*:ða* 'what', *ʔayya* 'which + NP' and *kam* 'how much/many + NP') in non-island conditions. There is a slight preference to gaps. Second, both strategies exhibit similar behavior respecting islands with some exceptions depending on the type of island. More precisely, Complex NP island can be considered a strong island in SA as it received low rating with gap and resumption strategies and with all *wh*-fillers investigated. Adjunct island, however, was rated the lowest with the *wh*-fillers (*man* 'who', ma*:ða* 'what'). Resumption did not improve acceptability; it patterned almost identical to gaps. The slight difference in rating in favor of resumption did not reach significance, and it was only evident in adjunct island and *wh*-island conditions with the *wh*-filler *ʔayya* 'which + NP' in which resumption clearly improved acceptability in contrast with gaps. As far as *whether* island is concerned, it received the lowest rating with the *wh*-filler *ma:ða* 'what', and this lowest rating was identical with both strategies. Nonetheless, it received the highest rating of acceptability with the other fillers: *man* 'who', *ʔayya* 'which + NP' and *kam* 'how much/many + NP'. No difference between gap and resumption strategies with *kam* 'how much/many + NP', resumption was very slightly rated higher whereas it was rated lower than gaps with the *wh*-filler *man* 'who'. In either case, the difference did not reach significance to assume that resumption ameliorates islands. Finally, the results regarding *wh*-island unearthed that it was rated the lowest with no difference with the *wh*-filler, *kam* 'how much/many + NP'. No difference at all between resumption and gap strategies in this regard. Likewise, the *wh*-island was rated as low as the Complex NP island with the *wh*-filler *ma:ða* 'what'. The same rating pattern was depicted with the gap and resumption strategies. On the other hand, the *wh*-island was rated somehow low, yet still higher than the other islands with *man* 'who' and *ʔayya* 'which + NP', and resumption was rated somehow higher than gaps but did not reach significance. The results of the relative clauses are summarized in Figure 2 below.
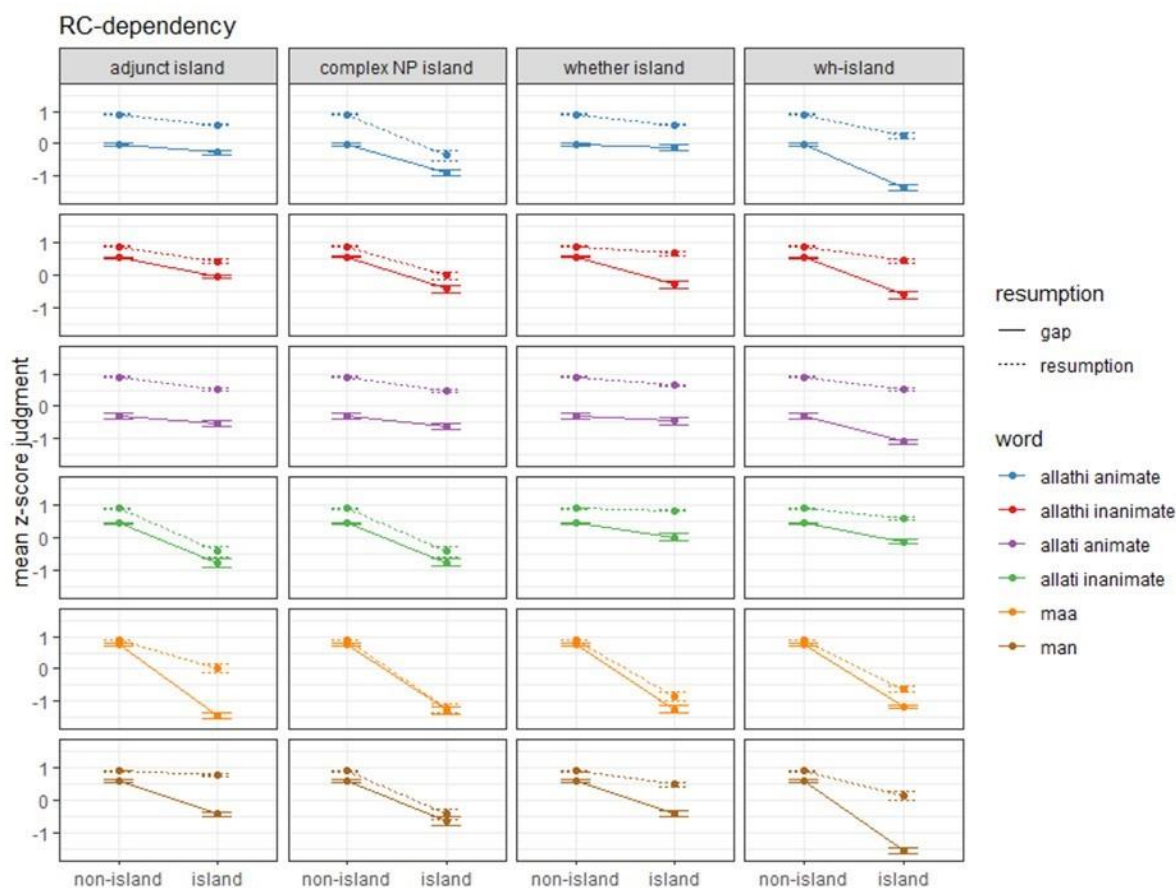

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Figure 2: The interaction plots of the results of the relative clause dependency in SA.

The results in terms of the island investigated can be portrayed as follows. Per adjunct island, there was no main effect of ISLAND ($F = 2.98$, $p <.089$), no significant main effect of TAIL ($F = 3.48$, $p =.076$), no main effect of the FILLER_TYPE ($F = 2.66$, $p =.074$), no interaction effects were depicted (all Fs $>.8$). As Complex NP island is concerned, the results revealed a main effect of ISLAND ($F = 7.60$, $p <.05$), but no main effect of TAIL, no main effect of FILLER_TYPE, no interaction effects of the three independent variables (all Fs $<.6$). Regarding *whether* island and *wh-*island, there were no main effects nor interaction effects of the three independent variables.

The difference between gap and resumption strategies is more obvious here in favor of resumption strategy in both non-island as well as island conditions; nonetheless, there were still some differences that can be suggestive. The results of the rating of acceptability with the relative pronouns *allaði:* 'that.3sgm-inanimate,' *allati:* 'that.3sgf-inanimate,' *man* 'who,' and *ma:* 'what' exhibited similar pattern and behavior to that of *ʔayya* 'which + NP' and *kam* 'how much/many + NP' in *wh-*interrogatives. In adjunct island, resumption strategy was preferred to gap strategy. This preference reached significance when the relative pronouns, *allaði:* 'that.3sgm,' and *allati:* 'that.3sgf', related to animate relativized NPs; however, both gap and resumption strategies were available to an approximately identical degree in non-island condition with the other relative pronouns. As far as adjunct island is concerned, the rating of gaps and resumption was similar to the rating of the adjunct island with the *wh-*fillers *ʔayya* 'which + NP' and *kam* 'how much/many + NP' in *wh-*interrogative dependency. While rating of non-island counterpart unmasked the availability of gap strategy similar to resumption, the ameliorating effect of resumption in adjunct island was evident with the relative pronouns *allaði:* 'that.3sgm-animate,' *allati:* 'that.3sgf-animate,' *man* 'who,' and *ma:* 'what'. However, the ameliorating effect in Complex NP island was found only with the relative pronoun *allati:* 'that.3sgf-animate'. With all the other relative pronouns, both gap and resumption were rated bad and unacceptable to almost identical extent in Complex NP island. The low rating of Complex NP island with both resumption and gap strategies can be seen as an indication that this island is a strong island in SA and that resumption does not exhibit the assumed ameliorating effect with respect to this island. Regarding *whether* island and *wh-*island, both were only rated as significantly bad with the relative pronoun *man* 'who' and *ma:* 'what' with both gap and resumption strategies; otherwise, the rating was significantly lower with gap strategy in these islands with the other relative pronouns. However, resumption was rated better than gap strategy within these islands. Here, resumption seems to ameliorate island effects.

6. Reconstruction Task

6.1. Material and design

I designed the reconstruction task in *wh-*interrogatives and relative clauses and in relation to islands. In each item, a sentence is given with a fronted *wh-*filler or a relative pronoun related to a QP. The participants were required to choose the most appropriate reading.

13. ʔayya   mari:d'in   ʕalimita   ʔanna   kulla   ṭabi:bin   faħaṣa-**hu**
    which   patient   knew-2sgm   that   every   doctor   cheched.3sgm-**him**
    'Which patient did you know that every doctor checked **him**?'

    The interpretations provided are:
    a.   hunaka   mari:d'un   wa:ħidun   faħaṣahu   gami:ʕu   alʔaṭiba:ʔu
         there   patient   one   checked-him   all   doctors
         'There is one patient only that all doctors checked him.'

    b.   hunaka ʕidatu mard'a   wa kullu   ṭabi:bin   faħaṣa   mari:d'an   muxtalifan
         there many patients   and every doctor   checked.3sgm   patient   different
         'There are several patients and every doctor checked a different patient.'

    c. relative-clause.*whether*-Island.RP/Gap

    qaraʔa-tu   ar-risa:lata   allati: fariħa   alba:ħiθu

    read-1sg   the-thesis   that   pleased.3sgm   the-researcher

    [il-ʔanna   kulla   ṭa:libin   qaraʔa-***ha***/_]

    [because   every   student   read.3sgm-***it***/_

    'I read the thesis that the researcher felt happy [because every student read (***it***)/_?]'

Six lexically matched item sets were created and distributed into (3) lists in a Latin-Square design that were pseudo-randomized so that no consecutive items on the same condition were presented. To control for any bias for opting the first or second choice in all items, the reconstructed reading was provided as the first choice in half of the target items and as the second choice in the remaining experimental items. The task was emailed to the participants who completed it on their own pace and emailed it back to the researcher.

6.2. Participants

Only (25) participants volunteered to take part in this task. All were graduate students of Arabic Linguistics at Mutah University in Jordan. None of them participated in the grammaticality judgment. The study sample included (11) female and (14) male within the age-range 30-41 (the median age = 37).

6.3. Results

The percentages of choosing the reconstructed interpretation are displayed in the following table.

Table 4: The percentages of choosing the reconstructed interpretation

	Strong Island		Weak Island		Non-Island	
	RP	GAP	RP	GAP	RP	GAP
Wh-interrogatives	20.4%	19.1%	51.4%	52%	57%	58.3%
Relative clauses	21.9%	21.2%	49.2%	50.7%	56.1%	56.7%

The percentages of choosing the reconstructed interpretation showed that the overall availability of reconstruction effects was low in general; nonetheless, it was the lowest in the context of strong island ranging between 19.1% and 21.9%. However, they were significantly higher in the context of weak island ranging between 49.2% and 52%, whereas the range was even slightly higher in the non-island condition (56.1%-58.3%). The results delineated that the availability of reconstruction effects did not significantly vary according to the type of dependency nor the dependency-resolving strategy. The presence of a strong island was found to be the major deterministic factor of the availability of reconstruction effects regardless of the type of dependency or dependency-resolving strategy.

7.General discussion

The current study raises a number of questions on the grounds of several mainstream generalizations concerning resumption, particularly, the use of weak RPs in long-distance dependencies focusing on the sensitivity to islands, and its assumed ameliorating effect besides the availability of reconstruction effects in case RPs used within islands. The main proposal this study aims at bringing forward is that conclusions drawn from the application of the methodologies typical of formal experimental linguistic studies would explicate perplexing assumptions. Inspired by this proposition, the intriguing research questions derived from prevailing assumption in previous theoretical studies are re-evaluated and elucidated in adherence to the data elicited from consulting two SA corpora and formal experimental tasks: grammaticality judgment and forced-choice tasks. Even though the current study is concerned with the use of weak RPs, gap strategy is also explored because long-distance dependencies resolved with a gap are typically derived via movement. The underlying logic here is that if resumption exhibits a similar pattern of behavior to gaps in the constructions under investigation, then constructions with weak RPs are also derived by movement; otherwise, they are derived by a different mechanism.

Previous studies on SA have assumed that both gap and resumption strategies are available in *wh*-interrogative headed by the *wh*-fillers *ʔayya*+NP 'which NP' and *man* 'who', whereas only gap strategy is adopted with *ma:ða* 'what' and *kam* +NP 'how much/many NP'. The results attained in the current study delineate that gap and resumption strategies actually alternate in non-island conditions in both dependencies and with all nominal *wh*-fillers and relative pronouns under investigation. This finding explicates that previous assumptions do not reflect actual use of these strategies that is actually unconstrained by the type of dependency or the type of the dependency-filler.

The second prevalent assumption is that resumption ameliorates structures with islands. The findings of this study unveil that both RPs and gaps manifest sensitivity to islands, particularly, strong islands like Complex NP Island. In other words, the ameliorating effects assumed for resumption has not been detected in the context of strong islands. What seems to be of immense significance is that the attained sensitivity to strong islands in SA holds consistently irrespective of the types of dependency, dependency-filler, and dependency-resolving strategy. As far as weak islands are concerned, resumption does not exhibit significant ameliorating effect in *wh*-interrogatives with *ma:ða* 'what' and *man* 'who' and in relative clauses with the relative pronouns *man* 'who', *ma* 'what', and *alaði:* 'that' and its cognates relating to inanimate relativized NPs for resumption is more obvious with the *wh*-fillers *ʔayya*+NP 'which NP' and *kam* +NP 'how much/many NP' in adjunct island and *wh*-island besides *alaði:* 'that' and its cognates relating to animate relativized NPs.

A closer inspection of the results of the grammaticality judgment task focusing on sensitivity to islands reveals that the relative pronouns *man* 'who' and *ma* 'what' show similar behavior to the bare *wh*-fillers *ma:ða:* 'what' and *man* 'who' in *wh*-interrogatives; the relative pronouns *alaði:* 'that' and its cognates demonstrate a similar pattern to the complex *wh*-fillers *ʔayya*+NP 'which NP' and *kam* +NP 'how much/many NP' in *wh*-interrogative. The observed similar pattern of relative pronouns to *wh*-fillers and of relative clauses to *wh*-interrogatives, particularly, in the context of strong islands may unravel similarity in the mechanism by which these dependencies are derived. Another important characteristic observed in the pattern of the relative pronouns relating to inanimate relativized NPs and the qualitatively significant ameliorating effect. The core feature that sets these pronouns distinct from the rest of the relative pronouns under investigation is being related to inanimate relativized NPs. Nonetheless, before assuming the animacy of the relativized NPs as a factor that may be influential in this regard, it is worth mentioning that *ma:* 'what' is also a relative pronoun that modifies inanimate NPs. This means that the different behavior observed cannot be mainly attributed to the [animacy] feature of the relativized NPs. It can be more of an idiosyncratic property of these pronouns, yet this requires more investigation of the differences between relative pronouns and how the features of the relativized NPs can contribute to their structural and semantic composition.

The third revisited assumption is whether reconstruction effects actually intercept with island effects in SA. The results show that the availability of reconstruction effects drops significantly if a strong island intervenes between the dependency-filler and its tail. Moreover, the availability of reconstruction is found to be sensitive to the type of island by being available mainly in weak island and non-island conditions but much less available in strong island conditions. The availability of reconstruction effects in SA seems unaffected by the type of dependency, the type of dependency-filler, or the type of the dependency649resolving strategy.

In conclusion, the findings of the current study have a number of important implications that it can contribute to the existing theoretical accounts of resumption in SA. Initially, the current study offers compelling evidence of the significance of incorporating several resources such as corpora and experimental studies in describing linguistic empirical data. Furthermore, the depicted similar pattern of behavior of relative clauses to *wh*-interrogative dependency, taken as a typical example of constructions derived by A'-movement, indicates that relative clauses in SA are also derived by A'-movement. This conclusion is further boosted by the conclusions regarding sensitivity to strong islands and reconstruction effects. The chaotic behavior in the context of weak islands does not affect this conclusion because weak islands are transparent to A'-movement. A third important implication is that all nominal *wh*-fillers and relative pronouns pattern similarly. No crystal-clear cut difference among them that can be explained as a result of a different syntactic mechanism. The main difference can be summed up in terms of preference to resumption strategy among complex *wh*-fillers and the relative pronoun *alaði:* 'that' and its cognates in contrast with preference to gap strategy among bare *wh*-fillers and *wh*-like bare relative pronouns.

A fourth significant is that since resumption and gap strategies behave similarly in the context of strong islands and with respect to their actual use as shown from corpora, sensitivity to strong islands as revealed by the grammaticality judgment task and the availability of reconstruction effects, the assumed different syntactic mechanism for deriving dependencies terminated with resumption versus gaps seems illegitimate and unmotivated.

An alternative account can be Aoun, Choueiri, and Hornstein's (2001) proposal that there are two types of RPs: true RPs derived via base-generation versus apparent RPs derived by A'-movement. More precisely, in the presence of islands, the antecedent is base-generated in the left periphery and so related to the RP via binding, whereas the dependency is derived via A'-movement when there is no island. This hybrid derivational mechanism of resumption in Arabic is unmotivated theoretically and empirically. First, it falls short in accounting for the Learnability problem. Assuming that in all Arabic varieties including the vernaculars there are two mechanisms of deriving resumed structures. Then, children learning them as mother tongues need to identify the correct mechanism for each type besides identifying the differences in island types since A'-movement is available in absence of islands and presence of weak islands as well while it is not available in presence of strong islands. I would argue that it complicates learning Arabic as a mother tongue rather than accounting for the Logical Problem of Acquisition. Furthermore, empirical data reveal that SA allows the deletion of RPs even in constructions that do not involve A'-movement as in the example below.

16. a: aʔ-ʃtaray-ta   baytan
        Question Particle-buy-2sgm   house-ACC
        'Did you buy a house?'

    b: naʕam,   iʃtaray-at.
       Yes,   bought-1sg
       'Yes, I bought.'

In (16b), the answer involves a typical declarative statement *iʃtaray-at* 'I bought' with a transitive verb, yet the direct object is deleted altogether in response to the question. This means that SA allows the deletion of a RP, and this is not surprising since SA is a *pro*-drop that allows null resumptive pronouns (Camacho, 2013).

This result complies with the accounts of traditional grammarians of SA that *ħaðif* 'deletion' of *ad'-d'ami:r al-ʕa:ʔid* 'Resumptive Pronoun' is legitimate as far as the sentence is well-understood (Hassan 2008). It is, additionally, supported by the obvious difference in the frequency of gaps versus the frequency of resumption in Classical SA compared to their frequency of use in Modern SA. The frequency of using resumption increases significantly across the history of SA and it becomes more and more preferred in Modern SA. This difference in preference unravels a historical change that can probably be explained by the effect of spoken varieties of Arabic on Modern SA towards more employment of resumption than gaps. The preference of resumption may not necessarily be a result of different syntactic derivation. It may, rather, be a result of assisting comprehension in spoken varieties.

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