| **RESEARCH ARTICLE**

Innovative Word Formation and Pluralization Processes in Arabic: A Systematic Review

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| **ABSTRACT**

This study addresses a gap in the literature by conducting a self systematic review of innovative word formation and pluralization processes in Arabic, especially those shaped by hybridization, borrowing, and social media. It synthesizes thirteen studies published by the author between 2020 and 2025, covering innovative morphological processes, such as aspectual and temporal markers in Colloquial Arabic, innovative blends, clipping of borrowings, derived verbs from loanwords; derivation from acronyms; hybrid compounds, lexical hybrids with foreign affixes, innovative forms with borrowed affixes; rule based and idiosyncratic loanword plural forms, gemination and degemination before the feminine sound plural suffix; feminine sound plurals ending in /ya:t/, /yya:t/, and /h+a:t/; and pluralization of borrowed social media terminology. The studies were categorized into 3 clusters: (i) innovative derivation (seven studies) which includes: derivation from loanwords; lexical shortening and blending, hybrid compounds and colloquial morphological innovation; (ii) Innovative plural formation (five studies) which includes: loanword plural patterns, feminine sound plural variants, and new plural forms common on social media. (iii) Cross linguistic plural translation challenges (one study). Together, these studies reveal that innovation in Arabic word formation is not random or chaotic. Rather, it operates within a flexible but rule governed morphological system that accommodates both native structures and foreign inputs while preserving internal coherence. These converging findings reveal that innovation in Arabic morphology is shaped by a dynamic interaction between internal system constraints and contact induced pressures. Native morphological templates continue to function as the dominant organizing principles, even when the lexical input is foreign. Borrowed items are typically naturalized through predictable processes such as feminine sound pluralization, gemination adjustments before the suffix, and analogical extension of native patterns to foreign bases. Simultaneously, the studies show that sociolinguistic aspects (digital communication, social media, political discourse, and youth slang) serve as incubators for rapid morphological experimentation, producing blends, clipped forms, borrowed affixes and hybrid compounds that circulate widely before they stabilize or disappear. This interplay between structural regularity and sociolinguistic creativity suggests that Arabic morphology is both resilient in the face of borrowing and innovation and is actively generative, capable of absorbing new lexical material while preserving the integrity of its core morphological architecture.

| **KEYWORDS**

Systematic review (SR), translation studies, student translators, Al-Jarf's translation studies, Arabic-English translation studies, English-Arabic translation studies, literal translation, translation error types translation strategies, translation error sources.

| **ARTICLE INFORMATION**

1. Introduction

A wide range of studies in Arabic linguistics investigate isolated aspects of morphological, derivational, or inflectional processes, such as number, aspect and tense, gender, case, the subjunctive and jussive moods, transitivity, voice, comparison, compounding, derived forms, question formation, prepositions, collocations, idioms, and exclamation, across Standard Arabic

and various Arabic dialects. However, only a limited number of systematic reviews address broader issues in morphology, morphological awareness, or psycholinguistic processing. For example, Domínguez, Cuetos & Segui (2000) reviewed experimental evidence on how readers process morphological structure during visual word recognition in Spanish. Their analysis compared full-parsing, full-listing, and hybrid models, drawing on priming data, non-word processing, and contrasts between regular and irregular morphology. They concluded that morphological structure plays a central role in lexical access, with evidence favoring hybrid processing models. Similarly, Wattad & Abu Rabia (2020) surveyed research on morphological awareness among native Arabic readers, comparing typical and dyslexic learners. Their review demonstrated that morphological awareness—particularly knowledge of roots and patterns—is essential for reading accuracy and comprehension. Dyslexic readers showed weaker morphological processing, underscoring the need for morphology-based interventions in Arabic literacy instruction. A third review by Suja et al. (2025) examined how morphology and syntax jointly shape the structure and functioning of Arabic. Through content-analysis methods, the authors synthesized research on word-formation patterns and sentence structure, highlighting the foundational role of morphology and syntax in Arabic linguistic competence.

Despite these few contributions, systematic reviews remain rare in Arabic linguistics outside applied linguistics, education, and translation studies. In morphology, derivation, borrowing, and plural formation, the literature is predominantly descriptive, example-based, corpus-based, or theoretical, and is scattered across journals and lacking synthesis.

Beyond the few reviews mentioned above, there is a notable absence of systematic review (SR) or meta-analysis (MA) studies on Arabic morphology, derivation, or inflection, particularly in areas such as clipping, blending, hybrid compounds, borrowed affixes, derivation from loanwords, or innovative plural formation. Therefore, this study aims to fill a gap by conducting a self-systematic review of contemporary innovative word-formation and pluralization processes in Arabic, especially those shaped by borrowing, hybridization, and digital communication. It synthesizes 14 studies published by the author between 2020 and 2025, covering innovative aspectual and temporal markers in Colloquial Arabic; derived verbs from loanwords; lexical shortening and clipping; innovative blends; clipping of borrowings; derivation from native and loan acronyms; hybrid compounds with foreign lexemes; lexical hybrids with foreign affixes; innovative forms with borrowed affixes; rule-based and idiosyncratic loanword plural forms; gemination and degemination before the feminine sound plural suffix; feminine sound plurals ending in /ya:t/, /yya:t/, and /h+a:t/; pluralization of borrowed social-media terminology and the like.

This study is significant for several reasons. It is the first SR of innovative word formation in Arabic; the first to unify derivational and inflectional innovation; the first to map how borrowing, hybridization, and social media reshape Arabic morphology; and the first to propose a methodological model for future SR/MA work in Arabic morphology. It does not merely fill a gap—it defines the field.

The studies included in this SR constitute one of the most comprehensive corpora on innovative morphological processes in contemporary Arabic. Together, they document a wide range of innovative morphological phenomena—derivation from loanwords, acronym-based derivation, hybridization with foreign affixes, lexical blending, clipping of loanwords, hybrid compounding, and emerging aspectual markers in colloquial varieties. Rather than treating these as isolated cases, the studies map an interconnected system of morphological creativity that reflects how Arabic responds to linguistic, social, technological, and political pressures.

The corpus draws on authentic linguistic data from media discourse, social-media platforms, youth language, academic registers, colloquial dialects, and institutional terminology. This breadth enhances descriptive validity and captures the dynamic interaction between Standard and Colloquial Arabic. The studies also demonstrate a remarkable ability to connect linguistic structure with sociopolitical and cultural context, showing how phenomena such as DAESH-derived forms, hybrid compounds, or clipped borrowings emerge from specific historical moments, communicative needs, and identity practices.

Taken together, the studies in this SR construct a coherent and integrated account of how Arabic innovates, adapts, and expands its morphological system. The corpus forms a foundational contribution to the study of modern Arabic morphology and provides a framework for future research on linguistic creativity, borrowing, and change.

The current SR is also part of a broader series of SR/MA projects by the author, including reviews of AI-assisted Arabic translation, linguistics, and pedagogy (Al-Jarf, 2026c); children's language acquisition in Saudi Arabia (Al-Jarf, 2026a); Arabic–English transliteration of personal names and public signage (Al-Jarf, 2026b); and a self-systematic review of English–Arabic and Arabic–English translation error studies (Al-Jarf, 2026b).

A forthcoming book by the author, *Glossary of Borrowed Prefixes and Suffixes in the Arabic Language*, documents more than forty foreign affixes with about 1000 examples integrated into modern Arabic. Although not part of the present SR, it provides an essential reference framework for understanding the broader landscape of morphological borrowing and hybridization.

Finally, the plural-studies series herein evolved in a cumulative and data-driven manner. The first study - on the pluralization of borrowed social-media terminology - revealed unexpected morphological behaviors, including the dominance of the Feminine Sound Plural and the emergence of new pluralization strategies. These findings prompted further investigation into loanword plural systems, leading to the second study on rule-based and idiosyncratic pluralization. This, in turn, motivated a series of focused studies on feminine plural structures - gemination and degemination before /-a:t/, the distribution of /ya:t/ and /yya:t/, and the insertion of /h/ in /h+a:t/. Together, these studies form a coherent developmental sequence that maps the expanding landscape of plural innovation in Arabic across native and borrowed lexemes.

2. Definition of Terms

According to Al-Hamidi, Abbasova & Mammadov (2020), Alolaywi (2022), and Al-Jarf (1990), Al-Jarf (1994b), Arabic has numerous word formation, pluralization and verb creation processes as: abbreviations**;** back-formation**;** onomatopoeia, acronymization, blending, shortening/clipping, borrowing, derivation, compounding, hybridizations and others. The processes covered by the studies in the current corpus are defined below:

2.1 Derivation

Arabic is mainly a derivational language where lexical items are formed from a triliteral or quadrilateral root and a set of vowels that alternate with the root consonants. Different derivational patterns (paradigms) are used to derive agents, patients, abstract nouns, nouns of occupation, place, time, diseases, tools, appliances, relative adjectives, the diminutive and others. For example, many words are derived from the verb كتب *"wrote"* such as كتاب *book;* كتب *books;* كتيب *booklet;* مكتب *desk, office;* مكتبة *library, bookstore;* كتابة *writing;* كاتب *male author;* كاتبة *female author;* كتّاب *male authors;* كاتبات *female authors;* كتابات *writings, publications;* كناتيب *Quranic schools;* مكتوب *letter, written;* كاتب *corresponded with;* كتّب *to make someone write;* استكتب *wrote to another person asking for something;* استكتاب *writing to a person asking for something;* اكتتب *subscribed;* اكتتاب *subscription;* انكتب *was/has been written.* Verbs can be also derived from nouns, and even some acronyms, through the process of back-formation as in باب *chapter (*بوّب *organize into chapters, classified, tabulated);* فهرس *index,* يفهرس *to index,* فهرسة *indexing,* مفهرس *indexed;* كهرباء *electricity,* كهرب *electrify,* مكهرب *electrified.* Arabic also derives words from loan words for which no derivatives exist in the doner language. For example, *Facebook* in English has no derived forms, but in Arabic, Facebook users, who are common people, created a derived action noun فسبكة *(*Facebooking),* a derived verb يفسبك *(*to Facebook),* and agents/doers فيسبوكيون *(*Facebookers)* (Al-Jarf, 2021; (Al-Jarf, 2015a; Al-Jarf, 2015c; Al-Jarf, 1994b;).

1.2 Acronymization

An acronym is a word formed from the first letter(s) of a single word or each word in a compound. Arabic acronyms consist of the initial letters of compounds referring to names of educational institutions, companies, organizations, businesses, industries, trade names, government and news agencies and others. They are used in medicine, technology, social media, politics, economics as well as common language**.** Arabic has three types of acronyms as follows: (i) original Arabic acronyms as جستن (Saudi Educational and Psychological Association); حشد (Jordanian, People's Democratic Party); *HAMAS* حماس (Islamic Resistance Movement); FATAH فتح (Palestine Liberation Movement); قسد (Syrian Democratic forces); واس Saudi New Agency; داعش *ISIS*; (ii) borrowed acronyms pronounced as a word أرامكو *ARAMCO;* ناتو *NATO;* يونسكو *UNESCO;*يونيسيف *UNICEF;* الفاو *FAO;* ناسا *NASA;* ياهو *YAHOO;* الأونروا *UNRWA;* الأيزو *ISO;* الأيزو *FOREX;* فوركس *IATA;* أياتا *FIFA;* الفيفا *ASEAN;* الأسبان *OPEC;* أوبك *GATT;* جات كوفيد19 *COVID-19;* سيداو *CEDAW*, and (iii) transliterated English acronyms of names of Arabic news agencies, companies, organizations and universities as in كاوست *KAUST,* سانا *SANA,* صدق *SIDC,* and أحسن *AHSAN*. Some acronyms are pronounced as a word (*UNESCO, OPEC NATO, Laser,* قسد داعش نق واس). Others are pronounced letter by letter, which are also called initialisms (*UN, EU, USA, BA, DNA, MBA,* ج م ع، ش م م) (Rattu et al.; 2021; Al-Jarf, 2023b; Hamdan and Fareh, 2003; Al-Jarf, 2015a; Al-Jarf, 2011c; Al-Jarf, 1994).

1.3 Compounding

In Arabic, compounds consist of a group of two or more words joined together into one vocabulary unit that functions as a single part of speech. Arabic compounds have the following structures: (i) Noun + adjective, Noun + apposited N, N + apposited N+ adjective, N + apposited N + apposited, Compound Adverbs, Compound Particles and Rhyme-Motivated Compounds (binomials) such as in الفيزياء *spokesman;* ناطق رسمي *Attorney General;* المملكة النائب العام *Makkah Al-Mukaromah;* مكة المكرمة *United Nations,* الامم المتحدة *small intestines;* الامعاء الدقيقة *physical therapy;* علاج طبيعي *nuclear physics;* النووية شرم الشيخ *Sharm El Shaikh* خط الاستواء *Equator;* رئيس الوزراء *Prime Ministe;* شركة طيران *airline;* حملة انتخابية *elections campaign;* أم كلثوم *On Kulthoum;* عبد الله *Abdullah.* (iii) as in جمهورية مصر العربية *Arab Republic of Egypt;* الجماهيرية *mass communication;* وسائل الاتصال الجماهيرية *wherever;* حينئذ *then,* مما *from what;* اينما *wherever;* حيثما *subconscious,* لاشعور *subconscious;* لافلزات *non-metal;* رئيس مجلس الوزراء *Prime Minister,* لكنما *but;* لئلا *so as not;* ممن *from whom,* اهلاً وسهلاً *welcome;* هرج ومرج *chaos. Additionally, Arabic* has general and specialized borrowed compounds used in Standard and Colloquial Arabic such as كربونات الصوديوم *sodium carbonate;* نوفو رابيد *novo rapid;* فاينانشال تايمز *financial times;* سوبر ستارلينك *Star Link;* سوبر لوكس *super lux;* كوت ديفوار *cote d'Ivoire;* سوشيال ميديا *social media;*

فيديو كونفرانس *video conference;* واتس اب *Whatsapp;* فيسبوك *Facebook.* Arabic also has general and technical hybrid compounds in which one element is a native lexeme and the other is a foreign lexeme as كبريتات الصوديوم *Sodium sulphate;* مقياس ريختر *-;Patriot missile* صواريخ الباتريوت *Down Syndrome;* متلازمة داون *hydrochloric acid;* حمض الهيدروكلوريك *Reichter scale* (Hawel, 2024; Nasser, 2008; Al-Jarf, 2023h; Al-Jarf, 2004c, Al-Jarf, 1994b).

1.4 *Blending*

Blending[1] consists of two or more words merged into one new word. Blends are a subtype of compounds because they are formed of two (or sometimes more) content words. The word "*camcorder*" combines parts of "*camera*"+"*recorder*", "*motorcade*" which combines "*motor*"+ a portion of "*cavalcade*." The blended constituents are either shortened *as in brunch > breakfast+lunch, motel >motor+hotel* or *blizzaster > blizzard+disaster)*, or partially overlap as in *stoption (stop+option)* and *Spanglish (English+Spanish)*. Blends can also be formed through the omission of phonemes as in *Eurasia (Europe* and *Asia)*.

Although Arabic is mainly a derivational language, it has other word formation processes such as blending, which is a subtype of compounds. Arabic has total blends and partial blends. Total blends may be (i) fully Arabic *(بيرزيت Birzeit;* الجوفضائية *Aerospace;* خانيونس *Khan Younis;* الرأسماليّة *capitalism;* قولفعلية *words and actions;* ماهية *the nature of;* (ii) fully borrowed *(social media; coffee shop)* or (iii) hybrid (حمض الهيدروكلويك). Partial blends can be (1) fully Arabic (زمكان نفسجسمي بيخلوي); (2) fully borrowed (Anglo-Saxon انجلوساكسوني); or (3) hybrid (اسلاموفوبيا *Islamophobia*). Different parts of speech can be blended such as (A) particles and adverbs: إلا *except;* ألا *not to;* إما *either;* حينما *whenever;* يومئذ *then;* (B) compound proper nouns: أبا حسين *Abahussein;* ابا نمي *Abanmi;* بآلحارث *Balhareth;* بنصالح *Binsaleh;* البوعزيزي *Bou-azizi;* كيري-لافروف *Kerry-Lavrov;–*بوتين; (C) Noun+Noun or Noun+adjective سني-شيعي *Sunni-Siite* شرق اوسطي *Middle Eastern;* خليجي-إيراني *Gulf-Iranian;* برمائي *amphibian;* (D) pre-Islamic blends بهشمي *Bahshami (from Bani Hashem); (E) ancient Islamic expression; some of which are still used:* تَسمَّلَ بسملة *to say in the name of Allah;* التهليل *to say Allahu Akbar;* (F) shortening and blending common in Colloquial spoken Arabic nouns and phrases as in عبسميع> عبد السميع *Ab-Samme;* عبعزيز > عبد العزيز *Ab-Aziz;* سفندي>يوسف افندي *tangerines;* مسالخير > مساء الخير *Good Evening ;* سفندي>يوسف افندي *Good Evening ; Samme;* (G) blends used in Standard and colloquial Arabic, and general and technical language (Nasser, 2008; Al-Jarf, 2023e).

2.3 *Borrowing*

Borrowing constitutes a major source of lexical expansion, ranging from early borrowings (مجتمع، جامعة، جناح) to modern Borrowing also (الكترون، سيتوبلازم، بلازما، لوكيميا، انيميا) تلفزيون، هرمون، فيروس، كاميرا، تكنولوجيا scientific and technological terms لانظام، لامعقول، بيخلوي، قبتاريخي،) *loan translations* (استراتيجية، بسترة، برنامج، بركان، برلمان، ورشة برنامج، appears through loanwords بطاقة الصرف الإلكتروني، وسائل الإعلام) *and periphrastic expressions* (تحبحري) كبريتيك، كبريتوز، شايين، قهوين، حرفيم، صوتيم، (الجماهيرية، التحول الديموقراطي، تطبيع العلاقات، قوة حفظ السلام، اعادة انتشار القوات (Al-Jarf, 2011c; Al-Jarf, 1994b).

2.4 *Hybridization in Arabic*

Lexical hybridization refers to the creation of words that combine foreign affixes with Arabic bases, producing forms that are neither fully Arabic nor fully borrowed. Historically, Turkish suffixes such as –li and –ji (بلطجي 'bully', ثورجي 'coup-supporter'); Persian suffixes like *–stan* and *–abad* (e.g., إخوانستان, إرهابستان); Greek- and English-origin affixes as geo- in جيوسياسي 'geopolitical' and جيوفيزيائي 'geophysical'; socio- in سوسيو-اقتصادي 'socio-economic' and سوسيو-ثقافي 'socio-cultural'; anthropo- in أنثروبو-تاريخي 'anthropo-historical'; hydro- in هيدرو-كهربائي 'hydro-electrical' أنثروبو-ثقافي 'anthropo-cultural' and بطاطولوجيا in لوجيا / logy- ;'Eurasia' أوراسيا 'Eurasia'; أورو-متوسطي 'Euro-Mediterranean' and هيدرو-فلاحي'hydro-agricultural'; Euro- in Euro- in 'potato-logy', تنكولوجيا 'tin-logy'; -cracy / قراطية in دموقراطية 'blood-cracy' and فسادوقراطية 'corruption-cracy'; phobia / فوبيا in إسلامتوبيا 'Islam-topia' فوبيا الإسلاميين 'Islamists-phobia' and فوبيا الانتخابات 'elections-phobia', إسلاموفوبيا 'Islamophobia'; -topia in إسلامتوبيا 'Islam-topia' and إخوانيزم 'Ikhwanism' بدو-ريتاريا 'Bedouin-taria'; -ism in مصرتوبيا 'Egypt-topia'; -taria appears in عسكريتاريا 'military-taria' and in يد / ide- ;'Wahhabism' وهابيزم 'Wahhabism'; -ate in كبريتات 'sulfate' and خلات 'acetate'; -ic in يك in كبريتيك 'sulfuric' and ليمونيك 'citric'; -ide / يد in عصبون 'acetone' and السكريد 'glycoside'; -ite in يت in كبريتيت 'sulfite' and نيتريت 'nitrite'; -one / ون in خلون 'neuron'; and -ous / وز in حديدوز'ferrous' and نحاسوز 'cuprous'. These hybrids demonstrate how Arabic creatively adapts foreign morphological material to express new scientific concepts, political critiques, and cultural identities (Al-Jarf, 2023d).

2.5 *Clipping of borrowings in spoken Arabic*

Clipping of borrowings in spoken Arabic is a productive process in which foreign words are shortened while retaining their original meaning. They are several types of clipping: back-clipping in which the final element of the word is deletes as in تاكس (taxi), بيبسي (Pepsi), بلكون (balcony), ساتل (satellite), and كلاشن (Kalashnikov); fore-clipping where the initial syllable is deleted, as in فون (telephone), نت (Internet), كولا (Coca-Cola), and سيتامول (paracetamol); medial clipping where the internal phonemes is deleted, often with vowel reduction or consonant substitution, as in السيما (cinema), أوزموبيل (Oldsmobile), رادو (radio), and رديتر (radiator); complex clipping involves multiple deletions and phonological changes, as in واشنطن (Washington → Washinton),

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[1] Blending in Morphology

ركشة (rickshaw), هليوود (Hollywood), and ريوس (reverse); and crasis, where two elements merge into a single new form, as in ورشة (workshop), سكروب (screwdriver), كاكولا (Coca-Cola), and ترينج (training suit). Clipping also affects compounds, where either the first or second element is removed, as in فيس (Facebook), انستا (Instagram), كوستا (Costa Café), and رولز (Rolls-Royce). Overall, clipping in Arabic reflects both phonological adaptation and sociolinguistic creativity, especially in colloquial speech and media usage **(**Al-Jarf, 2023a; Al-Jarf, 2011c; Al-Jarf, 1994b).

2.6 *Plural Formation in Arabic*

Arabic has four types of plural: (i) Masculine Sound Plural (لاعبين / لاعبون 'players'), Feminine Sound Plural (طالبات 'female students', سيارات 'cars'), Broken Plural (حقائب 'bags', كتب 'books'), and Dual, which marks "two" regardless of gender or animacy (e.g., كتابان/كتابين 'two books', بنتان/بنتين 'two girls'). In addition, some nouns have plurals unrelated to their singular (نساء / نسوة 'women'), some lack a singular altogether (قوم 'people', مجوهرات 'jewelry'), and others exist only as invariable broken plurals (أبيات / بيوت 'tidings', أنعام 'camels'). Many nouns show multiple plural forms expressing paucity, abundance, or genus (/ تباشير بيوتات 'lines / houses'), or combine a sound and broken plural (تمرينات / تمارين 'exercises'). Some proper nouns take both masculine sound and broken plurals (محمدون / محامد), while certain dual forms have two different singular forms (النجدان 'the two paths of good and evil'). Plurals may also be polysemous, with different meanings tied to different plural patterns (مرئيات 'visuals / viewpoints'), and some nouns have two feminine plurals with distinct uses (اقتصاديات / اقتصادات). Nouns borrowed from English, French, Turkish, Farsi, Greek, and other languages take the Feminine Sound Plural as كمبيوترات *'computers'*, كاميرات *'cameras'*, شوزات *'hormones'*, فيديوهات *videos'*, سيناريوهات *scenarios'*, ميكروفونات *'microphones'*, فيتامينات *vitamins'*, هرمونات *'hormones'*, ساندويتشات *'sandwiches'*, جاكيتات *'jackets'*, بيتزات *'pizzas'*, أبليكيشنات *'applications'*, بوستات *'posts'*, لايكات *'likes'*, فانزات *'fans'*, *shoes'*, and باصات *'buses'*, with occasional exceptions adopting other plural types. Overall, Arabic pluralization reflects a uniquely rich interplay of morphology, semantics, and lexical history, extending across native vocabulary and borrowed lexemes alike (Al-Jarf, 2020b; Al-Jarf, 1994a).

2.7 *The Feminine Sound Plural in Arabic*

The Feminine Sound Plural (FSP) is a regular plural is formed by adding the feminine plural suffix /-aːt/ to feminine singular nouns and adjectives as in طالبات *female students* (animates); سيارات *cars* (inanimate); اجتماعات *meetings*; استعدادات *preparations*; مطبوعات *printed matter*. Some FSP have no singular form as بيانات *data*; صوتيات *phonetics,* مجوهرات *jewellery;* كيماويات *chemicals*. Some nouns have both a FSP and a Broken Plural called plurals of paucity, multiplicity and/or genus as أبيات *lines of verse,* بيوت *houses,* بيوتات *houses;* تمارين *a number of exercises,* تمارين *exercises.* Some FSP forms are polysemous, i.e., have several meanings vis مرئيات *views on something, objects that we see, visuals.* Some have two Feminine Plurals, each having a different usage: سلوكات *behaviors,* سلوكيات *behavior, conduct*; اقتصاديات *economics,* اقتصادات *economies.* Regarding nouns borrowed in Standard Arabic and/or Arabic dialects they generally take the FSP whether the singular form is masculine or feminine, animate or inanimate, with few exceptions taking the Masculine Sound Plural, the Broken Plural, or no plural as in اكسسوارات *accessories;* اكسيدات *oxides;* سناكات *snacks;* سبايكات *spikes;* درونات *deones;* تكتيكات *tactics;* البولفارات *boulevards;* بوتيكات *boutiques;* هرمونات *hormones* ; هيلوكبترات *make-ups;* ماكياجات *links;* لينكات *live;* لايفات *electrons;* الكترونات *viruses;* فيروسات *catalogs;* كتالوجات *vitamins;* فيتامينات *helicopters;* مليارديرات *Milliardaires (Fr);* مليونيرات *millionaires;* ميداليات *medals;* بلاجات *plages* (Fr); فيديوهات *videos;* يوتيوبرز *YouTubers;* هاكرز *hackers* and others شوزات *shoes;* فانزات *fans;* فيسبوكيون *Facebook users;* أكواد *codes;* افلام *films;* سيناريوهات *scenarios;* **(**Al-Jarf, 2024d; Al-Jarf, 2024e; Al-Jarf, 2020b; Al-Jarf, 1994a).

2.8 *Tense and Aspect creation in Arabic*

Arabic distinguishes three primary tenses—Past, Present, and Future—used to express actions situated in past time (e.g., كتب *kataba* 'he wrote', لعبوا /laʕibū/ 'they played'), present time (e.g., يكتب /yaktubu/ 'he writes', يلعبون /yalʕabūn/ 'they play'), and future time, the latter marked not by a separate tense form but by adding the prefix سـ /sa-/ or the particle سوف /sawfa/ to the present tense (e.g., سيكتب /sa-yaktubu/ 'he will write', سيلعبون /sa-yalʕabūn/ 'they will play'). Arabic also encodes aspectual distinctions through the perfect and imperfect: the perfect denotes completed action, typically associated with past time, while the imperfect denotes ongoing, habitual, or non-past action. In Standard Arabic, aspect-tense marking is achieved by adding imperfect prefixes (أ-، ن، ت، ي) to the third-person masculine singular base form (e.g., يكتب، تكتب، أكتب، نكتب). The Past Tense frequently functions as a past perfective ('he did'), whereas progressive or continuous meanings ('he was doing') are expressed analytically through the auxiliary كان *kāna* plus the present tense or active participle (e.g., كان يكتب *kāna yaktubu* 'he was writing'). Additional aspectual nuances such as inchoative or durative meanings may be conveyed through compound verb constructions, as in بدأ يُلفتُ النظر /badaʔa yulfitu an-naẓara/ 'he started to attract attention', where بدأ 'began' introduces an inchoative aspect. The imperative is formed by adding the prefix أُ/ʔu-/ or إِ/ʔi-/ to the perfect-base stem with internal vowel adjustment and is inflected for number and gender, as in masculine singular (أُكتب /u-ktub/, إشرب /i-shrab/), feminine singular (أُكتبي /u-ktubī/, إشربي /i-shrabī/), dual (أُكتبا /u-ktubā/, إشربا /i-shrabā/), masculine plural (أُكتبوا /u-ktubū/, إشربوا /i-shrabū/), and feminine plural (أُكتبن /u-ktubna/, إشربن /i-shrabna/). In addition, every verb has a corresponding active participle (e.g., كاتب /kātib/ 'writer', مدرس /mudarris/ 'teacher') and, in most cases, a passive participle (e.g., مكتوب /maktūb/ 'written'), along with one

or more verbal nouns (المصدر), which function as core components of the Arabic derivational and aspectual system (Al-Asbahy & Aleemuddin, 2016; Eades & Watson, 2013; Al-Jarf, 2024f; Al-Jurf, 1995; Al-Jarf, 1994a).

3. Methodology

3.1 The study corpus
The study was based on thirteen studies published by the author between 2020 and 2025 on the innovative word formation and pluralization process. The studies were categorized into 3 main clusters as follows:

Cluster 1 — innovative derivation
This cluster consists of **seven** studies distributed across three sub-clusters as follows:

Sub-cluster A (derivation from loanwords and foreign lexemes) cluster includes four studies: derivation of verbs from loanwords according to Arabic derivational paradigms *(Al-Jarf, 2024a);* derivation from native and loan acronyms in Arabic *(Al-Jarf, 2023b);* lexical hybridization in Arabic consisting of word formation with foreign affixes *(Al-Jarf, 2023d).*

Sub-cluster B (lexical shortening and blending) consists of two studies: lexical shortening and blending as an innovative word-formation process in Arabic *(Al-Jarf, 2023e);* and clipping of borrowings in spoken Arabic *(Al-Jarf, 2023a).*

Sub-cluster C (hybrid compounds and colloquial morphological innovation) includes two studies: hybrid compounds formed with foreign lexemes in Arabic *(Al-Jarf, 2023h) and* peculiarities of the progressive, perfect and future formation in colloquial Arabic *(Al-Jarf, 2024f).*

Cluster 2 — Innovative plural formation
This cluster consists of five studies grouped into three sub-clusters.

Sub-cluster A (loanword plural patterns) contains one study: exploring rule-based and idiosyncratic loanword plural forms in Arabic *(Al-Jarf, 2024b).*

Sub-cluster B (feminine sound plural variants). includes three studies: gemination and degemination before the feminine sound plural suffix in native and loanwords in Arabic *(Al-Jarf, 2024);* feminine sound plural endings in /ya:t/ and /yya:t/, and /h+a:t/ in native and borrowed words in Arabic *(Al-Jarf, 2024c; Al-Jarf, 2024e).*

Sub-cluster C: social-media-driven pluralization. This sub-cluster consists of one study: pluralization of borrowed social-media terminology in Colloquial Arabic *(Al-Jarf, 2023).*

Cluster 3 — Cross-linguistic plural challenges with a focus on translation-based plural issues.
This cluster contains one study: student-translators' difficulties in translating English and Arabic plurals *(Al-Jarf, 2020).* This study addresses plural-related difficulties that arise specifically in cross-linguistic transfer between Arabic and English.

3.2 Criteria for Inclusion and Exclusion
To be included in the corpus, studies had to meet the following criteria: (1) they must be authored by Reima Al Jarf; (2) they must have been published between 2020 and 2025; and (3) they must contain extractable quantitative or qualitative data relevant to innovative word formation and pluralization processes in Arabic. An external database search was not required because the dataset represents a closed, predefined research program consisting of all translation-related studies authored by Al Jarf during the specified 6-year time frame. This corpus is fully indexed across major academic platforms and constitutes the complete body of the author's research on students' translation errors. As no additional eligible studies exist outside this corpus, conducting an external search would not have yielded new records and was therefore methodologically unnecessary.

Based on these criteria, several studies by the author were excluded because they fall outside the scope of students' translation errors such as duplicate studies presented at conferences as issues in translating English and Arabic plurals (Al Jarf, 2019) and Arabic word formation with borrowed affixes (Al Jarf, 2014); grammaticalization of acronyms in Arabic (Al-Jarf, 2023).

Second, studies on plural acquisition by EFL students such as difficulties in learning English plural formation by EFL college students (Al Jarf, 2022b) and plural acquisition by EFL freshman college students (Al Jarf, 2006b).

Third, studies on teaching and testing English vocabulary to EFL college students where students study word formation and plural forms were excluded as: a multiple associations approach to teaching technical terms in English for specific purposes courses (Al Jarf, 2022a); online vocabulary tasks for engaging and motivating EFL college students in distance learning during the pandemic and post pandemic (Al Jarf, 2022d); specialized dictionary mobile apps for students learning English for engineering, business and computer science (Al Jarf, 2022f); testing multiple vocabulary associations for effective long term learning (Al Jarf, 2023g); learning vocabulary in the app store (Al Jarf, 2022c); multiple Arabic equivalents to English medical terms and translation (Al Jarf, 2018); a model for enhancing EFL freshman students' vocabulary with mind mapping software (Al Jarf, 2015b); teaching medical terminology with mind mapping software (Al Jarf, 2010); teaching vocabulary to EFL college students online (Al Jarf, 2007); making connections in vocabulary instruction (Al Jarf, 2006a); teaching medical terminology with mind-mapping software (Al-Jarf, 2010a); and translation students' difficulties with English Neologisms (Al-Jarf, 2010b).

Fourth, studies on teaching and learning grammar in English as a foreign language where students learn English plural formation were excluded as: grammar podcasts for ESL college students in distance learning (Al Jarf, 2023c); role of instructor qualifications, assessment and pedagogical practices in EFL students' grammar and writing proficiency (Al Jarf, 2022e); how EFL college instructors can create and use grammar iRubrics (Al Jarf, 2020a); what teachers should know about online grammar tasks (Al Jarf, 2017); (Al Jarf, 2011); integrating Elluminate web conferences in EFL grammar instruction (Al Jarf, 2013); empowering EFL teachers and students with grammar iRubrics (Al-Jarf, 2011b); teaching grammar for professional purposes (Al Jarf, 2009); the effects of online grammar instruction on low proficiency EFL college students' achievement (Al Jarf, 2005).

Fifth, studies focusing on the language used on social media including hybrid forms and borrowings were excluded such as: dominance of foreign words over Arabic equivalents in educated Arab speech (Al Jarf, 2011a); impact of English as an international language (EIL) upon Arabic in Saudi Arabia (Al Jarf, 2008); Arab preference for foreign words over Arabic equivalents (Al Jarf, 2016); the language of adult social networks (Al Jarf, 2011d).

3.3 Corpus Characteristics

The corpus demonstrates a level of diversity that reflects the multidimensional nature of innovative Arabic word-formation and pluralization processes. The thirteen studies examined the following phenomena: progressive, perfect, and future tense formation in colloquial Arabic; derivation of verbs from loanwords according to Arabic derivational paradigms; lexical shortening and blending; clipping of borrowings in spoken Arabic; derivation from native and loan acronyms; hybrid compounds containing foreign lexemes; lexical hybridization with foreign affixes; Arabic word formation with borrowed affixes; rule-based and idiosyncratic loanword plural forms; gemination and degemination before the feminine sound plural suffix; feminine sound plural endings in /ya:t/ and /yya:t/ and /h+a:t/; pluralization of borrowed social-media terminology; and difficulties in translating English and Arabic plurals.

Despite the variation in linguistic focus, all studies share a unified objective: to document and classify innovative morphological patterns and to identify the linguistic mechanisms underlying these processes. To maintain methodological coherence, the studies were organized into three thematic clusters based on their specific word-formation or pluralization process. Quantitative outcomes were synthesized within these clusters, while qualitative insights were integrated narratively to interpret morphological patterns and variations across clusters.

3.4 Information Sources

All studies included in the corpus originate from the author's publication record and are publicly accessible across major academic platforms, including Google Scholar, ResearchGate, Semantic Scholar, SSRN, Academia, Harvard Library, and others, with two studies additionally indexed in Scopus. Because the corpus represents a complete and self-contained research program, no external database search was required. The studies were conducted over a five-year period (2020 to 2025), during which the author systematically investigated innovative word formation and pluralization processes in Colloquial and Standard Arabic. This temporal and methodological alignment minimizes intervening variables and allows the SR to isolate innovative word-formation and pluralization processes with a high degree of internal consistency. Synthesizing these studies enables the identification of recurrent and systematic patterns, producing the first comprehensive performance map of innovative word formation and pluralization processes in Arabic.

The corpus covers a wide range of innovative morphological phenomena, including: Progressive, perfect and future verbs in colloquial Arabic; verbs derived from loanwords in Arabic; shortened (clipped) lexical items, innovative blends; clipped borrowings in spoken Arabic; derived forms from native and loan acronyms; hybrid compounds containing foreign lexemes; lexical hybrids containing foreign affixes; innovative forms with borrowed affixes; rule-based and idiosyncratic loanword plural forms; geminated and degeminated consonants before the feminine sound plural suffix in native and loanwords in Arabic; feminine sound plurals ending in /ya:t/, /yya:t/ and /h+a:t/ in native and borrowed words; pluralized social media terminology borrowed in colloquial Arabic; English and Arabic Plurals.

3.5 Data Extraction

From each study, the following information was extracted: sample size; item description; linguistic context; and the specific type of data analyzed. The data types included: progressive, perfect, and future verbs in colloquial Arabic; derived verbs from loanwords, shortened (clipped) words, innovative blends; clipped borrowings in spoken Arabic, derived forms from native and loan acronyms, hybrid compounds containing foreign lexemes, lexical hybrids containing foreign affixes, innovative forms with borrowed affixes, rule-based and idiosyncratic loanword plural forms; geminated and degeminated consonants before the feminine sound plural suffix, feminine sound plurals ending in /ya:t/, /yya:t/ and /h+a:t/ in native and borrowed words, pluralized social-media terminology borrowed in colloquial Arabic, and English and Arabic plurals. Data analysis procedures were also recorded. Quantitative outcomes consisted primarily of percentages, while qualitative outcomes involved classifications of the morphological processes identified. This extraction framework ensured consistency across the thirteen studies and enabled both statistical aggregation and narrative interpretation.

3.6 Data Synthesis

A narrative and thematic synthesis approach was used to integrate findings across the author's five-year research program. Because the corpus consists of conceptually related studies produced within a unified methodological framework, each study was coded for its primary morphological phenomenon, linguistic environment (Standard vs. Colloquial Arabic), source of innovation (native, borrowed, hybrid), and pluralization strategy. These coded categories were then clustered into higher-order themes to trace how specific innovations recur, diverge, or evolve across the corpus.

Data synthesis combined qualitative and quantitative elements. Numerical findings were computed to identify measurable patterns, while qualitative results as classifications of derivational patterns, clipping types, blending structures, hybrid compounds, borrowed affix formations, loanword plural patterns, and feminine sound plural variants, were synthesized narratively within the thematic clusters. This dual-level integration captured both the statistical distribution of morphological outcomes and the deeper linguistic structures underlying innovative word-formation and pluralization processes.

Given the descriptive nature of the data, the synthesis emphasized conceptual integration rather than formal statistical aggregation. By comparing parallel findings across multiple datasets, the review isolates stable morphological tendencies, highlights productive patterns, and maps the broader system of innovative word-formation and pluralization in contemporary Arabic. The resulting synthesis provides a coherent performance map that reflects the internal consistency of the research program and the cumulative insights generated across its individual studies.

3.7 PRISMA Flow Description

The number of records identified corresponds to the complete set of thirteen translation-related studies authored by Al-Jarf between 2020 and 2025. These records were obtained from the author's publication list and cross-verified across Google Scholar, ResearchGate, Academia, Semantic Scholar, SSRN, and Scopus. Because the corpus is predefined and closed, all thirteen records were screened. Each study was confirmed to examine a word-formation or pluralization process and met all inclusion and eligibility criteria. Consequently, all thirteen studies were included in the final synthesis.

4. Results

4.1 Overview

This subsection presents the results of the thirteen studies included in this SR, organized into three thematic clusters representing the major innovative word formation and pluralization processes. Each cluster summarizes the quantitative accuracy measures and qualitative mistranslations reported in the original studies. The results are descriptive and the findings are presented exactly as documented in the primary studies, without interpretation or evaluative commentary.

4.2 Study Characteristics

The thirteen studies included in this review represent a coherent and cumulative research program investigating innovative word-formation and pluralization processes in Colloquial and Standard Arabic. Although each study addresses a distinct morphological phenomenon, all share a descriptive, qualitative, or mixed-methods orientation and employ comparable analytical procedures. The studies vary in scope—from focused analyses of specific derivational patterns to broader examinations of hybrid formations and pluralization strategies—but together they contribute to a unified exploration of morphological innovation in contemporary Arabic.

Across the corpus, the studies examine a wide range of linguistic environments, including native lexical items, loanwords, hybrid constructions, clipped forms, blends, borrowed affixes, and innovative plural patterns. Several studies incorporate quantitative elements, such as frequency counts or distributional patterns, while others rely primarily on qualitative classification and structural analysis. The datasets are drawn from diverse sources, including spoken corpora, social media usage, contemporary colloquial speech, and written materials, reflecting the dynamic interplay between native morphological processes and contact-induced change.

Despite their thematic diversity, the studies share methodological alignment in data collection, coding procedures, and analytical frameworks. This internal consistency allows the review to compare findings across studies, identify recurrent morphological tendencies, and map the broader system of innovative word-formation and pluralization processes documented over the five-year research period.

Cluster 1 — Derivational innovation
Study (1) — Derivation of verbs from loanwords in Arabic according to Arabic derivational paradigms (Al-Jarf, 2024a)

The study analyzed 186 loanwords to examine how Arabic speakers derive verbs from borrowed lexemes and which morphological constraints govern this process. Findings showed that some borrowed verbs enter Arabic unchanged (e.g., *comment, update*), while 41% of the derived verbs represent direct Arabizations of verbs from the donor-language. By contrast, 59% of the verbs are derived from loan nouns for which no verb exists in the source language, showing productive morphological innovation. In 12%, two different verbs are derived from the same loanword, each following a distinct derivational pattern and differing in meaning or transitivity. Across the dataset, derived verbs follow nine Arabic derivational patterns, regardless of the donor language. Speakers extract a consonantal root of three, four, or five consonants from the loanword and insert vowels according to Arabic morphotactic rules. The majority (82%) follow quadri-consonantal paradigms, while 16% follow quinque-consonantal paradigms. The most productive pattern is فعلل /faʕlal/ (46%), followed by فعّل /faʕʕal/ (19%). Quinque-consonantal patterns as تفعلل /tafaʕlal/, account for 9%, while tri-consonantal patterns are least productive (2%). All derived verbs conform to Arabic phonotactic and morphotactic constraints and are widely used in everyday speech. The study concludes that Arabic employs the same strategies for augmenting native verbs when deriving verbs from many loanwords. However, derivation is not always feasible: for some nouns (e.g., country names), verb formation is theoretically possible but not used; for others, extracting a root is morphologically counter-intuitive. The study recommends developing a loanword-based verb dictionary and a dictionary of Arabic derivational patterns to document these emerging forms.

Study (2) — Derivation from native and loan acronyms in Arabic (Al-Jarf, 2023b)

The study examines the derivation of new lexical forms from acronyms, whether native (e.g., DAESH, HAMAS, FATAH) or borrowed (e.g., LASER, AIDS, NATO, WATA, RADAR, GMC, CD). The analysis shows that acronyms pronounced as full words—serve as productive bases for verb, noun, and adjective formation. The most prolific example is DAESH (ISIS), which has generated more than fifty derivatives, including verbs, nouns, adjectives, and nominal patterns such as استدعاش، دعشنة، داعشية، دعششة، داعشي. These forms exhibit significant meaning shifts, moving from the original denotative reference ("Islamic State in Iraq and Syria") to broader negative and pejorative senses referring to violence, brutality, or ideological affiliation. Other acronyms also show derivational productivity. LASER and AIDS yield multiple derived forms, while NATO produces the adjective ناتاوي and agentive nouns such as ناتاوي / ناتاويين, used in political discourse to describe supporters of NATO intervention. These forms typically carry negative connotations and appear frequently in journalistic and social-media contexts. In contrast, acronyms such as GMC, CD, and رادار RADAR show limited derivational potential and primarily take plural suffixes without further morphological expansion. The study identifies the conditions that enable or restrict derivability as phonological shape, semantic transparency, sociopolitical salience, and frequency of public usage. It concludes that Arabic demonstrates a high degree of morphological creativity in extending acronyms into full lexical families, with native and borrowed forms undergoing both class shifts and semantic shifts as they integrate into the language.

Study (3) — Lexical hybridization in Arabic: Word formation with foreign affixes (Al-Jarf, 2023d)

The study investigates hybrid lexemes formed by combining Arabic bases with a range of borrowed foreign affixes, including

-abad, aire-, anthropo-, -ate, -dʒi (Turkish), -cracy/ قراطية, -e, ethno-, -eme, eine, el, Euro-, geo-, hydro-, -ic, -ide, -ism, -ite, li-, -logy, -one, -ous, phobia-, -stan, socio-, -taria, and -topia. The study examined the linguistic status of these affixes, their semantic functions, their productivity, and their distribution across Standard and Colloquial Arabic. Findings showed that specialized hybrid lexemes—typically coined by experts, academics, and language academies—tend to be stable and permanent, appearing in Standard Arabic and formal registers. By contrast, hybrid forms created during the Arab Spring or in humorous and satirical contexts are more transient and appear primarily in Colloquial Arabic. These politically and socially driven hybrids are more prolific, often coined by activists, journalists, commentators, and social-media users, and they frequently carry evaluative or expressive connotations. The study concludes that Arabic demonstrates a high degree of morphological flexibility in integrating foreign affixes into its derivational system. While specialized hybrids form a limited but stable set, socially driven hybrids show rapid innovation but limited longevity. The analysis also highlights the semantic shifts associated with these borrowed affixes and provides recommendations for translating hybrid lexemes across languages.

Study (4) — Lexical shortening and blending as an innovative word-formation process in Arabic (Al-Jarf, 2023e)

This study analyzed a corpus of 170 partial Arabic blends to examine how shortening and merging processes contribute to innovative word formation. Partial blends consisted of a splinter (a shortened constituent such as تركو، انجلو، افرو، أورو، سع، جمهو) combined with a head (a full lexical constituent). The study investigated blended structure, blended types (attributive vs. headed), the locus of shortening, semantic relations between constituents, and the sociolinguistic contexts that favor blend formation. The findings revealed a wide range of structural patterns. These include: (i) compounds with multiple splinters derived from the same lexical items (e.g., فحمس، فشكر، فحسك); (ii) blends with final reduction in the first constituent (e.g., كهرمغنيطيسي 'electromagnetic'); (iii) blends formed with a splinter + the combining vowel /o/ (e.g., تركوخليجي، هندو-إيراني); (iv) three- and four-constituent blends (e.g., الأنجلو-صهيو-فارسي-أمريكي); (v) blends formed from shortened prefixes or adverbs (e.g., قبتاريخ, بيسطري، فوبنفسجي، تحبحري); (vi) blends with initial reduction in the second constituent, producing suffix-like forms such as -el (أمريكائيل); (vii) blends combining splinters with reduced second constituents (e.g., بيروتشيما، عبقريشتاين); (viii) imperfect blends with reductions in both constituents (e.g., متشائل، جزائسطينية); (ix) technical blends (e.g., حمضتلون، برمجاني); (x) blends with overlapping consonants (e.g., عربيزي، سوداناس، أنفمي). Syntactic and semantic analysis shows that blends containing prefix- or suffix-like splinters tend to be exocentric and syntagmatic, whereas most other blend types are endocentric and paradigmatic. The study highlights the productivity and creativity of blending in both Standard and Colloquial Arabic and recommends further testing of blend recognition, comprehension, and interpretation among translation students.

Study (5) — Clipping of borrowings in spoken Arabic (Al-Jarf, 2023a)

This study investigated the clipping of borrowed words in Spoken Arabic, focusing on loanwords that have no clipped or shortened equivalents in their donor languages. While clipping of native Arabic words is relatively limited, the analysis shows that clipping of borrowed lexemes is highly productive, especially in everyday spoken registers. The study classifies clipped borrowings, identifies the most frequent types, and examines the sociolinguistic motivations behind their use. Five major types of clipped borrowings were identified: (i) Back clipping (70%), the most common type, applied to both single and compound borrowings (e.g., ألومنيا/الومنيو 'aluminum', شفر 'Chevrolet', سانتي 'centimeter', هايبر 'hypermarket', الأنتر 'Intercontinental', فيس 'Facebook', واتس 'WhatsApp', كازا 'Casablanca'). (ii) Fore clipping (10%), as in البوم 'album'. (iii) Medial clipping (11%), as in ازهايمر 'Alzheimer', السيما 'cinema', رادو 'radio'. (iv) Complex clipping with phonological changes (9%), such as ricksha (rickshaw) and hilyood (Hollywood). (v) Crasis, involving fusion of elements (e.g., ورشة عمل 'workshop', سكروب 'screwdriver'). The study notes that clipped borrowings are created and used spontaneously by speakers across educational levels, including those with no knowledge of English. University students in English, medicine, and pharmacy programs also coin discipline-specific clippings (e.g., mid 'midterm', cause 'because', lap 'laptop', pharma 'pharmacy', ophtha 'ophthalmology', pedia 'pediatrics'), which they sometimes use in writing. Students describe these forms as "cute, easy, and widely used," especially within their academic peer groups. The study concludes that clipping in Spoken Arabic is driven by economy, ease of articulation, social identity, and group solidarity. It recommends that instructors raise students' awareness of ungrammatical or inappropriate clippings, particularly those acceptable only in spoken Arabic but not in formal English writing.

Study (6) — Peculiarities of the progressive, perfect and future formation in colloquial Arabic (Al-Jarf, 2024f)

This study examined innovative aspectual and temporal markers in spoken Colloquial Arabic, focusing on how particles, lexical verbs, and active participles are used to express progressive, perfect, and future meanings. Data were collected from informants and social-media discourse to trace both current usage and ongoing grammaticalization processes. The analysis shows that futurity is expressed through particles such as باش/ماش and هيا, as well as imperative-like verbs functioning as "let's" constructions (e.g., خلينا، هيا، امشي، قوم). Progressive meaning is conveyed through aspectual particles (عم، عمال), verbs of motion, posture, volition, and sense (e.g., امشي، تعال، قوم، جالس، قاعد، أروح، سامع، شايف), and through active participles. Active participles of motion, posture, and volition verbs exhibit tense ambiguity, functioning as Present Progressive, Past Progressive, or Present Perfect depending on contextual cues such as temporal adverbs. The study also documents cases of grammaticalization,

where active participles undergo processes of desemanticization, decategorization, extension, and erosion, shifting from lexical verbs to aspectual markers. These findings highlight the dynamic nature of aspect marking in colloquial varieties and the emergence of new grammatical functions beyond the traditional past–present–future system.

Study (7) — Hybrid compounds formed with foreign lexemes in Arabic (Al-Jarf, 2023h)

This study examines hybrid compounds created by combining Arabic lexical bases with foreign lexemes or affixes such as *Arabia, book, café, cast, center, co, com, expo, extra, for, gate, hyper, leaks, link, mania, mart, media, meter, mini, mobile, net, pal, pedia, petro, pharma, phone, press, pro, sat, show, soft, super, talk, tech, tic, times, top, tube, ultra, web,* and *wiki*. The analysis explores their structural status within Arabic terminology, their semantic functions, productivity, register distribution, permanence, and the sociocultural motivations behind their creation. Findings show that specialized hybrid compounds—especially those used as names of satellite TV stations, electronic newspapers, news agencies, and companies—tend to be stable and permanent, appearing in Standard Arabic and formal contexts. In contrast, hybrid compounds coined during the Arab Spring, or those used in forums, blogs, TV shows, and newspaper headlines, are more transient, emerging briefly and then disappearing. These socially driven hybrids are more prolific and are typically created by activists, journalists, political commentators, and social-media users. The study identifies several factors motivating the creation of hybrid compounds, including promotional needs, globalization, linguistic economy, and sociocultural trends, as well as the absence of a unified business-naming policy. It concludes that while hybrid compounds reflect creativity and responsiveness to global influences, they may also pose challenges to Arabic linguistic integrity and contribute to lexical instability among younger speakers.

Cluster 2 — Innovative plural formation
Study (8) — Rule-based and idiosyncratic loanword plural forms in Arabic (Al-Jarf, 2024b)

This study investigated how loanwords in Arabic are pluralized and whether their plural forms follow established Arabic morphological rules or develop idiosyncratically. The analysis focuses on the productivity of several pluralization patterns: the Masculine Sound Plural (MSP), the Broken Plural (BP), multiple plural forms, Zero Plural (ZP), Borrowed/Foreign Plural (FP), and Hybrid Plural (HP). A corpus of 265 loanwords from Standard and Colloquial Arabic was compiled from online sources and specialized glossaries. Findings showed that 37% of the loanwords exhibit Zero Plural, particularly in categories such as food and drink (pizza, cappuccino), diseases and medications (bilharzia, Panadol), chemicals (potassium), sports (judo), academic fields (anthropology), non-count nouns (diesel), proper nouns (Congress), genus terms (lavender), and collective nouns (baggage). Additionally, 35% of the loanwords take a Broken Plural, either as their sole plural or as one of several plural options. 22% have double plurals, especially nationalities, ethnicities, religious groups, specialists, and political terms. 16% take a BP such as كادر ← كوادر "cadres". 13% combine an MSP with another plural pattern. 15% retain their foreign plural, e.g., YouTubers, movies, chips, data. A smaller subset (4%) shows multiple plural forms, as in Malay: الماليز (BP), ماليزون (MSP), ماليزيات (FSP). A rare 1.5% exhibit Hybrid Plurals, such as شوزات (shoes + Arabic -āt). Overall, 46.5% of the loanwords follow Arabic pluralization rules (MSP, BP, FSP), even when they have double or multiple plurals. However, the emergence of Foreign Plurals and Hybrid Plurals represents a new morphological phenomenon in Arabic not previously documented in the literature. The study discusses linguistic, sociocultural, and integration-based factors contributing to these idiosyncratic forms and offers pedagogical implications for Arabic, English, and translation instruction.

Study (9) — Gemination and degemination before feminine sound plural suffixes in native and loanwords in Arabic (Al-Jarf, 2024c)

This study examined the phonological behavior of consonants preceding the Feminine Sound Plural (FSP) suffix /-aːt/ in both native Arabic words and loanwords. The analysis focused on identifying which consonants undergo gemination, when degemination occurs, and how vowel–consonant interactions shape the formation of FSP forms. A corpus of 70 loanwords and 70 native nouns and adjectives with FSP forms was compiled from online sources. Findings show that native and loanword stems follow the same Arabic pluralization rules. When a stem ends in a singleton consonant, the suffix /-aːt/ is added directly, as in لمسات /lamasaːt/ "touches" and درونات /droːnaːt/ "drones". Almost all consonant types can be geminated in word-final position; in such cases, the suffix is added without modification, as in فلزّات /filizzaːt/ "metals" and لمّات /lammaːt/ "gatherings". However, when a geminated consonant is followed by a vowel, this vowel is deleted before adding /-aːt/ because Arabic phonotactics do not permit a sequence of two adjacent vowels, as in مودّات /mawaddaːt/ "affections". Several consonant classes in loanwords undergo gemination before /-aːt/, including stops (/p, b, k, g/), fricatives (/f, ʃ, tʃ, dʒ/), and graphemic clusters such as ll, lla, and ette, producing forms like كليبات /klippaːt/ "clips", تريلات /trillaːt/ "trailers", تاتشات /tatʃtʃaːt/ "touches", and مانشيتات /manʃittaːt/ "manchettes". In 48% of the loanwords, the final consonant is not geminated before /-aːt/ due to the presence of a long vowel in the preceding syllable, as in ماركتات /maːrkitaːt/ "markets". Loanwords with feminine singular stems ending in /a/ behave like native Arabic words: the final /a/ is deleted before /-aːt/, as in صالات /Salaːt/ "halls" and كاميرات /kamiraːt/ "cameras", and no gemination occurs because of the preceding long vowel. The study concludes that gemination and degemination patterns in

loanwords align closely with native Arabic phonological constraints. It highlights the interaction between syllable structure, vowel length, and consonant behavior in FSP formation, and offers pedagogical recommendations for language teaching, translation training, and future research.

Study (10) — Feminine sound plural endings /ya:t/ and /yya:t/ in native and loan lexemes in Arabic (Al-Jarf, 2024d)

This study analyzes the conditions under which the Feminine Sound Plural (FSP) endings /ya:t/ and /yya:t/ appear in native Arabic words and loanwords. A corpus of 80 loanwords and 100 native lexemes ending in /ya:t/ or /yya:t/ was examined to determine how glide behavior, vowel shortening, and stem structure influence plural formation. Findings show that when a noun—native or borrowed—ends in the glide /y/ as part of the stem (e.g., ناي /na:y/, قبضاي /qabaDa:y/), speakers form the FSP by directly adding /-a:t/ without further modification, producing نايات /na:ya:t/ "flutes" and قبضايات /qabadaya:t/ "strong-arm men". In native words whose stems end in the graphemes ى or ي pronounced /a:/ or /i:/, the long vowel is shortened and the glide /y/ is inserted as a liaison consonant, yielding forms such as تمنيات /tmanniya:t/ "wishes" and مديات /madayya:t/ "ranges". When a loanword stem ends in the syllable /ya:/, the final long vowel /a:/ is deleted before adding /-a:t/ because Arabic phonotactics prohibit a sequence of two long vowels. This produces forms such as بكالوريا /bakalo:rya/ → بكالوريات /bakalorya:t/ "high-school diplomas". A geminated glide /yy/ appears in the plural of both native and borrowed stems, as in أدبيات /ʔadabiyy+a:t/ "literature", برمجيات /barmadʒiyy+a:t/ "software", سيديات /si:di:yy+a:t/ "CDs", سيلفيات /selfiyy+a:t/ "selfies", باربيات /ba:rbi:ya:t/ "Barbies", and سمفونيات /simfo:ni:yy+a:t/ "symphonies". Two structural analyses account for these forms: (i) The masculine singular stem ends in a geminated /yy/, to which /-a:t/ is directly added. (ii) The stem is a feminine singular noun/adjective ending in /yy/ followed by ta marbūṭa, whose vowel /a/ is deleted when /-a:t/ is added. In both native and loan stems, the vowel preceding the geminated /yy/ is shortened in the plural form, reflecting a consistent phonological constraint across the lexicon. The study concludes with pedagogical implications for translation and language instruction, and calls for further research on glide behavior and plural formation in Arabic loanword morphology.

Study (11) — Feminine sound plurals with /h+a:t/ in native and borrowed words in Arabic (Al-Jarf, 2024e)

This study investigated the occurrence of the Feminine Sound Plural (FSP) ending /h+a:t/ in native Arabic nouns/adjectives and in loanwords from English, French, Italian, Spanish, Portuguese, Farsi, and Turkish. A corpus of 45 loanwords and 80 native lexemes was analyzed to determine the phonological and morphological conditions under which /h+a:t/ appears. Findings show that in native Arabic words, stems ending in /h/ or in ta marbūṭa (pronounced /h/ in pause position) form the FSP by directly adding /-a:t/, indicating that /h/ is an integral part of the stem. In contrast, loanwords often require the insertion of /h/ as a liaison consonant between a final long vowel in the stem and the initial long vowel of /-a:t/, since Arabic phonotactics prohibit a sequence of two long vowels across a stem–suffix boundary. Loanwords from French illustrate a strong orthography–phonology interaction: French words ending in /eɪ/ are spelled in Arabic with final يه, and their plurals take /h+a:t/, as in كليشيهات /kli:ʃeɪ-ha:t/, بوفيهات /bu:feɪ-ha:t/, شاليهات /ʃa:leɪ-ha:t/. Similarly, stems ending in a long vowel (e.g., video, stereo, studio, baby, avenue) take /h+a:t/ in plural forms such as استديوهات /studio-ha:t/, reflecting speakers' assumption of an underlying final /h/. This rule does not apply to loanwords ending in a short vowel, even when vowel shortening occurs through neutralization, as in كيلوات /kilu-wa:t/ and فيتوات /vitu-wa:t/. In a few cases, consonants shift from stem to suffix to satisfy syllable structure constraints. The study shows that Arabic speakers pluralize loanwords intuitively and analogically, applying internalized pluralization rules to foreign stems. Some loanword plurals rhyme with native FSP forms—e.g., كليشيهات، بوفيهات، فيتوات، كيلوات vs. سفيهات، نبيهات، ندوات، فلوات، صلوات—resulting in identical syllable structure and prosodic length across native and borrowed forms. The study concludes with pedagogical implications for translation and language teaching, and calls for further research on the integration of loanwords into Arabic morphological systems.

Study (12) — Pluralization of borrowed social media terminology in colloquial Arabic (Al-Jarf, 2023f)

This study examined how social media loan terminology is pluralized in Spoken Arabic and whether new pluralization patterns have emerged that were not documented in earlier research. A corpus of 146 social-media-related loan terms was verified by 20 students and 5 instructors at the College of Language Sciences, King Saud University, to identify the plural form of each item. Findings showed that 54% of the loan terms take the Feminine Sound Plural (FSP), confirming its status as the most productive plural pattern for borrowed vocabulary. Examples include اكاونتات /akaynt-a:t/ "accounts". Within this category, 16% of stems undergo gemination of the final consonant before /-a:t/ when the penultimate vowel is short, as in بلوجات /blogga:t/ "blogs", كليكات /klikka:t/ "clicks", and ستوريات /sto:riyya:t/ "stories". In other cases, an /h/ is inserted before /-a:t/ when the stem ends in the long vowel /u:/, producing forms such as استديوهات /studio-ha:t/ "studios". Approximately 22% of the loan terms take a Zero Plural, including voice call, timeline, status. Another 17.6% retain the English plural form, such as followers and threads. Only 3% take a Masculine Sound Plural, e.g., فيسبوكييين /feysbukkiyyu:n/ "Facebookers", and 3% take a Broken Plural, e.g., أكواد /ʔakwa:d/ "codes". A further 3% exhibit double plurals, such as كودات /koda:t/ and أكواد /ʔakwa:d/, or اليوتيوبرية /yu:tu:bariyya/ and يوتيوبرز /yu:tyu:barz/. In one case, the FSP suffix /-a:t/ is added to an already plural English form (fans + a:t). Consistent with prior research, the FSP remains the default pluralization strategy for loanwords in colloquial Arabic. However, this study identifies two

new pluralization processes not previously reported: (i) Adopting the English plural form as the Arabic plural. (ii) Adding /-a:t/ to the English plural form of the loanword. The study concludes with recommendations for further research on morphological borrowing and plural innovation in Arabic.

Cluster 3 — Cross-linguistic plural challenges: translation-based plural issues.
Study (13) — Student translators' difficulties in translating English and Arabic plurals (Al-Jarf, 2020b)

This study investigated undergraduate students' difficulties in translating plural forms between English and Arabic. Results from a bilingual plural-translation test showed that students performed well only when plural structures in both languages were formally and semantically aligned. However, several plural categories posed persistent challenges. Students struggled with: (i) Arabic plurals with singular English equivalents, e.g., مجوهرات → jewellery. (ii) Arabic dual forms with two distinct singular stems, e.g., الرافدان "the Tigris and Euphrates". (iii) Multiple Arabic plurals (plurals of paucity vs. multiplicity), e.g., دجاج vs. دجاجات. (iv) Stems with two plurals and different meanings, e.g., اقتصاديات "economics" vs. اقتصادات "economies". (v) Plural compounds, e.g., معالجات الصور "image processors". (vi) English nouns ending in -ies with identical singular/plural forms, e.g., series, species. (vii) Lexemes with singular–plural contrasts tied to part of speech, e.g., rich/riches, wood/woods. (viii) Latin/foreign plurals, e.g., indices, larvae, tempi, oases. (ix) Tools and clothing items with dual-part morphology, e.g., scissors, scales, and their Arabic equivalents. Error analysis revealed that students made more errors in translating Arabic plurals to English than English to Arabic, and produced more interlanguage than intralanguage errors. Morphological difficulties dominated the Arabic-to-English items, whereas semantic difficulties were more common in the English-to-Arabic direction. Students tended to translate imitatively rather than analytically, relying heavily on literal translation. When unable to retrieve meaning, they produced phonologically similar forms, paraphrases, explanations, or unrelated equivalents. The study concludes that plural translation involves bidirectional transfer, with students projecting morphological features from the source language onto the target language regardless of whether the source is Arabic (L1) or English (L2). Pedagogical implications for teaching plural translation are provided.

5. Discussion

5.1 *Meta-Synthesis and Interpretation*
Across the thirteen studies synthesized in this SR, a clear and coherent pattern emerges regarding the innovative word-formation and pluralization processes in Arabic. Despite the diversity of the data sources—ranging from innovative aspectual and temporal markers in Colloquial Arabic, to derived verbs from loanwords, lexical shortening and clipping, novel blends, and the clipping of borrowings—the studies consistently pointed to a stable underlying system. The same applies to derivation from native and loan acronyms, hybrid compounds combining Arabic and foreign lexemes, lexical hybrids incorporating foreign affixes, and innovative formations built on borrowed morphological material. Even in areas where variation might be expected—such as rule-based versus idiosyncratic plural forms of loanwords, gemination and degemination before the feminine sound plural suffix, feminine plurals ending in /ya:t/, /yya:t/, and /ha:t/, and the pluralization of borrowed social-media terminology—the findings converge on a set of predictable morphological behaviors. Together, these studies reveal that innovation in Arabic word formation is not random or chaotic; rather, it operates within a flexible but rule-governed morphological system that accommodates both native structures and foreign inputs while maintaining internal coherence.

Building on these converging findings, the synthesis reveals that innovation in Arabic morphology is shaped by a dynamic interaction between system-internal constraints and contact-induced pressures. Native morphological templates—especially root-and-pattern derivation, broken plural schemas, and sound plural suffixation—continue to function as the dominant organizing principles, even when the lexical input is foreign. Borrowed items are typically naturalized through predictable processes such as feminine sound pluralization, gemination adjustments, and analogical extension of native patterns to foreign bases. At the same time, the studies show that sociolinguistic environments, particularly digital communication, social media, political discourse, and youth slang, serve as incubators for rapid morphological experimentation, producing blends, clipped forms, hybrid compounds, and novel affixations that circulate widely before stabilizing or disappearing. This interplay between structural regularity and sociolinguistic creativity suggests that Arabic morphology is not merely resilient in the face of borrowing and innovation; it is actively generative, capable of absorbing new lexical material while preserving the integrity of its core morphological architecture.

5.2 *Cross-Cutting Insights*
Across the diverse domains examined in the thirteen studies - covering derivation, blending, clipping, hybridization, acronym-based formations, and loanword pluralization—a set of cross-cutting insights is evident. First, innovation in Arabic word formation consistently operates through analogy, with speakers extending familiar native patterns to novel lexical inputs, whether foreign or newly coined. Second, the studies together show that morphological productivity is gradient rather than binary: some processes, such as feminine sound pluralization of borrowings or the integration of foreign affixes, display high

productivity, while others, such as idiosyncratic plural forms or politically motivated hybrids, remain context-bound and ephemeral. Third, phonological adaptation was found to be a pervasive mechanism shaping both word formation and pluralization, influencing gemination, vowel deletion, syllable reduction, and the naturalization of foreign phonotactics. Fourth, the findings highlight the role of sociolinguistic environments, particularly digital communication, youth culture, and political discourse, as catalysts for rapid morphological experimentation, accelerating the spread of blends, clipped forms, and hybrid compounds. Finally, the studies converge on the insight that Arabic maintains a stable morphological core that absorbs foreign material: innovation does not undermine the system but rather demonstrates its elasticity, allowing Arabic to expand its lexicon while preserving its structural identity.

5.3 *Implications*

Findings of this SR entail important implications for the study of Arabic morphology, language change, and linguistic theory. First, the patterns observed across innovative formations—whether blends, hybrids, clipped forms, acronym-based derivations, or loanword plurals—demonstrate that Arabic possesses a highly adaptive yet rule-governed morphological system capable of integrating foreign material without compromising its structural integrity. This challenges the long-standing assumption that root-and-pattern morphology is resistant to external influence, showing that speakers actively extend native templates to new lexical domains. Second, the productivity of feminine sound pluralization for borrowed nouns, the naturalization of foreign affixes, and the emergence of hybrid compounds highlight the central role of analogy as a mechanism of morphological expansion. Third, the rapid spread of innovative forms in digital communication, social media political discourse, and youth slang underscores the need to view Arabic not as a static classical system but as a living, socially embedded linguistic ecology in which sociopolitical events and technological platforms accelerate morphological innovation. Finally, the coexistence of rule-based and idiosyncratic plural forms, as well as the interplay between phonological adaptation and morphological patterning, suggests that Arabic offers a valuable testing ground for theories of morphological productivity, contact-induced change, and gradient lexicalization. Together, these implications point to a language that is both structurally resilient and dynamically responsive to contemporary communicative pressures.

5.4 *Future Research Directions*

The synthesis of the thirteen studies highlights several promising ideas for future research on Arabic word formation and pluralization. First, future studies should explore psycholinguistic and acquisition-based dimensions, examining how speakers process emerging morphological patterns, how children and L2 learners internalize hybrid forms, and whether borrowed affixes and innovative plurals become cognitively entrenched. Secondly, given the rapid linguistic shifts driven by digital communication, social media, political discourse, and globalization, longitudinal studies are needed to determine which of the current innovative forms have disappeared and which ones have become stable components of the modern Arabic lexicon, offering insight into the mechanisms of morphological change in real time. Finally, future research should focus on tracing *new* innovations as they emerge in different dialectal, social media, and technological environments. As Arabic continues to evolve, the appearance of additional hybrids, clipped borrowings, and affixal extensions will provide fresh data for understanding the ongoing expansion of the Arabic morphological system.

6. Recommendations

Based on the patterns identified across the thirteen studies, several recommendations emerge for researchers, educators, and lexicographers working with contemporary Arabic morphology. First, researchers, lexicographers and dictionary committees are encouraged to systematically document high-frequency neologisms, especially those arising from digital communication and social media, to ensure that modern usage is accurately reflected in reference works. Secondly, educators and curriculum designers should incorporate explicit instruction on contemporary morphological innovation into Arabic linguistics courses, helping students understand how native patterns interact with foreign inputs and how new forms become integrated into the lexicon. Thirdly, interdisciplinary collaboration between linguists, computational modelers, and sociolinguists is recommended to develop automated tools capable of identifying, classifying, and predicting innovative formations in real time. Fourth, given the rapid pace of linguistic change in digital environments, ongoing monitoring of emerging forms is essential to maintain an up-to-date understanding of how Arabic continues to evolve as a flexible, adaptive, and richly generative morphological system. Fifth, the innovative word formation processes should be utilized as a bases for expanding scientific and technical terms in Arabic, not only Colloquial Arabic words. Finally, educators and decision-makers should be aware of the dangers caused by the substitution of pure Arabic words with pure Arabic morphology by idiosyncratic plurals of foreign substitutes.

7. Conclusion

This systematic review demonstrates that innovative word-formation and pluralization processes in Arabic—whether based on borrowing, blending, clipping, hybridization, acronym-based derivation, or the naturalization of foreign affixes—are not random deviations but manifestations of a flexible, deeply structured, and highly adaptive morphological system. Across the thirteen studies synthesized, a consistent picture emerges: Arabic maintains a stable morphological core rooted in its architecture while

simultaneously accommodating new lexical material generated by globalization, digital communication, social media, and sociopolitical change. The interplay between native templates and foreign inputs reveals a language that is both resilient and generative, capable of expanding its lexicon through analogy, phonological adaptation, and sociolinguistic creativity. These findings underscore the importance of viewing Arabic as a dynamic linguistic ecosystem in which innovation and tradition coexist productively.

Looking ahead, the fast lexical change in digital and transnational contexts highlights the need for continued, systematic monitoring of emerging forms. Future research would benefit from longitudinal corpora, cross-dialectal comparisons, psycholinguistic studies of morphological processing, and computational modelling of neologism diffusion. Such work will not only deepen our understanding of how Arabic evolves in real time but also contribute to broader theoretical debates on morphological productivity, contact-induced change, and the mechanisms through which languages adapt to new communicative realities.

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