PDT FOR **A**RABIC

MANUAL FOR CHOSEN PROBLEMS OF SYNTACTICAL ANALYSIS OF ARABIC

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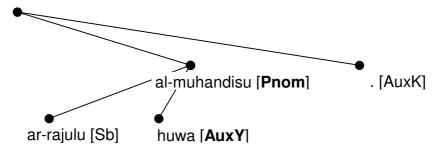
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Note: This manual focuses on the less intelligible phenomena of the Arabic syntax. For introduction to the principles of dependency annotation, consult the PDT Manual for Czech.

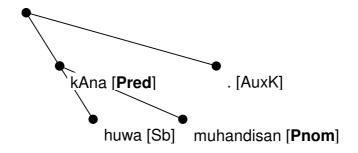
1. Pronouns

1.1. Independent pronouns

- Include the following: anA, anta, anti, huwa, hiya, naHnu, antum, antumA, hum, hunna, humA.
- Independent pronoun plays either a clearly grammatical role, where it is present only for elimination of the influence of the determination (*ar-rajulu huwa al-muhandisu*) or fully represents the noun (*kAna huwa mudarrisan*, *anA mudarrisun*).
- In case of a grammatical function, it is dependent on the name whose determination it eliminates, with an auxiliary function **AuxY**.

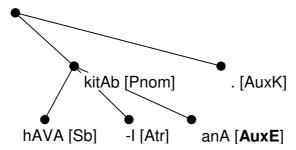


ar-rajulu [Sb] huwa [AuxY] al-muhandisu [Pnom] . [AuxK]



kAna [Pred] huwa [Sb] muhandisan [Pnom] . [AuxK]

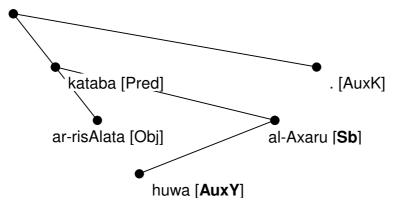
- If it stands for a name, then it takes over its function (esp. Sb, Pnom or as emphasizing attribute in *hAVA kitAbl anA*).



hAVA [Sb] kitAb [Pnom] -I [Atr] anA [AuxE] . [AuxK]

- The special phrase *huwa al-Axaru* meaning "also, as well...": Standing alone, it plays the role of the respective sentence member. The governing node is *al-Axaru* (receiving the respective function), under which there is *huwa*, *hiya*, etc. as an auxiliary particle (AuxY) (*wa-kataba ar-risAlata huwa l-Axaru*). If the phrase

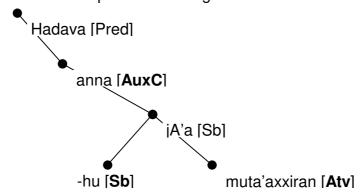
relates to a noun, it is considered a standard attribute (Atr), *huwa* being again an auxiliary (AuxY) (*wa al-mu'allifu huwa al-Axaru yuHibbu-hA*).



kataba [Pred] ar-risAlata [Obj] huwa [AuxY] al-Axaru [Sb] . [AuxK]

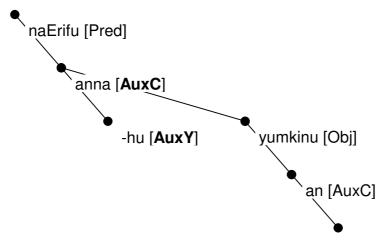
1.2. Suffixed pronouns after the sisters of anna

 Suffixed pronoun standing as a representative of a real sentence constituent is dependent on the predicate of the clause (hadava anna-hu jA'a muta'axxiran).
 Functional description: according to the constituent it represents.



Hadava [Pred] anna [AuxC] -hu [Sb] jA'a [Sb] muta'axxiran [Atv]

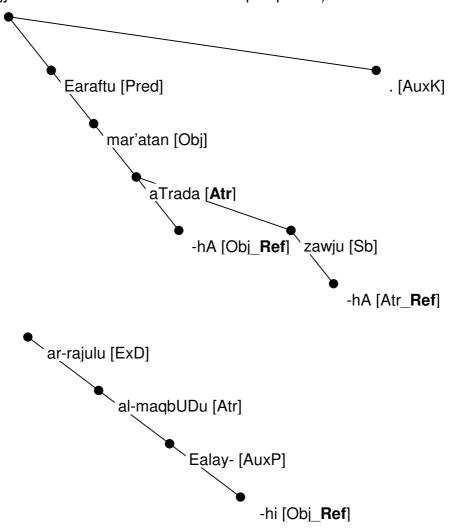
- <u>Formal -hu</u> is dependent directly on the conjunction (sister of *inna*), so that it does not confuse the syntax of the following clause to which it does not really belong (*naErifu anna-hu yumkinu ...*). Functional description: **AuxY**



naErifu [Pred] anna [AuxC] -hu [AuxY] yumkinu [Obj] an [AuxC]

1.3. Referential suffixed pronouns

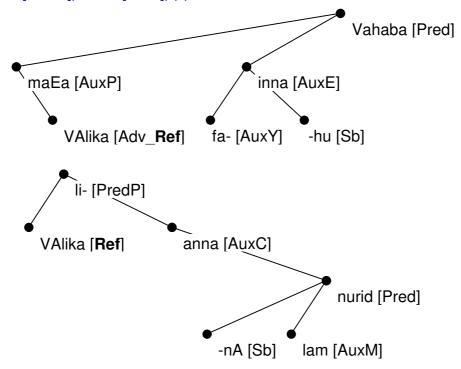
- In the following cases: 1) pronoun referencing an antepositioned sentence member 2) pronoun in a relative (attributive) clause 3) postponed pronoun conditioned by the verb government – at passive forms of verbs with fixed governing, passive participles of these verbs and masdars
- In all the cases the pronoun takes the corresponding syntactical position in the tree and also the corresponding function, which receives the suffix **_Ref**
- Examples: ad 1) inna al-IAha [Ante] nu'minu bi-hi [Obj_Ref] (see 6.2 below) ad 2) Earaftu mar'atan aTrada [Atr] -hA [Obj_Ref] zawju-hA [Atr_Ref] ad 3) ar-rajulu al-maqbUDu Ealay-hi [Obj_Ref] (but in the case qubiDa Ealay-hi [Obj] there is no suffix since -hi is not postponed)



1.4. Referencing pronoun VAlika (resp. hAVA)

- VAlika and hAVA most often serve as common demonstrative pronouns (function Atr, positioned under the specified substantive)
- If standing independently, they refer to a given semantic unit (sentence, expression) which comes before them and they are purely formal (i.e. they are not translated as "it" or "that"), then they are viewed at as referential.
- In such a case, the pronoun will get a function corresponding to its position in the sentence (often Adv) and a suffix _Ref. If it fully represents the preceding sentence, it receives Ref as its primary function.

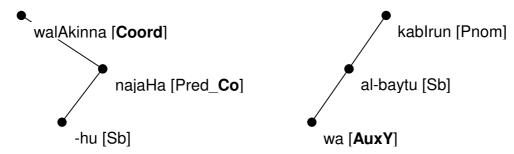
- Examples: (maEa [AuxP] (VAlika [**Adv_Ref**])) ((fa- [AuxY]) inna [AuxE] (-hu [Sb])) Vahaba [Pred] and VAlika [**Ref**] (li- [AuxP] (anna [AuxC] ((-nA [Sb]) (lam [AuxM]) nurid [Pred])))



2. Conjunctions

2.1. Contextual coordinative conjunctions

- Here fall cases when a coordinative conjunction stands at the beginning of a sentence.
- Among the coordinative conjunctions, there are esp. wa, kamA, walAkin(na), walA, immA, aw, am, iV, gayra anna (for the sisters of inna, see 6 below)
- The function of the conjunction (particle) is often determined by the context: it can keep its coordinative function with regard to the preceding sentence (in Czech, this is the way to handle all the cases *walAkinna-hu najaHa*) or it can be only a pure separator (*wa*) or emphasizor (*fa*-) *wa al-baytu kabIrun*

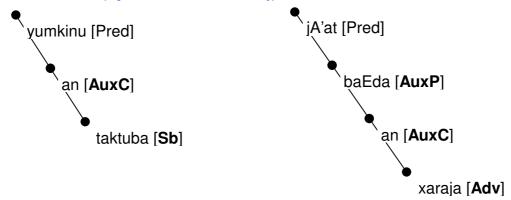


 The functional description of such a node is Coord (then, conjunctions stand above the predicate as in the case of a full coordination) resp. AuxY resp. AuxE

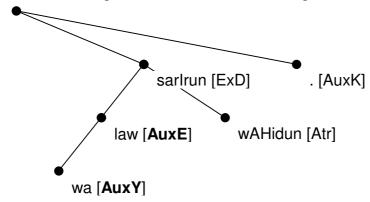
2.2. Subordinative conjunctions

- They include: in, an, allA, li-an, li-allA, kay, li-kay, kaylA, lammA, iVA, law, anna, inna (only after qAla), bi-mA and others.

- A full set of subordinative conjunctions can be defined rather as a complement to the set of coordinative conjunctions.
- They bind two sentences, they depend on the predicate of the main clause and stand above the predicate of the subordinate clause (*yumkinu an taktuba*) having the functional description **AuxC**.
- If the first part of the conjunction is a preposition, then it keeps the function AuxP and only under it is the conjunction itself (function AuxC, e.g. baEda an, munVu an, also li-an, etc.) (jA' at baEda an xaraja

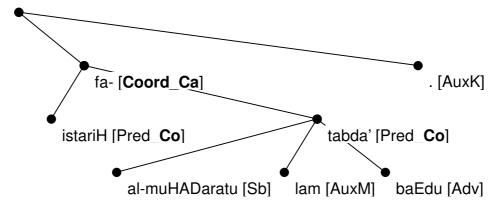


law can be found also in a function of an emphasizing particle (wa law sarlrun wAHidun – here it gets function AuxE, wa is regarded as auxiliary AuxY)

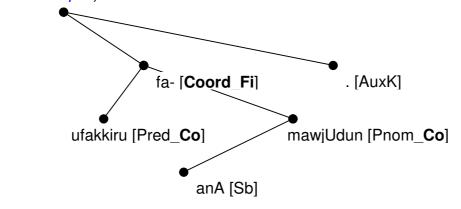


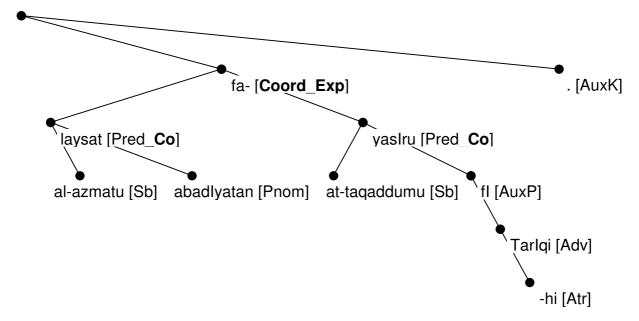
2.3. Conjunction fa- (fa- auxiliary, modificatory, coordinative)

- Besides the function as a conjunction, *fa* can also be an auxiliary particle (cf., e.g., the bullet on the antepositioned member in case it introduces the main clause). In such a case it gets a function **AuxY** and is dependent on the word introduced by it. In a case of an evident emphasis, it receives function **AuxE**
- In rare cases, when fa- indicates a change of a subject, it stands under the verb, with function AuxM



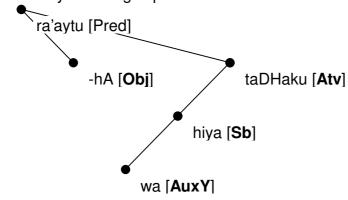
In other cases, fa- is a typical coordinative conjunction **Coord**, although it can receive three possible (and relevant) semantical variations. These are distinguished by the suffixes: 1. causal fa- [Coord_**Ca**] (istariH fa-l-muHADaratu lam tabda' baEd), 2. final fa- [Coord_**Fi**] (ufakkiru fa-anA mawjUdun), 3. explicative fa- [Coord_**Exp**] (laysat al-azmatu abadlyatan fa-t-taqaddumu yaslru fl Tarlqi-hi)





2.4. Conjunction wa- (waw coordinative, auxiliary, state)

- Most frequently, wa stands as a classical coordinative conjunction Coord
- Similarly as *fa* it can be also a purely formal particle (e.g., at a beginning of a clause without a real coordinative meaning), then it is dependent on the immediately following expression with function **AuxY**



- Clause introduced by waw of state is understood as complement clause, the waw itself is auxiliary **AuxY** and hangs under the following word, e.g. ra' aytuhA wa-hiya taDHaku.

3. Particles

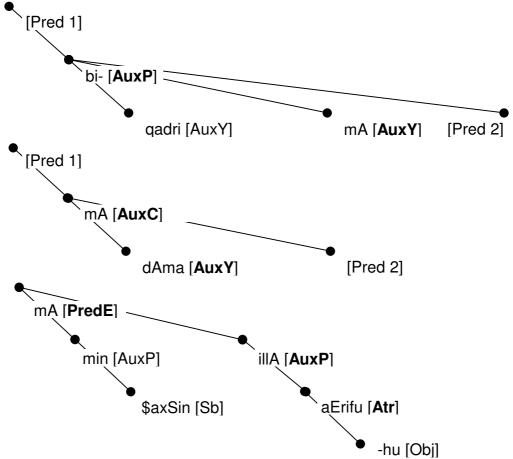
3.1. Particle mA in general

- It is either a verbal negation **AuxM** (cf. the item on verbal particles)
- Or a dependent part of a compound conjunctions (*mimmA*, *HInamA*, *bajnamA*, *bimA* anna, *kamA*, *iVA mA*, *bi-qadri mA*, *bi-mivli mA*) here, *mA* is always separated and is dependent as **AuxY** under the key expression (part) of the compound conjunction

Attention: at structures of the type of the last two examples, the noun is regarded as Adv and the sentence after mA as Atr, in other cases, the first expression gets AuxC and the clause after mA gets Adv.

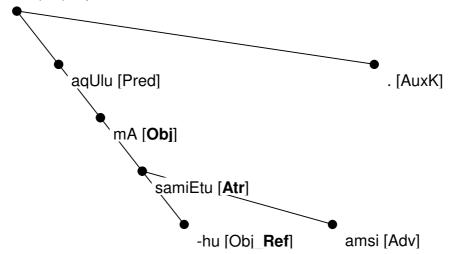
Caution: at *mimmA* we have to distinguish a coordinative conjunction ("which") and a pronoun after a preposition ("min + mA" – from that …) – for the second case, see the last bullet

In two cases it can be a real conjunction mA lam, mA dAma – AuxC
 (lam belongs to its verb as a negation, dAma is AuxY under mA)



- Rarely a type of a existential predication – **PredE** (similarly as *IA*– cf. the item on predications, 7.3 below) *mA* [*PredE*] (*min* [*AuxP*] (*\$axSin* [*Sb*])) (*illA*[*AuxP*] (*aErifu*[*Atr*]-*hu*[*Obj*])) – not to confuse with 3.2 below!

In other instances it is a real pronoun with the corresponding analytical function, which governs the relative (attributive) clause. The pronoun thus takes its position in a main clause, under it is the predicate of the relative clause with the function (Atr) agUlu mA samiEtu-hu amsi.

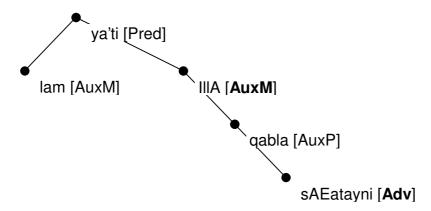


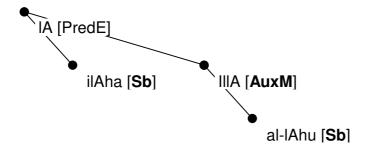
3.2. Verbal particles influencing a verb (esp. negative particles)

- They include: *lam, lan, IA, mA* (as a negative particle), *sa, sawfa*.
- They are hanged UNDER its verb.
- Functional description: **AuxM** (verbal "modificators")
- Note: in case of mA it can be also a negative particle connected with a substantive in such a case, it hangs under such a name as in ((mA [AuxM]) min (\$axSin)) = nobody (cf. 3.1 above).

3.3. Particle illA (and siwA in analogical constructions)

- Can be found in many syntactic positions; it always negates the preceding part of the expression and in a reverse sense is applied to the following part (elipsis). It is inserted between the negated and the negating expressions.
- It is a type of a negative particle, and thus receives function **AuxM**.
- Expression introduced by this particle takes its usual syntactical position including the analytical function.
- Examples: (lam [AuxM]) ya'ti [Pred] (illA [AuxM] (qabla [AuxP] (sAEatayni [Adv])) , IA [PredE] (ilAha [Sb]) (illA [AuxM] (al-IAhu [Sb])) and as in 3.1 above





3.4. Emphatic particle

- Here belong qad (after a perfect), laqad, innamA, iVan, la, inna, anna, HattA.
- They are usually dependent on a predicate.
- inna is emphatic always with the exception of occurrence after the verb *qAla* (in such a case, it is AuxC), anna is emphatic only if it is a separable part of a conjunction or if it does not introduce an objective clause.
- *inna* and *anna* as emphatic particles hang above the name they govern, i.e. between the name and its predicate.
- HattA is emphatic with the exception of adverbials (esp. temporal HattA as-sAEati as-sAdisati), where it fulfills the function of a preposition AuxP, and excluding also the standard conjunction (AuxC) introducing a subjunctive.
- Functional description: AuxE

3.5. Emphasis of a predicate by means of the particle innamA

- The particle *innamA* is always arbitrary emphasis of a verb and does not play any other function (neither coordinative).
- Case of a sentence with *EindamA* ... innamA ... is a standard conditional clause with subordinative conjunction *EindamA* and the particle *innamA* is not obligatory (such as here e.g. *fa*-).
- innamA always gets function AuxE.

3.6. Other particles

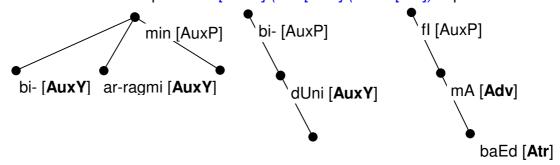
- Here belong esp. qad (after imperfect), hal, a.
- They hang under the verb/predicate.
- Functional description: AuxY

4. Prepositions and adverbials

4.1. Compound prepositions and adverbials

- Here belong the following types of compound expressions:
 - Compound prepositions of the type (**preposition-)noun(-attribute)- preposition** (e.g. *bi-r-ragmi min, natljatan li-, bi-n-nisbati ilA, ibtidA'an min, naqlan Ean, taqdlran li-, min xilAli, min bayni, bi-l-qadri l-kAfl li-)* very frequent.
 - Compound prepositions of the type **preposition-noun(-attribute)** (e.g. *bi-dUni, bi-ragmi, bi-mA fl VAlika*).
 - Expressions which are not "emptied" and are structurally and semanticaly valid (e.g. *fl mA baEd*).
- These individual cases are analyzed in the following way:

- The last preposition takes over the function AuxP, the remaining parts of the expression/phrase hang directly under it with functions AuxY (bi- [AuxY]) (ar-ragmi [AuxY]) min [AuxP].
- The first preposition takes over the function AuxP, remaining words hang directly under it as AuxY *bi-* [AuxP] (dUni [AuxY].
- The structure of the phrase fl [AuxP] (mA [Adv] (baEd [Atr]) is preserved.

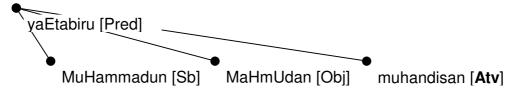


Note: dUna, ragma etc. occurring individually are considered as AuxP.

5. Verb

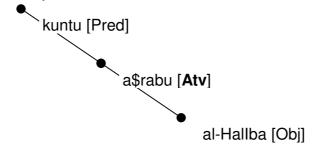
5.1. Sisters of *kAna* (incl. auxiliary and modal verbs)

- Here belong *kAna, aSbaHa, iEtabara, jaEala, Zalla, zAla, maDA* and others, incl. boundary instances such as *axaVa* etc.
- They are a subset of standard verbs and in a main clause, they bear the usual function **Pred**, in subordinate clauses they take the corresponding function of the respective clause.
- The predicative phrase itself is in a relation of a Verbal Attribute (Atv) to the governing verb (as follows from the analogy *i\$tagala muhandisan* ~ *kAna muhandisan*), its function is **Atv**.
 - (The only exceptions are verbs *kAna* and *laysa*, and also *iEtabara* and *Eadda* as mere copula in such a case, the predicate is labeled as Pnom)
- Example: yaEtabiru [Pred] (MuHammadun [Sb]) (MaHmUdan [Óbj]) (muhandisan [**Atv**])

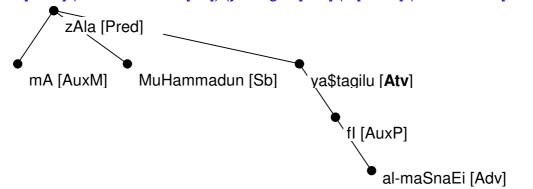


5.2. Compound verbs

- Here belong forms like aSbaHa yaktubu, mA zAla yaEmalu, waqafat tanZuru, but also kAna ya\$rabu etc.



- The principle of the representation of compound verbs is completely identical as at the sisters of *kAna*, the function of the verbal attribute is taken over by the autosemantic verb instead of a noun.
- Examples: kuntu [Pred] (a\$rabu [**Atv**] (al-Hallba [Obj])) and (mA [AuxM]) zAla [Pred] (MuHammadun [Sb]) (ya\$tagilu [**Atv**] (fl [AuxP] (al-maSnaEi [Adv]))



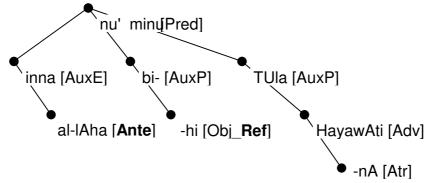
6. Syntactic phenomena

6.1. Subject

- The basic characteristics of the subject: it always occurs directly, not after a preposition and it is in nominative.
- After particles from the group of sisters of *inna* and after an absolute negation *IA* it is in accusative.
- An exception is a phrase with the preposition *min* in cases when it expresses a pure relation of a part and a whole (the subject here is in genitive).

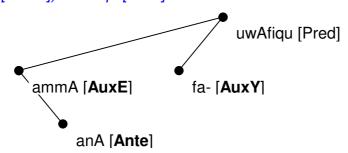
6.2. Antepositioned verbal member

- It is formed by means of particle *inna* and a referencing pronoun on the original position of the advanced member **Ante**.
- If it is not a subject, then the antepositioned member has to receive a special function, because the real grammatical role in a sentence is played by the referencing pronoun.
- Antepositioning resp. emphatic particle *inna* hangs between the predicate and the antepositioned member; functional description: AuxE
- The referencing pronoun within the sentence frame will receive a function corresponding to that of the sentence member before the anteposition.
- A pronoun in this role gets a suffix _Ref to its function, so that it is obvious to where it is referencing (inna [AuxE] (al-IAha [Ante])) nu' minu[Pred] (bi- [AuxP] (-hi [Obj_Ref])) (TUla [AuxP] (HayawAti [Adv] (-nA [Atr]))).



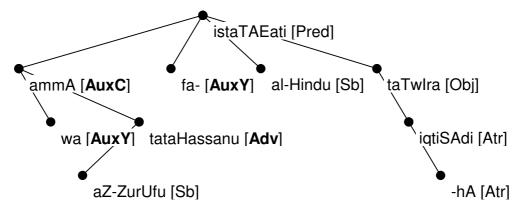
6.3. Phrase ammA...fa...

- In fact, it is also a certain type of anteposition, to a great deal identical with the one above, but with much looser relation of a sentence and antepositioned member. Here this member only limits its validity.
- Antepositioned member in this case can (but does not have to) be a subject of the sentence. If it is, then contrary to a classical anteposition by means of inna it does not need a referential pronoun, as in (ammA [AuxE] (anA [Ante])) (fa-[AuxY]) uwAfiqu [Pred].



- Particle *ammA* will take the same position and will receive the same function as emphatic *inna* (cf. above, **AuxE**); it is also the governing node for the antepositioned phrase (i.e., everything between *ammA* and *fa*-)
- If *ammA* introduces adverbial phrase after a preposition, the structure will remain the same, i.e. *ammA* will be the governing node for the preposition (e.g. *ammA* [AuxE] bi-n-nisbati la-nA [Adv]).
- The fa- itself will hang on the predicate with auxiliary function **AuxY**.

6.4. Phrase ammA wa ... (sub-clause) fa ... (main clause)

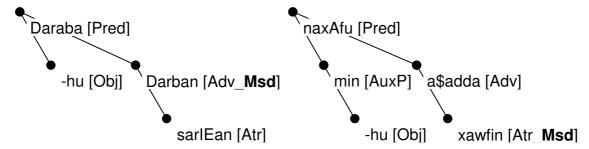


- This is a different case than the preceding bullet, since the particle *ammA* stands here in the function of a subordinating conjunction (**AuxC**), semantically it is a determination of a cause ("since ..."), see (*ammA* [**AuxC**] ((wa [**AuxY**]) (aZ-ZurUfu [Sb]) tataHassanu [**Adv**]) (fa-[**AuxY**]) istaTAEati [Pred] (al-Hindu [Sb]) (taTwlra [Obj] (iqtiSAdi [Atr] (-hA [Atr]))) above.
- The subordinate clause is adverbial, wa and fa- are regarded as auxiliary AuxY.

6.5. Accusative of the inner object (figura etymologica)

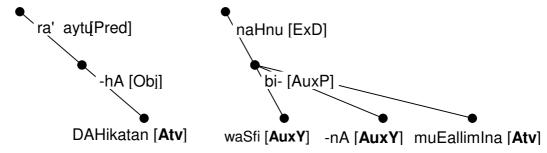
- Represents the following types of constructions: Daraba-hu Darban sarlEan, naxAfu min-hu a\$adda xawfin
- In such cases, there is a need to indicate the semantic adherence of a masdar to its verb, in order to avoid possible mechanical translations ("we fear him by the strongest fear")

- Solution: all the words will keep their usual positions in the tree as will their analytical functions, and the form of a masdar will suffix a token **_Msd** to its analytical function.
- Examples: Daraba [Pred] (-hu [Obj]) (Darban [Adv_Msd] (sarlEan [Atr])), naxAfu [Pred] (min [AuxP] (-hu [Obj])) (a\$adda [Adv] (xawfin [Atr_Msd]))



6.6. Verbal attribute (complement) – general rules

- Due to a possibility of occurrence of both subjective and objective attributes (complements) in one sentence it is necessary to hang the objective attributes to the object itself, e.g. ra' aytu[Pred] (-hA [Obj] (DAHikatan [Atv])).
- Subjective attribute hangs directly on predicate (since the subject need not be explicit).
- The second part of compound verbs (i.e. the autosemantic verb after sisters of *kAna*) also hangs on the predicate.
- Complement of elative forms in comparison hangs directly on that elative.

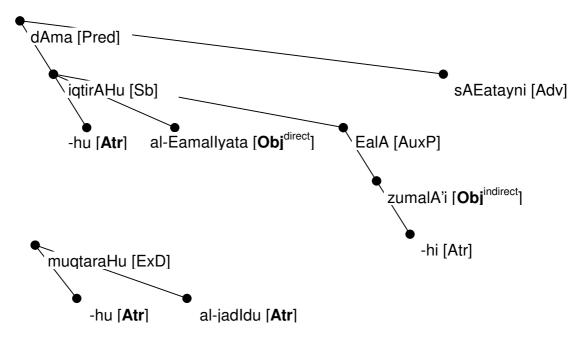


6.7. Expression of verbal attribute by standardized phrases

- Here belong phrases like bi-EtibAri, bi-waSfi, bi-Sifati, min Hayvu huwa.
- These phrases have purely grammatical function, similarly as prepositions, they
 only introduce the verbal attribute itself.
- If the verbal attribute itself is identified by the function **Atv**, then it is possible to mark the auxiliary form by an "empty function" **AuxY** or introduce a function of the type AuxAtv etc.
- Example: naHnu (bi- [AuxP] (waSfi [AuxY]) (-nA [AuxY]) (muEallimIna [Atv]))

6.8. Preservation of the verbal governing of masdars, participles and elatives

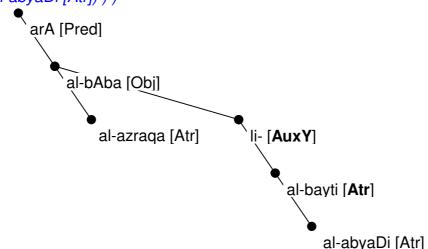
- From the point of view of the understandability of the analysis, it is adequate to look at the mentioned forms as being verbal and preserve the original verbal governing rather than produce many undistinguished attributes of a noun.
- Verbal governing covers direct and indirect objects (i.e. strong prepositional governing of the verb).
- Complex examples: dAma [Pred] (iqtirAHu [Sb] (-hu [Atr]) (al-Eamallyata [Obj^{direct}]) (EalA [AuxP] (zumalA'i [Obj^{indirect}] (-hi [Atr])))) (sAEatayni [Adv]) and muqtaraHu [ExD] (-hu [Atr]) (al-jadldu [Atr])



- A mixing of verbal/nominal interpretation of the function of masdar can happen: iqtirAHuhu al-jadldu [Atr] EalaynA [Obj^{indirect}] ...

6.9. Preposition li- breaking the genitive construct

- Preposition here loses its semantic function and functions on a purely grammatical principle.
- In an analytical tree, it hangs on its standard place, but has a function **AuxY** and the member after it is its attribute (Atr).
- Example: arA [Pred] (al-bAba [Obj] (al-azraqa [Atr]) (li- [AuxY] (al-bayti [Atr] (al-abyaDi [Atr]))

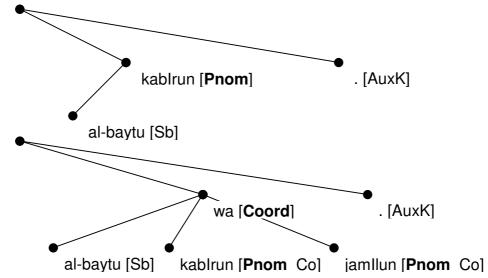


7. Nominal sentence

7.1. "Pure" nominal sentences – Pnom

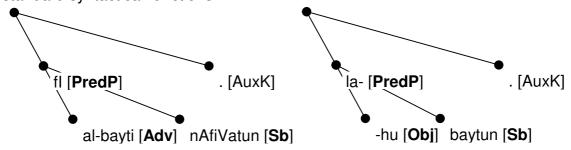
- Here belong sentences of the type al-baytu kablrun.
- The governing node in the analytical tree is the nominal predicate (in this case, *kablrun*). It will receive a function Pnom. The subject hangs on this predicate with a standard function (Sb).

- This solution, in contrary to other alternatives, will enable a clear preservation of well defined sentence units, although it goes against the spirit of the syntax of Arabic (both these nodes in fact stand beside each other without visible dependency).
- An unhappy consequence of this approach is a sentence of a type *al-baytu kablrun wa jamllun*, where the governing node *wa* governs both members and non-members of the coordination. The problem will be solved by a standard suffix **_co**, which will be added to analytical functions of the real members of the coordination.



7.2. Impersonal nominal sentences with a preposition - PredP

- Here belong sentences of types like *fl al-bayti nAfiVatun* or *la-hu bajtun* or *min al-mumkini an....* etc.
- The governing node in these cases becomes the "predicative preposition", which will receive a special function **PredP**
- A subject is always a name in a nominative or a subjective clause.
- Remaining sentence members will hang on the predicative preposition with their standard syntactical functions.

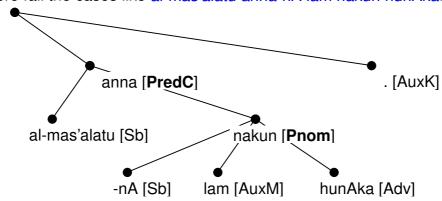


7.3. Existential nominal sentences - PredE

- Here belong sentences with existential predicates, like: *hunAka* in an existential meaning, *vammata*, dialectal *fl*, absolute negation *IA* (independently or in connection *lawIA*), independent negative particle *mA* (*mA min \$axSin*)
- These phrases take the function of a predicate and are labeled as **PredE**
- Remaining sentence members are dependent on these elements
- Examples: (fl [AuxP] (al-insAni [Adv])) hunAka [PredE] (sirrun[Sb]) and as shown in 3.1 above

7.4. Nominal sentences in a function of a predicate – PredC

- Here fall the cases like al-mas'alatu anna-nA lam nakun hunAka.

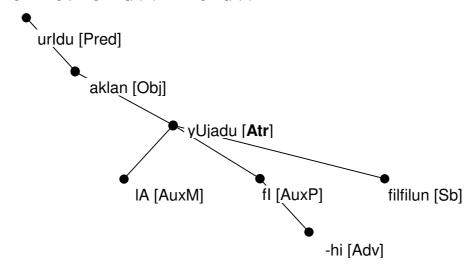


- The subordinate clause here stands as a nominal predicate and should be superposed to the subject (*al-mas'alatu*).
- Predicative function will be exclusively assigned to the conjunction PredC.
- The verb in the second (subordinate) clause (or the governing node of this clause) will receive a function **Pnom**.

8. Complex sentence

8.1. Types and specifications of subordinate clauses

- The basic scheme of the construction of complex sentences with subordinate clauses is basically the same as in the specification of Czech.
- The predicate of the subordinate clause will receive instead of its label (Pred) the analytical function which is being fulfilled by the clause in the whole complex sentence.
- Example: attributive sentence urldu [Pred] (aklan [Obj] ((IA [AuxM]) yUjadu [Atr] (fl [AuxP] (-hi [Adv])) (filfilun [Sb]))



8.2. Solution of the problem of non-verbal subordinate clauses

- Predicate of subordinate clause takes over the function of this clause in the structure of the main clause. In case this place is taken by a nominal sentence, we also need to preserve the information on its type (e.g. that the governing

- node is not Pred, but PredP as in aZunnu [Pred] anna-hu [AuxY] min [Obj_PredP] al-mumkini [Pnom] ...).
- Number of necessarily emerging combinations for the couples "analytical function in main clause" ~ "type of predicate in subordinate clause" is solved by the introduction of separate variable for the "suffix".