

Chapter 1

Supplementary Materials for Submission in JURIX 2021

The supplementary material is for the paper *“Towards Reducing the Pendency of Cases at Court: Automated Case Analysis of Supreme Court Judgments in India”* which has been accepted at *34th International Conference on Legal Knowledge and Information Systems*, December 8-10, 2021, Mykolas Romeris University, Vilnius, Lithuania. (Short paper presentation).

We describe the rules for identifying each of the case analysis roles and provide some examples from some of the judgment documents here for the interested readers. To use/reproduce the rules identification module for any purpose, Approval of the authors is required.

1.1 Organization of the material

Section 1.2 describes the rules for identifying each of the case analysis roles. Section 1.3 provides a set of example sentences from the judgment documents from our corpus.

Rule No.	Rule Description
1	<i><question/ questions/ issue/ issues> <that/ with which/ which> current-court <will have/ have/ has> to <decide/ deal/ examine/ adjudicate upon></i>
2	<i>current-court <String> <consider/ decide/ examine/ deal with> the contention on behalf of the <interveners/ appellants></i>
3	<i><issues/ issue/ question/ questions> <which/ that> came up for considerations before <this court/current-court></i>
4	<i><issue/ issues/ question/ questions> for current-court's consideration</i>
5	<i><issues/ issue/ question/ questions> before the <court/current-court></i>
6	<i><question/ questions/ issue/ issues> <which/ that> <has/ have/ will have/ are/ is> to be <adjudicated upon/ examined/ decided/ understood/ dealt></i>
7	<i>It is the <problem/ issue/ question> of <String> <which/ that> <current-court/ this court/ we> <seek/ seeks/ want/ wants/ like/ likes/ would like/ will/ intend/ intends/ are willing/ are seeking/ are intending> to <address/ discuss></i>
8	<i><writ petition/ petition/ application/ case> is concerned with the <question/ issue/ problem> of</i>
9	If a petitioner or appellant seeks to challenge the decision of an earlier judgment given by the court, then also it becomes a legal issue. The rule used to identify such sentence is a combination: (i) subject of the sentence is one of the appellants or the petitioners or their respective advocate/advocates. This can be understood using the identifier-tokens and the dependency parse of the sentence. (ii) Presence of the pattern: <i><have sought/ seeks/ seek/ sought> to challenge the <decision/ verdict/ order/ direction/ judgement/ contention/ legality/ validity/ legality and validity> of</i>

Table 1.1: Rules for identifying Legal Issues

1.2 Rules Description

Legal Issue

Based on the annotated examples and the domain knowledge of the legal experts, we extracted a set of patterns to identify a sentence as a legal issue. The rules are given in Table 1.1

Argument by Appellant, Argument by Respondent and Argument by Amicus Curiae

We took the annotated sentences of the label arguments by appellant, arguments by respondent, arguments by amicus. For each of the labels, we found the *root verbs* of the sentences by executing the dependency parse. The collection of *root verbs* is first verified by the legal experts and then enhanced with other verbs that have higher

likelihood of occurring in the argument sentences. Then we follow the procedure

Algorithm 1 Process for Building the collection of argument verbs

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1: procedure BUILDCOLLECTION
2:    $C_v \leftarrow \text{root verbs.}$ 
3:    $\text{ArgumentVerbs} \leftarrow \text{empty}$ 
4:   for  $i \leftarrow 1$  to  $N$  from  $C_v$  do
5:      $S_v \leftarrow \text{verb synset of } v_i \text{ from WordNet.}$ 
6:      $\text{ArgumentVerbs} \leftarrow \text{ArgumentVerbs} \cup S_v.$ 

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buildCollection() to build the set of *ArgumentVerbs* and it was again verified by legal experts to make the final set. Additionally, we added specific set of phrases and keywords that are likely to indicate the corresponding argument type e.g. "*according to amicus*", "*according to appellant*", "*according to respondent*" etc.

Now, for each of the sentences, We devise two methods to identify the argument labels.

1. We find if the identifier token ("*advocate-appellant*", "*advocate-respondent*", "*advocate-amicus*") is present with either of two patterns using the *argument verb* from the collection *ArgumentVerbs*:

- (i) $\langle \text{identifier token} \rangle \langle \text{String} \rangle \langle \text{argument verb} \rangle$
- (ii) $\langle \text{is/ are/ will be/ shall be/ was/ were/ has been/ have been/ had been} \rangle \langle \text{String} \rangle$
 $\langle \text{argument verb} \rangle \text{ by } \langle \text{String} \rangle (\text{optional}) \langle \text{identifier token} \rangle$

2. We create the dependency parse tree of the sentence. If the *root verb* of the sentence belongs to the *ArgumentVerbs* and the identifier token (i.e. "*advocate-appellant*", "*advocate-respondent*", "*advocate-amicus*") is either the *nsubj* (for the active voice), or, the *nsubjpass* (for the passive voice) of the *root verb*, then we label the sentence to be an argument by that identifier token.

Both the above rules perform equally well. Additionally, we look for certain patterns in the sentence. e.g. (i) "*the* $\langle \text{submission/ submissions/ argument/ arguments/ reply} \rangle \langle \text{of/ by} \rangle$ *the* $\langle \text{identifier token} \rangle \langle \text{is/ was/ are/ were} \rangle$ *that*. (ii) $\langle \text{appellants/ respondents/ advocate-appellant/ advocate-respondent/ amicus/ advocate-amicus} \rangle \langle \text{draws/ drew/ draw/ has drawn/ have drawn} \rangle \langle \text{current-court's attention/ attention of the current-court/ this court's attention} \rangle$ *to*

Relief Prayer

Identifying a relief prayer includes two parts.

1. To verify if the document type is an *Order*.
2. To check if one of the following patterns exist in the sentence. (i) *<seeks/ seek/ sought/ seeking/ pray/ prays/ prayed/ praying> <String> <relief/ reliefs>* (ii) *<seeks/ seeking/ seek/ sought> <direction/ directions/ order> to* (iii) *<for/ to> the following <relief/ reliefs>*. (iii) *<prayer/ prayers> made in the <aforesaid/ above/ present/ presented/ current> <writ petitions/ writ petition/ petitions / petition/ application/ applications/ case/ cases> <is/ are>* (iv) Pattern of *< prayer/ prayers> <is/ are/ has been/ have been> made* exists in the sentence and the *nsubjpass* of the head word "*made*" is one of the identifier tokens from the set {"*appellants*", "*advocate-appellant*", "*respondents*", "*advocate-respondent*", "*amicus*", "*advocate-amicus*"}

In all the cases, the mention of the word "*relief*" remains distinctly identifiable.

Observation Findings

A combination of various patterns is used to identify a sentence as an Observation or finding of the court. The rules are listed in the Table 1.2. However, for the rules mentioned, we need to make sure that none of the rules for Argument by Appellant, Argument by Amicus, and Argument by Respondent holds for this.

Legal Principle

- (i) **Enumerated Rights:** We built a dictionary of enumerated rights or rights those can be obtained from constitution and existing parliamentary acts/statutes e.g. *Right to equality, Right to freedom, Right to education etc.*
- (ii) **Unenumerated Rights:** We built a simple regex to identify if it contains any mention of "*Right to*" in the sentence e.g. *<Right to><String>*
- (iii) Additionally we built a regex to capture the pattern: "*chapter/section/page/-paragraph*" of constitution/ act/ rules". i.e. *<chapter/ section/ page/ paragraph>*

Rule No.	Rule Description
1	<current-court/this court/we> <does not/do not/have>(optional) <notice/ notices/ noticed/ observed/ observe/ thinks/ think/ opined/ opine/ opines> that
2	<current-court/this court/we> <see/ sees/ saw/ finds/ find/ found> no <reason/ cause>
3	<current-court/this court/we> <do not see/ does not see/ does not find/ do not find> any <reason/ cause>
4	<current-court/this court/we> <have/ had/ does not/ do not>(optional) <agree/ agreed/ think/ thought/ consider/ considered>
5	<current-court/this court/we> <must/might/should>(optional) <note/ notes/ note/ accept/ accepts> that
6	<current-court/this court/we> <must/might/should>(optional) <appears / appear> to have come to the <following>(optional) <conclusion / conclusions/ view/ views/ opinion/ opinions/ understanding/ understandings/ verdict/ verdicts>
7	<current-court/this court/we> <could not/have>(optional) <find/ finds/ found> that
8	current-court's attention <has been/is/was> <String> <invited / drawn/ attracted> to
9	<current-court/this court/we> <is/are> <String>(optional) of the <view/ opinion/ understanding/ observation>
10	<current-court/this court/we> <can not/could not> <appreciate/ agree/ encourage/ accept/ deny>
11	<current-court/this court/we> <is/are> <therefore/ accordingly/ hereby/ as a result/ consequently/ as a consequence>(optional) unable to <find/ notice/ observe/ accept/ appreciate/ deny/ acknowledge/ note>
12	<current-court/this court/we> <is/are/have been> <informed/ told/ notified>
13	<has been/is/are/was/were/had been> <String> brought to the <current-court's notice/notice of current-court/notice of this court>
14	in <current-court/this court/the court>'s <esteemed/ careful/ considered>(optional) <view/ opinion/ understanding>
15	in view of the < foregoing/ ongoing/ current/ above/ careful/ considered>(optional) discussion
16	<Reference/References> <are/is/has been/ have been/ had been/ were/ was> made
17	Presence of legal key-phrase at the beginning of the sentence e.g. "It is absolutely necessary" , "This is a clear case of"
18	<It/ This> <seems / seemed/ appears/ appeared> to <the>(optional) <current-court/ this court> that
19	Presence of pattern at the beginning of the sentence: It is the <String> duty
20	Presence of pattern at the beginning of the sentence: It is <Adjective Phrase> that
21	Presence of pattern at the beginning of the sentence: <This/ It> <is/has been> <further/also>(optional) stated that
22	<This/ It> is <String> <state of affairs/serious matter>
23	writ petition <is/has been> <therefore/ accordingly/ hereby/ also>(optional) entertained

Table 1.2: Rules for identifying Observation Findings

<string> <Act,/ Constitution/ Rules>.

We iterated on the sentences. If the sentence does not have any mention of identifier tokens for appellant, respondent or amicus, or any advocate of the parties in the text, and any of the above rules holds true, then we classify the sentence as a legal principle.

Conclusion Verdict

We have described the list of rules to identify a sentence as a "Conclusion Verdict" of the court in the Table 1.3. Additionally, It needs to be ensured that none of the rules for Argument by Appellant, Argument by Amicus, and Argument by Respondent holds for this.

Fact

If a sentence contains mention of identifier tokens for appellant, respondent, amicus, current-court but it does not contain any legal principle or does not fulfil the arguments criteria, or it does not follow the patterns in "Observation Findings" and "Conclusion Verdicts", then the sentence is labelled as "Fact". Additionally, following patterns are also helpful to identify the facts. (i) *It <was/is> held* (ii) If none of the identifier tokens is present, and it does fulfil the criteria for any other case analysis role mentioned above, and any of the argument verbs (e.g. *submitted, argued* etc.), verbs relating to permission, approval, withdrawal and disposal is used in past tense. e.g. the sentence *"It was stated that each tree commands a price of Rs.15 to 20 Lakhs in the market."* is a Fact. Ideall, any past event related to the case that was mentioned in a given judgment is a fact of the given case.

Rationale

Rationale covers two parts: One, the criteria for legal principle and two, fact. If the given sentence has any mention of identifier tokens for appellant, respondent or

Rule No.	Rule Description
1	Indicator legal key-phrase such as <i>"Ordered accordingly"</i> , <i>"Order accordingly"</i> .
2	At the beginning of the sentence: <i>"By this judgment"</i>
3	<appeal/ appeals/ application/ applications/ petition/ petitions> <mentioned above / mentioned here>(optional) <is/ are/ shall be> <accordingly/ hereby/ therefore>(optional) <allowed/ permitted/ granted/ rejected/ declined/ disposed of/ dismissed>
4	<is/ are/ liable to be/ have to be/ should be/ shall be> set aside
5	<order/ direction/ decision/ verdict/ judgment> <will / shall> <set aside/ dispose of/ override/ nullify/ discard>
6	<is/ are/ should be><string><permitted/ granted/ allowed/ approved/ directed to/ rejected/ declined/ dismissed/ withdrawn/ disposed of/ accepted/ authorized>
7	<is not/was not/ are not/ shall not be/ should not be> <String> <permitted/ granted/ allowed/ approved/ accepted/ authorized>
8	<current-court/ this court/we> <accordingly/ according/ therefore/ hereby/ further/ also>(optional) <do not/ does not>(optional) <direct/ grant/ permit/ approve/ allow/ decline/ reject/ disprove/ accept/ authorize/ order>
9	<current-court/ this court/ we> <String>(optional) <comes to/ come to/ arrive at/ arrives at/ give/ gives> the <conclusion / conclusions/ verdict/ verdicts/ decision/ decisions/ order/ orders/ direction/ directions>
10	<current-court/we> <String> <make it clear/ take a final call/ clarify/ declare/ find it/ conclude>
11	<current-court/this court/ we> <String> <express no opinion/ decline to express opinion/ express no view/ decline to express any view>
12	<current-court/this court/ we> <order / ordered> accordingly.
13	<will/ shall> have <authority/ jurisdiction> <over/ on>
14	<interim>(optional) <direction/ directions/ order/ orders> <issued/ given/ published> by <the court/ this court/ current-court/ the current-court> <String> <is/ are/ shall be> made <absolute/ permanent>
15	If a prior order or direction is modified. Example patterns: (i) <i>The</i> <order / orders/ direction/ directions> <dated /on > <date value>(optional <is/ are/ shall be/ will be> modified accordingly (ii) <current-court/ this court/ we> <modify/modifies> the <order/ direction/ decision>
16	Any sentence that begins with the token <i>"Let"</i> forms a part of the conclusion. Usually, usage of <i>"Let"</i> is most common in the order documents.
17	Overriding of prior orders/directions/instructions. <This/ These/ following/ considered/ given> <order/ orders/ instruction/ instructions/ direction/ directions/ verdict/ judgment> <issue on / listed on> <date string> <shall/ will> override any <prior>(optional) <order / direction/ verdict/ judgment/ instruction> <to the contrary>(optional) by any authority.

Table 1.3: Rules for identifying Conclusion Verdict

amicus or any advocate of the parties in the text, and any of the rules to detect legal principle also holds true, then we classify that sentence as a Rationale.

Interim Order

If the document type of the legal document is an Order, and date of the decision is greater than date of the filing of the case by 1 year or so: there is a probability that this order has mentions of Interim Orders. Interim Orders are sometimes part of the Conclusion. So, the same rules for "Conclusion Verdict" are applied here to understand whether it is an Order or not. Along with that, we check if there is any relief asked for in the document. If a relief is asked and the above conditions hold true, then the sentence is likely to be an Interim Order. However, no clear rule can be established for such cases. Additionally, existence of certain patterns may help to identify the interim orders in some cases, e.g. < till/ until> <the> (optional) <court / present court/ this court/ current-court > <pass/ passes/comes to/ come to/ take/ takes/ provide/ provides/ give/ gives/ reach/ reaches/ arrives at/ arrive at> <a/ the>(optional) <final/ next/ new> <order/ orders/ judgment/ direction/ directions/ verdict/ conclusion>. This pattern explicitly indicates that certain instructions or decisions are made by the court in present case until the court reaches a final verdict. Classifying a sentence as Interim order is situational and often hard for the lawyers themselves to distinguish this from conclusion.

Compliance

We can recognise a compliance by using a set of indicator keywords that signify compliance. E.g. "complied with", "complied to", "in compliance", "complied by" . We used the following patterns for the purpose: (i) <has/ have/ had/ was/ were/ is/ are> <complied with/ complied to/ complied by> (ii) Presence of the phrase "in compliance".

If any identifier token for the appellant or respondent is present in the sentence along with any of the compliance patterns and the sentiment of the sentence is posi-

tive, then it is a stronger indication of compliance.

1.3 Examples

We analyzed the predictions and provided some of the following examples here:

Source: MANU/SC/0284/2013, Manupatra

Original Sentence: *“Mr. Sundaram submitted that the second ground given by the High Court for directing closure of the plant of the Appellants was that this being a project exceeding Rs. 50/- crores, environmental clearance was required to be obtained from the Ministry of Environment and Forests, Government of India, after a public hearing which was a mandatory requirement but no materials were produced before the High Court to show that there was any such public hearing conducted before the commencement of the plant of the Appellant-company”*

Resolved and pre-processed text: *“advocate-appellant submitted that the second ground given by the High Court for directing closure of the plant of the appellants was that this being a project exceeding Rs. 50/- crores, environmental clearance was required to be obtained from the respondents and Forests, respondents, after a public hearing which was a mandatory requirement but no materials were produced before the High Court to show that there was any such public hearing conducted before the commencement of the plant of the appellants-company.”*

Prediction: **Argument by Appellant**

Ground Truth: **Argument by Appellant**

Source: MANU/SC/0284/2013, Manupatra

Original Sentence: *“He submitted that considering the grave adverse impact on the environment by the plant of the Appellants, a 250 metres width of green belt was absolutely a must but the TNPCB very casually reduced the green belt from 250 metres width to 25 metres.”*

Resolved and pre-processed text: *“advocate-respondent submitted that considering the grave adverse impact on the environment by the plant of the appellants the appellants*

, a 250 metres width of green belt was absolutely a must but the respondents in its Consent Order very casually reduced the green belt from 250 metres width to 25 metres.”

(Here, “TNPCB” was one of the respondents in the case, "He" referred to “Mr. V. Gopalsamy” who was one of the advocates of the respondents.)

Prediction: **Argument by Respondent** Ground Truth: **Argument by Respondent**

Source: MANU/SC/0284/2013, Manupatra

Original Sentence: “He submitted that similarly in ground No. IV at page 45 of the Special Leave Petitions the Appellants have falsely stated that the High Court has erred in not appreciating that the Appellants had got all the statutory approvals/consent orders from the authorities concerned as also the Central Government and the State Government”

Resolved and pre-processed text: “He submitted that similarly in ground No. IV at page 45 of the Special Leave Petitions the appellants have falsely stated that the High Court has erred in not appreciating that the appellants had got all the statutory approvals/consent orders from the authorities concerned as also the respondents and the State Government.”

(Here, “Central Government” was one of the respondents in the case, “He” referred to “Mr. V. Prkasah” who was one of the advocates of the respondents. However, in this case, the co-reference was not rightly resolved.)

Prediction: **Fact** Ground Truth: **Argument by Respondent**

Source: MANU/SC/1328/2016, Manupatra

Original Sentence: “He submits that the depending upon the improvement and the extent of collection of ECC, post installation of RFID, this Court could issue appropriate directions suitably balancing the equity among the State and the stakeholders.”

Resolved and pre-processed text: “advocate-amicus submits that the depending upon the improvement and the extent of collection of ECC, post installation of RFID, this Court this Court could issue appropriate directions suitably balancing the equity among

the State and the stakeholders.”

(Here, “He” referred to “Mr. Salve, learned Amicus” who was one of the advocates of the amicus.)

Prediction: **Argument by Amicus**

Ground Truth: **Argument by Amicus**

Source: MANU/SC/1328/2016, Manupatra

Original Sentence: *“We agree, in principle, that the suggestions made in the Report deserve to be accepted.”*

Resolved and pre-processed text: *“current-court agree, in principle, that the suggestions made in the Report deserve to be accepted.”*

Prediction: **Observation Findings**

Ground Truth: **Observation Findings**

Source: MANU/SC/0609/2016, Manupatra

Original Sentence: *“We make it clear that the vehicles in question shall be used by the Board entirely for providing drinking water to the residents of Delhi since the new vehicles are replacing the older vehicles earlier used for the said purpose.”*

Resolved and pre-processed text: *“current-court make it clear that the vehicles in question shall be used by Delhi Jal Board entirely for providing drinking water to the residents of Delhi since the new vehicles are replacing the older vehicles earlier used for the said purpose.”*

Prediction: **Conclusion Verdict**

Ground Truth: **Conclusion Verdict**

Source: MANU/SC/1191/2018, Manupatra

Original Sentence: *“At the same time, it cannot be forgotten that admittedly there is a huge quantity of fireworks in Delhi and in the NCR and the figure has been provided to us by the applicant”*

Resolved and pre-processed text: *“At the same time, it cannot be forgotten that admittedly there is a huge quantity of fireworks in Delhi and in NCR and the figure has been provided to current-court by the appellants.”*

Prediction: **Fact**

Ground Truth: **Fact**

Source: MANU/SC/0609/2016, Manupatra

Original Sentence: *“These applications have been filed by SDMC and NDMC seeking permission for registration of diesel vehicles used for collection and transportation of garbage on diesel based HCV and MCV vehicles.”*

Resolved and pre-processed text: *“These applications have been filed by SDMC and NDMC seeking permission for registration of diesel vehicles used for collection and transportation of garbage on diesel based HCV and MCV vehicles.”*

Prediction: Other

Ground Truth: Fact

Source: MANU/SC/0456/2015, Manupatra

Original Sentence: *“The Appellants, while being engaged in the business of stocking iron ore, had allegedly violated certain norms prescribed by the Deputy Commissioner Under Section 22 of the Air (Prevention and Control of Pollution) Act, 1981 (hereinafter referred to as the ‘Air Act’”)*

Resolved and pre-processed text: *“The appellants, while being engaged in the business of stocking iron ore, had allegedly violated certain norms prescribed by the Deputy Commissioner Under Section 22 of the Air (Prevention and Control of Pollution) Act, 1981 (hereinafter referred to as the ‘Air Act’”*

Prediction: Rationale

Ground Truth: Fact