

# Arguments Based on Conditional Promise

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# Scenario

1. Proemium
2. Crocodile argument has a structure of a contract
3. What is a contract
4. Historical aspects of Crocodile argument
5. Approaches to solution of Crocodile argument



- Modern approaches to paradoxes:

HB Curry claims that modern logic has a **mission** to solve “now called paradoxes, or antinomies” and it has **ability** to solve them (*Foundations of Mathematical Logic*, Introduction, p. 3ff)

What are the (Curry's) paradoxes? - *aporia, sophism, insolubilia, verbis captionum (captiuncula), verba contorta et fidicularia, dilemma, paralogism, antistrephonta (reciproca), ... ..*

- **What has to be solved** there?
- How we know that a solution is **adequate and appropriate**?
- Do we have **paradoxes or arguments**?



- Revision of modern approaches

- Understanding of *Crocodile argument*
  - Kneales: **Paradoxes had certain aim** and they are not produced in an entirely pointless way!
  - Respecting sources and Ancient background
- Adequate tools for reconstruction
  - “Ancient ambient” determines the genuine character of puzzles
  - **Modern reconstructions** (the most frequently) **neglects historical sources**



## BURIDAN'S BRIDGE

Buridan repackages “Your reply will be negative” as a stepping stone to a more famous sophism: Suppose Plato is a bridge keeper. Plato is enraged and tells Socrates, “If what you say is true, then I will let you cross the bridge, and if what you say is false, then I will not let you cross the bridge.”

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Although Buridan is sometimes credited with being the inventor of the bridge paradox (Jacquette 1991), the puzzle probably goes back to Chrysippus.

Chrysippus does not answer but the grammarian Aphthonius is on the record recommending that the crocodile be told “You do not intend to restore it.”

made up his mind to do about giving up the  
brat—what would you say was his intention in  
the matter?

*Customer:* Your question is a poser. For I’m at a loss what  
to say first, so as insure the recovery of the child.  
But, for Heaven’s sake, do you make answer

and rescue me the little fellow, lest the monster  
be too quick for me, and eat him up.

(Lucian 1901, 413)

Chrysippus does not answer but the grammarian Aphthonius  
is on the record recommending that the crocodile be told

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bound by the compulsion of his oath, unwillingly par-  
doned the people of Lampsacus.

(1971 6.18.2–4)

Since Anaximenes lived two centuries before Alexander, this  
anecdote is chronologically impossible. Even so, the tale



#### ¶ Caput. lvi.

Qui sint Crocodilite apud eundem.



Pud Quintilianum eundem libro itē primo etiam de crocodiline mētio fit obscuro & ipso plerisq; ignotoq; vocabulo. Ceterū de hoc inuenimus apud Aphthōgi grēcū enarratorem Doxapatrem: quīs apud eum Crocodilites potius: q̄ Crocodiline. Q d & verius puto. Verba ipsius ita latine interpretamur. Serra inquit: & Crocodilites sicuti est in ægyptiaca fabula. Mulier quēpiam: cum filio secundum fluminis ripā ambulabat: ei Crocodilus filium abstulit redditurum dicēs: si verum mulier responderet. Nō it illa fore vt redderetur: atq; ob id equum aiebat reddi. Hactenus ille. Moxq; idē Crocodilus inquit hāc propositionem vocant: Crocodili huius gratia: quā etiam τριῶπα id est Serra cari a græcis indicat. A diuuat Lucianus in dialogo: cui titulus: vitarum venditiones: ita ferme Chrysippum loquentem inducens: eiq; respondentem quempiam: qui se profiteatur emptorem. Considera igitur ita. Est ne tibi filius? Quorsum istud? si forte illum iuxta fluuium errabundum Crocodilus inueniat: rapiatq; dein redditurum polliceatur: cum verum dixeris: vtrum reddendus ei videatur: nec ne? Quid eum scire dices? Rem sane perplexam interrogas. Ex his vt arbitror liquet etiam Crocodilitem: sicuti supra Ceratinē sophismatos esse: parum explicabilis speciem quo dialectici veteres: potissimumq; stoici vterentur. Quod genus eleganter Quintilian⁹ exquisitas ambiguitates appellauit.

- Cap. LIV a LV devoted to sophisms (Quint. *Inst. orat.* i, 10).
- Lucian is a source for cap. LIV (devoted to sophisms of Eubulides)
- Source for cap. LV (devoted to Horn paradox and *Crocodiline*) could be from *Progymnasmata* MS (of Maximus Planudes, 13.-14. Cent.).



# Lexicones, dictionaries, redaction of classical writers

XVI Century (editio :

- *Stephanus Dictionarium seu Latinae linguae Thesaurus ...* 1532  
mentioned, (only Pliny)

- *Stephanus, Dictionarium seu Latin*  
*by Antonius Birrius) note to Crocodili*

- Ioannis Brodæi ... *Miscellaneorum li*

- *Lexicon graecolatinum...* Venezia, A

- *Nizolinus - E*  
*expurgatus, e*



edition



impressus, omnibus mendis



aei, J. Tusani, R. Constantini, Omniumque aliorum: de quibus  
ieve : Jean Crespin, 1562 vol 1&2

, omnium Latini sermonis authorum tum verba tum loquendi  
ior politiorque una cum praefatione ... Basileae : [ex officina





# Kinds of promises?

1. I am promising you to give a 5 cents.
2. I am promising you to give 5 cents if you close the window.
3. I am promising to anyone who close the door to give 5 cents.
4. I am promising you to repair your car and you are promising me to paint the wall.



# Kinds of promises?

1. I am promising you to give a 5 cents. Fiduciary (gratuitous) promise (pro bono); Kind of unilateral contract
2. I am promising **you** to give 5 cents if you close the window. Unilateral conditional contract
3. I am promising to **anyone** who close the door to give 5 cents. Unilateral conditional contract (2. and 3.: a scope of promise!)
4. I am promising you to repair your car and you are promising me to paint the wall. Bilateral contract (offer/promise exchange)



# What is a promise?

- Deontic approach - promises (**directly**) implies obligations:

*either  $p \rightarrow Op$ ? or  $O(p \rightarrow Op)$ ?*

- What is (a propositional content of)  $p$ ?
- Is it  $p$  an attitude?
- Is it  $p$  a speech act?
- Duty is not (always) rising instantly with a promise!
  - Duration
  - Succession of intermediate acts
- Some pioneering approaches...

von Wright, On Promises, 1962: “Promises belong to the same category as *agreements* and *contracts*.” (Atiyah, Tierosma, Shane, Zimmerman...)



# What is a promise?

- Promise is a speech act:
- Austin (1962), promise is performative illocution
- Searle (1969) 'illocutionary act': you are uttering a sentence predicating future act with
  - a) **intention**
  - b) **of doing promised act,**
  - c) putting yourself under **obligation** to do that act and
  - d) the **promesee recognizing that obligation** in virtue of her knowledge of the meaning of a sentence.
- Schane (1989, 2006) and Tiersma (1986, 1993) on promises in law --  
"commissives," which commit their speakers to a particular future course of action.



# Unilateral conditional contract

## Semantical basis (a contract background)

Offeror  
(Promisor)

Subjective reasons and capacities:  
Wishes,  
Believes,  
Intentions,  
**Abilities** of performance,  
Expectation Interest ...

Offeree  
(Promisee)

Subjective reasons and capacities:  
Wishes,  
Believes,  
Intentions,  
**Abilities** of performance,  
Expectation Interest ...

Promissory proposal (offer)

Agreement or  
commitment  
of both parties  
in **Terms**

Acceptance

**Terms** are subjects of parties' agreement

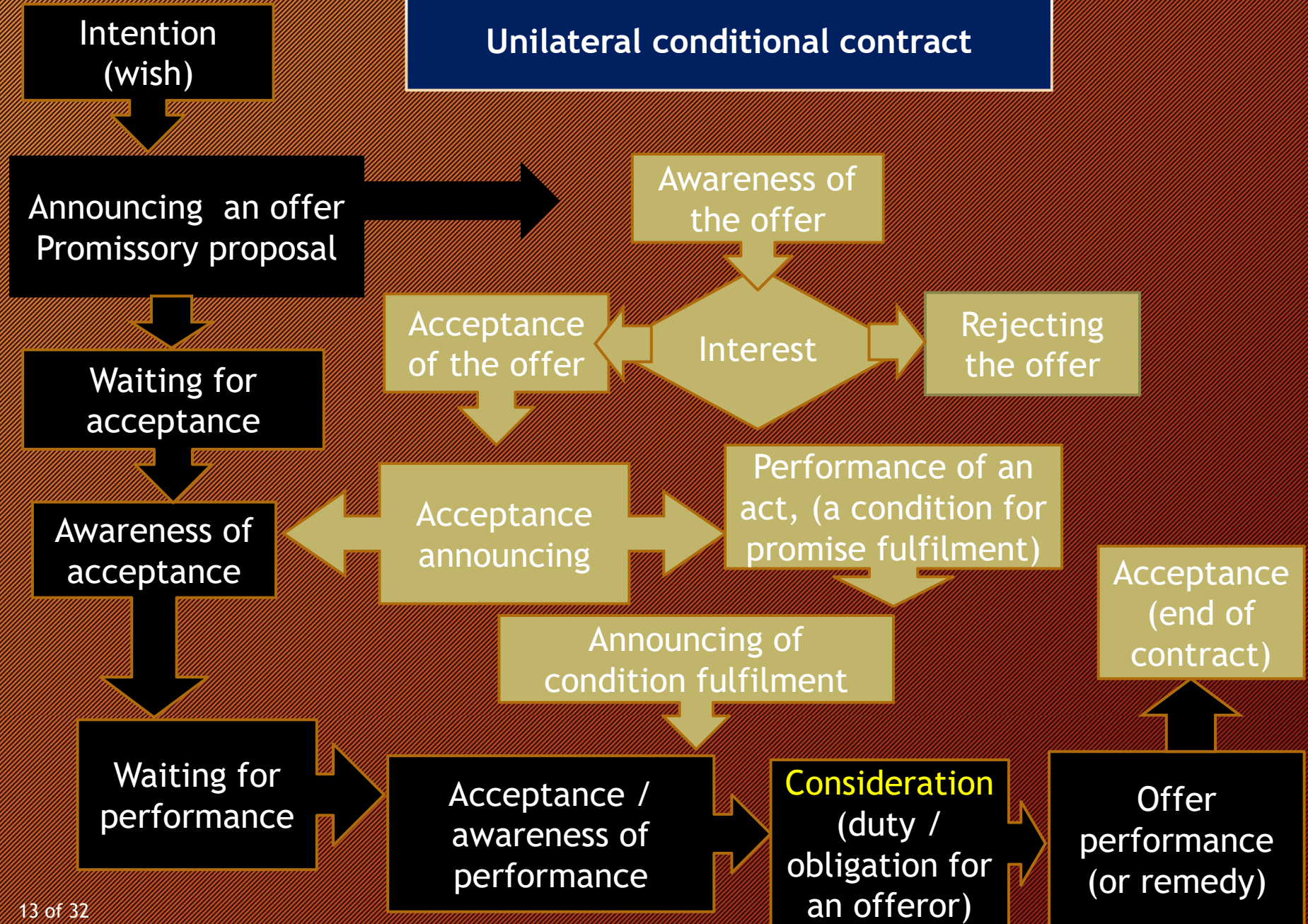
- primarily terms - **Conditions**  
(+ including reasonable duration of an offer)
  - secondary terms (conditions) - **Warranties**
- Terms** don't (necessarily) covers personal motivation (interests)

Commitment about terms is related to  
**Trust** (in contractual relation)

- **Good faith and sincere intention** ("a firm decision") → **Liability**
- **Reliance**



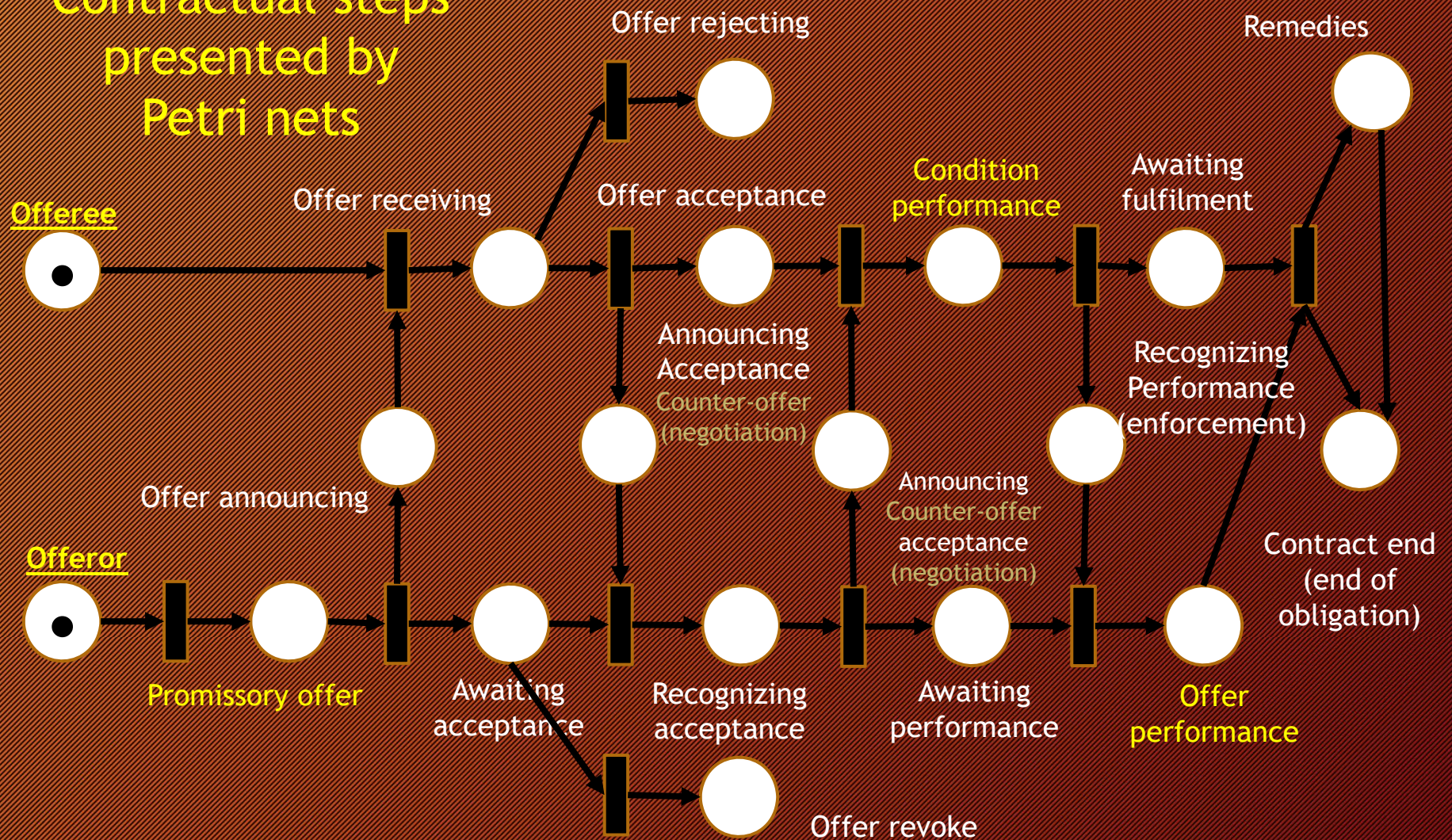
## Unilateral conditional contract





# Unilateral conditional contract

## Contractual steps presented by Petri nets



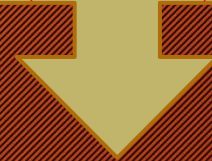


## Unilateral conditional contract

A - offeror:  
Promissory proposal  
(offer)



B - offeree:  
Performance of an act  
(condition for a promise  
fulfilment) declares acceptance  
(of offer)



A+B:  
Consideration  
(duty for A)



A:  
Offer performance

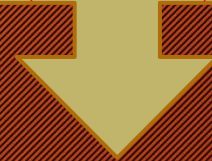


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(duty for A)



A:  
Offer performance

### When the duties rise?

- Duty for **an offeror** rises with an offeree's performance of a condition (or with an undoubtful beginning of its performance<?>)
- **Offeree** has no any duty in unilateral conditional contract



## Unilateral conditional contract

A - offeror:  
Promissory proposal  
(offer)

B - offeree:  
Performance of an act  
(condition for a promise  
fulfilment) declares acceptance  
(of offer)

### “Sincere promise”,

Searle (1969) - when the speaker **intends** to do the act promised:

- “S **intends** that the utterance of T will place him under an obligation to do A. “
- Promisor must **believe** it to be true... as that proposition representing an **actual state of affairs**

A+B:  
Consideration  
(duty for A)

A:  
Offer performance



# Reconstruction of *Crocodilinæ* argument

- Modern solutions of *Clocodilinæ*:
  - *non of them respects historical sources*
- Mally, 1922,
  - defects rises in substitution of “You will...” with “You have to...”
- Ajdukiewicz, 1931
  - Propositional approach
- Reach, 1937-8
  - „problem of quotation“,
  - intension and extension, analogy with “Layer”...,
- Grzegorczyk, 1961
  - „deontický“ postup
- Falletta, 1990
  - Something like “Contract” (following L. Carroll)
- Lukowski, 2001
  - Some refinements of Ajdukiewicz and Grzegorczyk (a few lines are missing in the proof
  - Analogy with Buridan’s Bridge Paradox, Hanging Man, etc.: Jacquette, Clarke
  - Analogy with Protagoras / Euathlus: Goosens, Aquist, Ulatowski



# Reconstruction of *Crocodilinæ* argument

## Ancient sources with some comments that elaborate *Crocodilinæ*:

1. *Lucianus*, *Vitarum auctio* §22, Vol. II p. 41 sq. Mac Leod
  2. *Lucianus*, *Hermotimus*, 81.22-24;
  3. *Scholia in Hermog.* De statibus, Rhet. Gr. (ed. Walz) Vol. IV p. 154,2-155,9 (*ex Sopatro*)
  4. *Scholia in Hermog.* De statibus, Rhet Gr. (ed. Walz) Vol. VII p. 162,11-163,19
  5. *Maximus Planudes* *Scholia in Hermogenem Rhet.*, in Rhet Gr. (ed. Walz) Vol. V, 250,30-251,3, same as No. 4 above.
- 2. not in FDS (!!!); also,
  - 2. not correctly cited in Pauly-Wissowa *Real Enz.*, etc.



# Familiarity of arguments

Source	Arguments
Lucianus, <i>Vitarum auctio</i> § 22 sq. : 24	Reaper, 'Master Argument.' 'Electra, Reaper
<div>Horned</div> <p>Luc., <i>Hermotimus</i>;  Luc., <i>Dialogi mortuorum</i>;  2 x <i>Scholia in Luciani Vit. Auct.</i> § 22; §. 77  Quint., <i>Instit. orat.</i> I 10,5  Clemens Alex., <i>Stromat</i> V 1 § 11,</p>	<div>Reaper</div> <p>2 x Lucianus, <i>Vitarum auctio</i> § 22, §24  2 x <i>Scholia in Luciani Vit. Auct.</i> § 22; §. 77</p>
	<div>Protagoras &amp; Euathlus</div> <p>(Korax &amp; Tisias)  kategoria kai apologia  (accusation and defence)  2 x <i>Scholia in Hermog. De statibus</i>,  Syrianus, <i>Comm. in Hermog. libr. De statibus</i></p>
Scholia in Hermog. <i>De statibus</i> , Rhet. Gr. (ed. Walz) IV p. 154,2-155,9 (ex 5)	crocodile, Tisias, Alexander's dream,
Syrianus, <i>Comm. in Hermog. libr. statibus</i> p. 41,8-42,10 Rabe,	Euathlus, Crocodile.
	Crocodilinae



- Reflecting familiarities and analogies in reconstruction:

- Reaper, Horned (and Lazy Argument) are **dilemmatic argument (CCD)**
- Reaper (and Lazy argument) is one of so-called **fatalistic** arguments : Stoics - strong principle of bivalence (including future truths)
- Protagoras and Euathlus (Korax and Thisias) is an argument related to the question of **“true promise” and contractual obligations.**
- Some dilemmatic forms:

#### Simple constructive dilemma

A)	$p \rightarrow p$ $\sim p \rightarrow p$ $p \vee \sim p$ <hr/> <p>p</p>	B)	$p \rightarrow q$ $\sim p \rightarrow q$ $p \vee \sim p$ <hr/> <p>q</p>
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#### Complex constructive dilemma

C)	$p \rightarrow r$ $\sim p \rightarrow s$ $p \vee \sim p$ <hr/> <p>r v s</p>	D)	$p \rightarrow r$ $q \rightarrow s$ $p \vee q$ <hr/> <p>r v s</p>
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## • Stoics on promises and contracts:

### Chrysippus' the speech act theory

- swears are **not propositions**, but contain propositions: Promise is **prefix of proposition** which truth is tied to some point (duration) in time (Ammonius in Int. 2,9-3,6; Nocostratus apud. Simpl. In Arist. Categ. p. 406,34-407,5)
- Future truths are necessary true or untrue (firm principle of bivalence)

### Promise in respect to time of utterance:

- **if duration is small or negligible or if we have past utterance**
  - true promise (ἀληθορκεῖν) or
  - false promise (ψευδορκεῖν).
- **If duration is considerable** - when promise relates to time other than that of utterance - **truth of proposition relates to time of fulfilment (deadline)** of “the contract” (ἀλλ' ὅτε οἱ χρόνοι ἐνίστανται τῶν κατὰ τὰς ὁμολογίας). In such case,
  - one is either **swearing well** (εὖορκεῖν) or
  - **swearing amiss** (perjury, ἐπιορκεῖν).

The keeping or failure of a contract (εὖσυνθετεῖν / ἀσυνθετεῖν) occurs not at the time agreement is made but at **the time of fulfilment specified within it** (καθ' οὓς ὡμολόγησεν ἐπιτελέσειν), i.e. when the agreement is fulfilled.



## • Stoics on promises and contracts:

### Chrysippus

Swears are true or false in respect to intention to perform the oath - Stobaeus Florileg. 28, 18 H. (28, 15 M.)

### Cleanthes

„Truth in advance“ - Simplicius, In Arist. Categ. p. 406,34-407,5

Seneca - basis of swearing truly (*de beneficiis*, vi, 11f ):

- wish (intention) + action (in a good faith) + and ability (fortune)
- only ability is not enough for true swears!

Seneca illustrates it with Cleanthes example with lads...

One of them searched through the whole colonnade, and also hunted through other places in which he thought that he might be found, but returned home alike weary and unsuccessful

The first lad, he says, will have our praise, for, to the best of his ability, he did what he had been ordered;

the other sat down to watch a mountebank near by, and, while amusing himself in company with other slaves, the careless vagabond found Plato without looking for him, as he happened to pass by.

the fortunate idler we shall flog."



# Reconstruction of *Crocodilinæ* argument

## Dramatis personæ:

- Rubbers, father („Seer“)
- Crocodile, Mather, child

## Three different sources

### 1. Scholia in Hermog.

(Walz) VII p.  
man“):

A:

To tell the future  
truth (what will  
really happen)

B:

To tell what it is  
intending to do  
(what it will do)

C:

To guess a  
(past) decision

Three  
versions  
according  
to the  
sources

### 3. Scholia in Hermog. De s. 155,28-9 (ex Sopatro)

(ed. Walz) IV p.

- “if seer **gives a true prophecy** whether he will return his offer, sincere intention is missing, **semi-fatal** (comparable to: What I did...)”



# Reconstruction of *Crocodilinæ* argument

A

## A future truth - what will really happen

- Solution is familiar to Lazy **Argument** and **Reaper Argument**
- Semi-fatalistic solution (a **fixed future truth** - fate; a part-time fatalism!)
- Illusory promise (insincere, impossible promise; Burley (*Obligations*) “*positio impossibilis*”)
- Whatever say, offeree has no advances

B

## What it is intending to do (what it will do)

- Two step solution (resembling to “**Protagras / Euathlus**”)
- **Firm actual decision**, however, previous decision is performable in accordance with a contract or **only after contract ends**
- Priority of promise (bona fide) - it must make promise possible
- Quasi-Aphthonian solution: gives mother “chance to escape” with child (in the meanwhile)
- It is the sole mother’s advance of telling “You will not return” (in respect to rival A and C solutions)

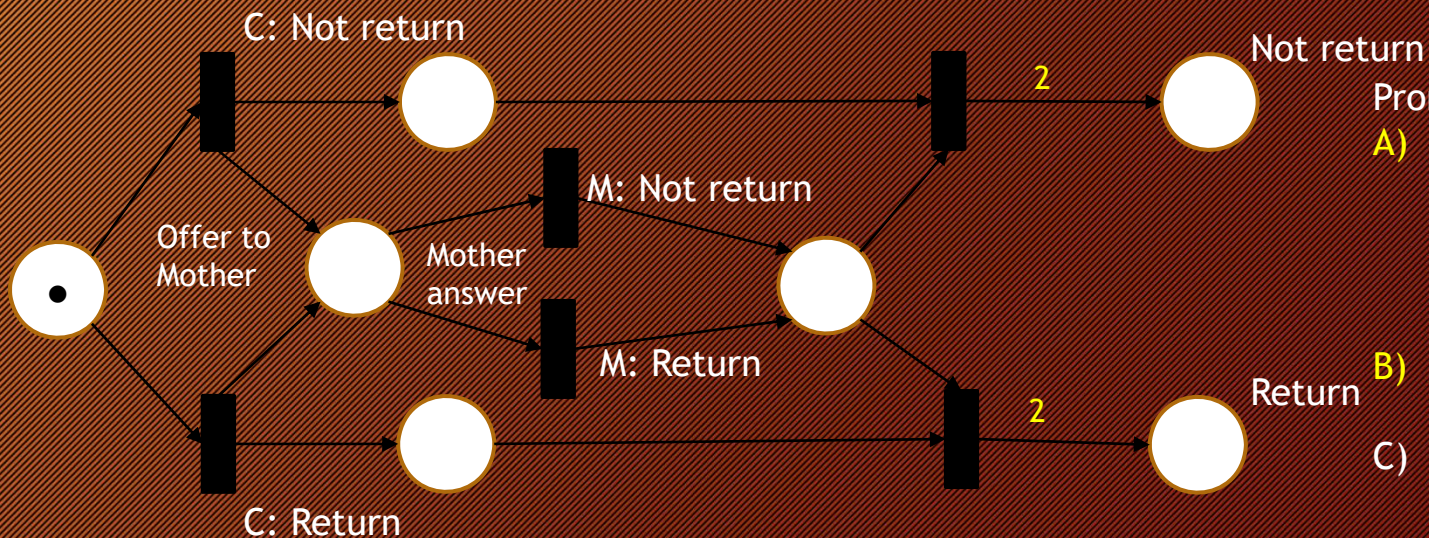
C

## Past decision

- Promise is given in a good faith
- In respect to previous intention / decision
- Whatever she said, offeree has no any advances

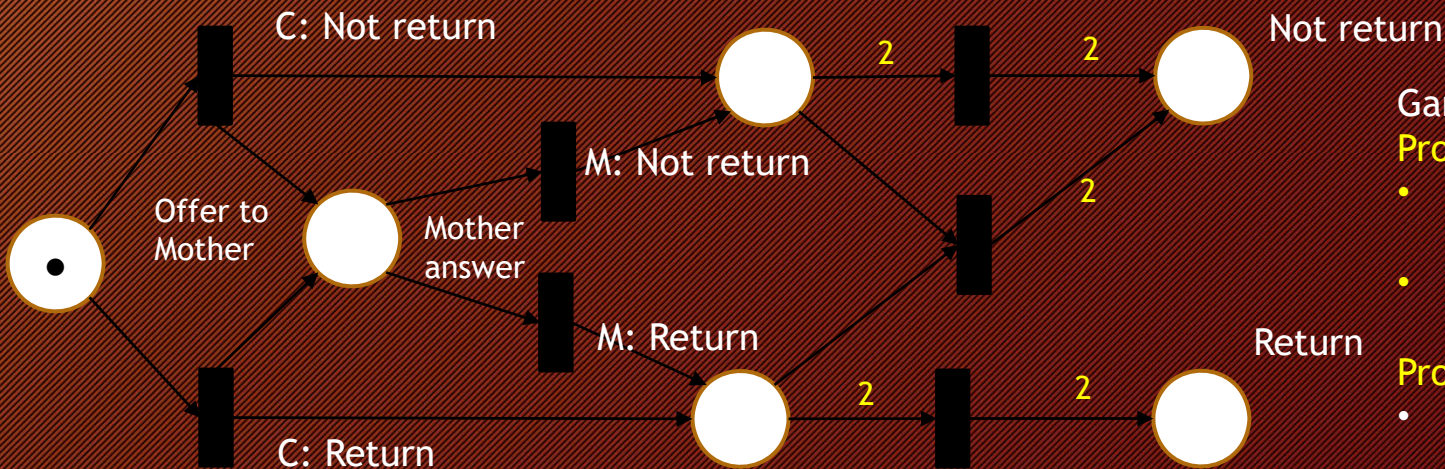


# Solution A - Future Truth



- Promisor's
- A) inability to perform promised act - insincere promise / impossible promise or
  - B) absence of the good faith
  - C) W. Burley (*De Obl.*) *impossibilie positio* (no duty), void contract

# Solution C - Past decision



Gambler's solution

Promisor:

- Ability of performance
- Good faith

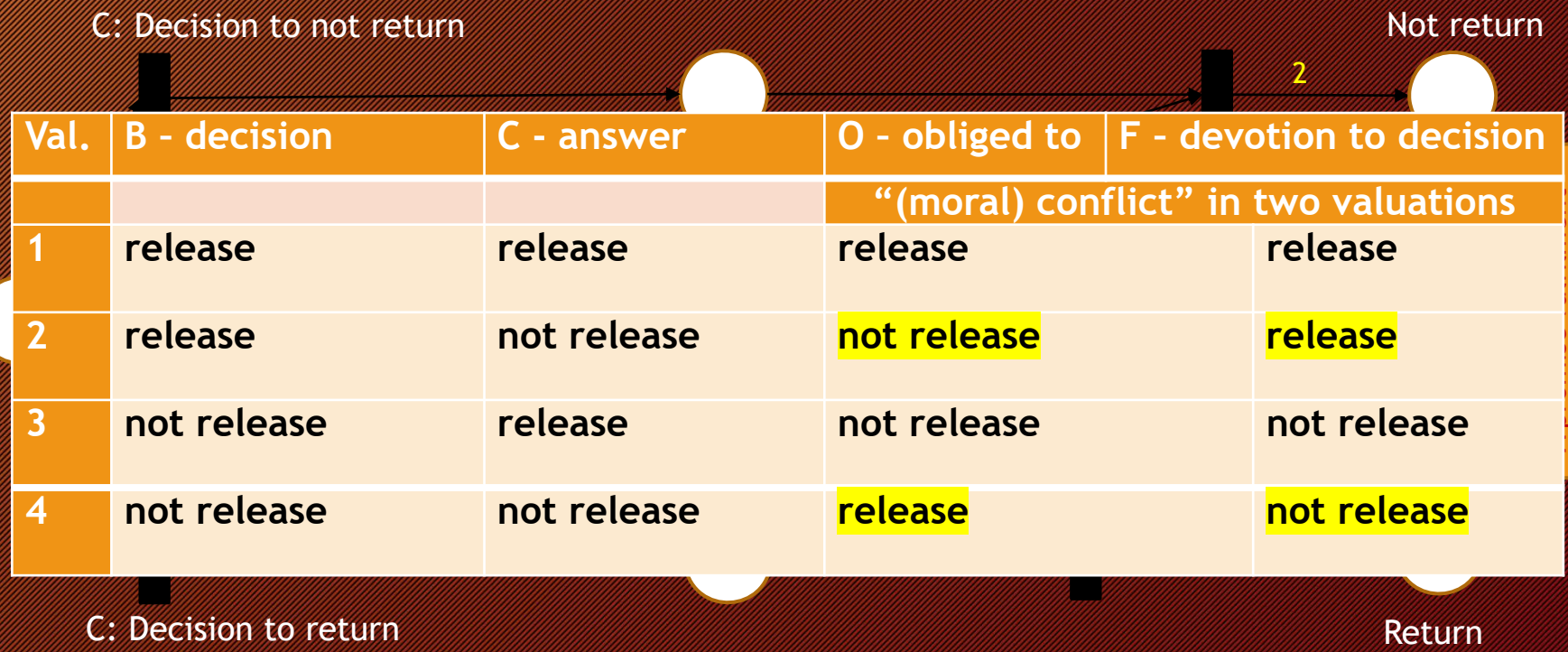
Promisee:

- Chance and fortune



# Solution B - To guess “what it will do”

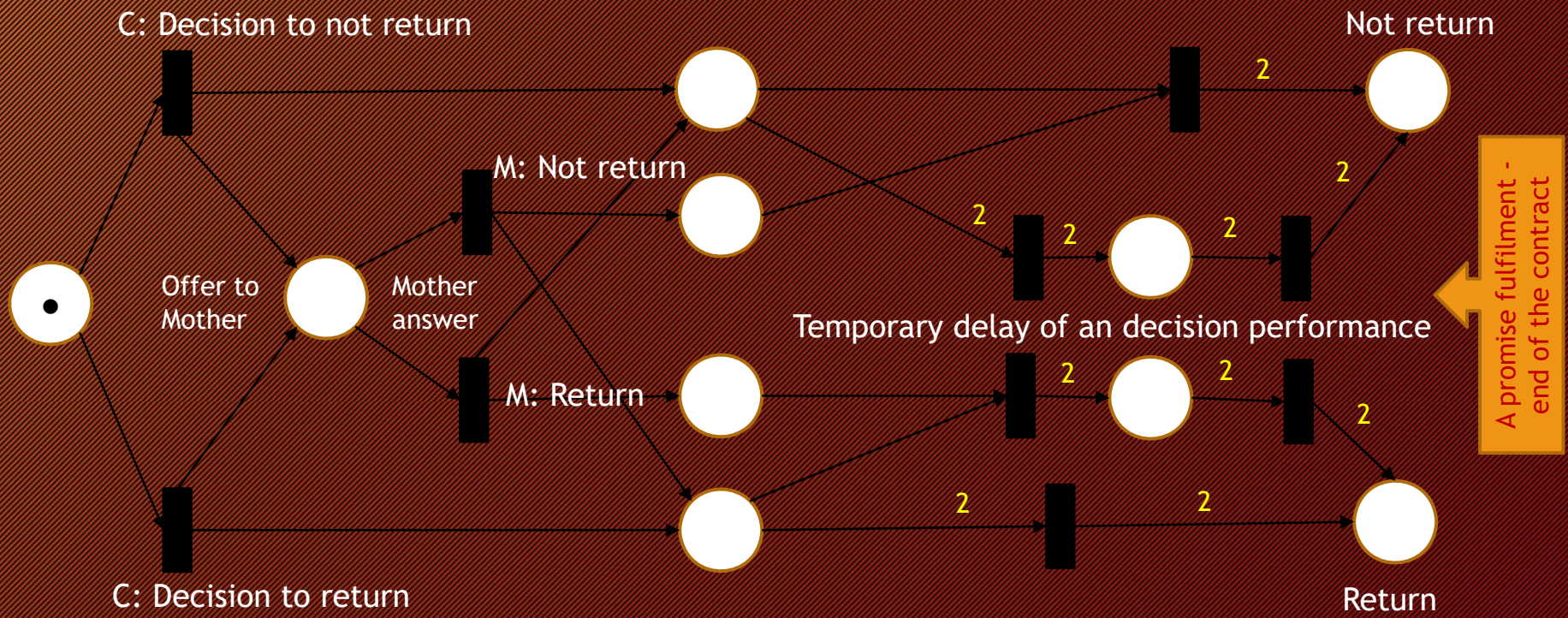
- Impossibility to perform duty and decision at once (it seems like a conflict) - order...
- Two step solution (duty, ability) - analogy with Protagoras & Euathlus, quasi-Aphthonius solution
- Accepting the contractual relation (offer - after announcing a firm intention) leads to a (temporary) suspension of C's decision performance
- By ending of contractual relation - decision is still actual
- There is no conflict between C's decision and duty, he is doing “the best he can”





# Solution B - To guess “what it will do”

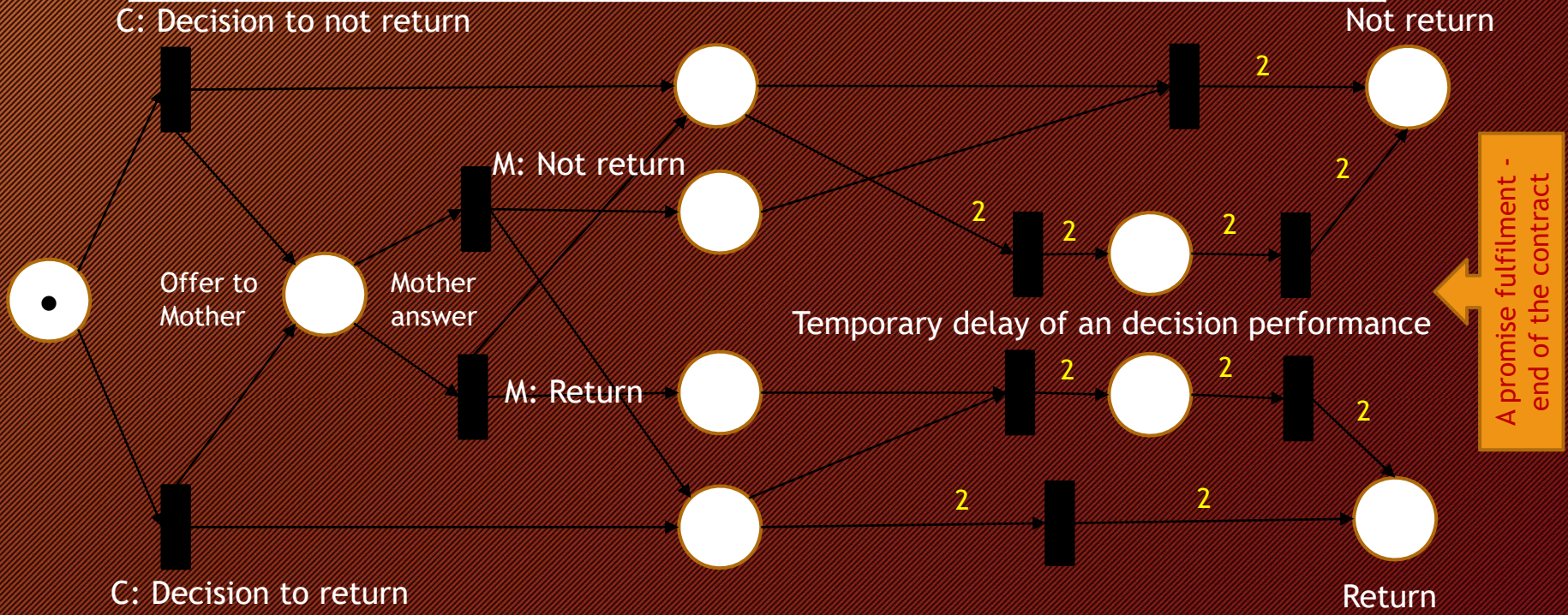
- In the case of contract Petri Nets can be interpreted in a different ways
- **Segments** of different logics can be used in interpretation of dynamical structure
  - Temporal (since/until; before/after, ...)
  - Deontic...
  - + propositional, first order, relevant, ...
  - My preference: **linear logics** - it suites well the whole event given by Petri nets





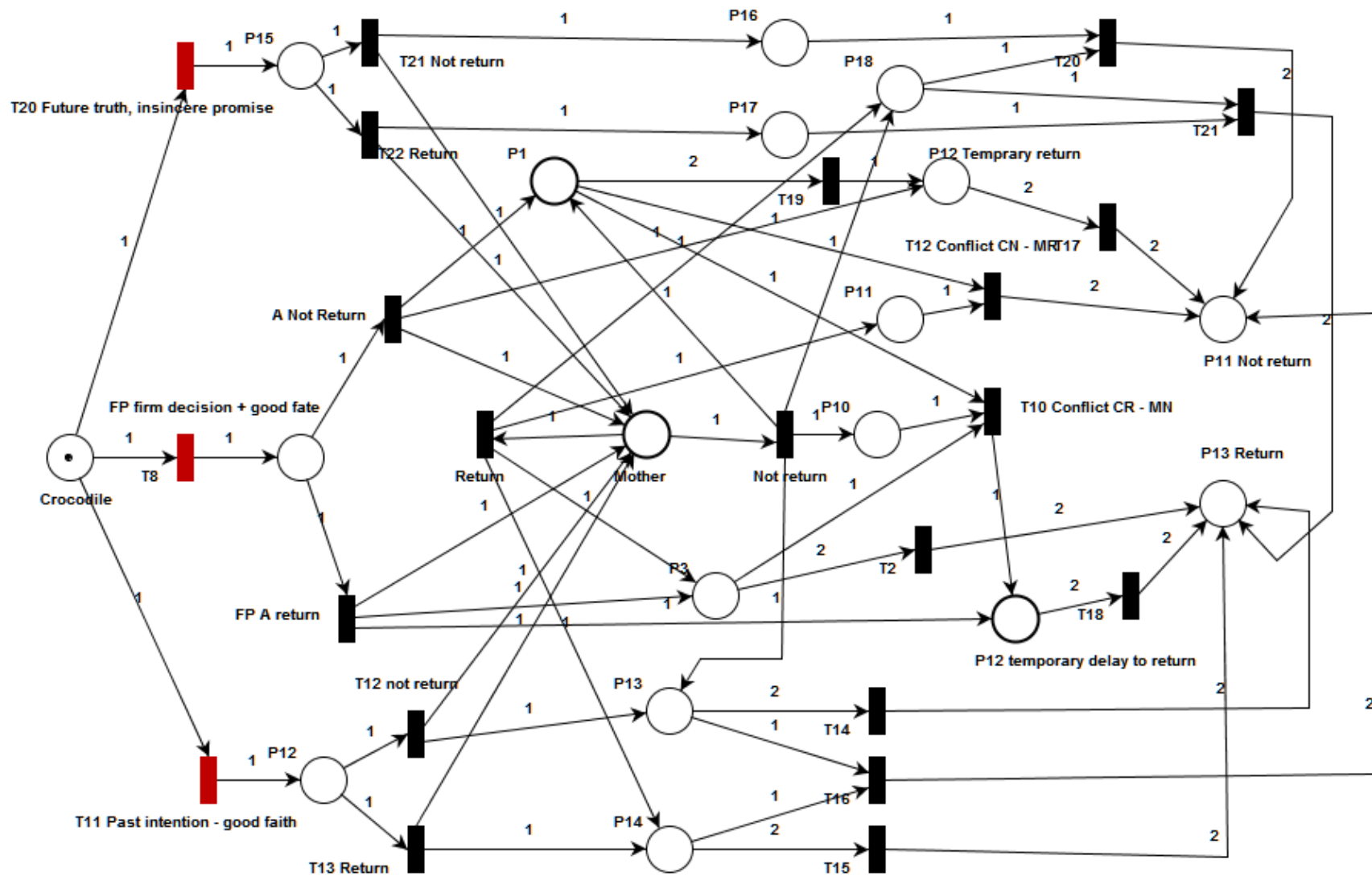
# Solution B - To guess “what it will do”

Scenario 1: C~R; MR		Scenario 2: C~R; M~R	
t2	P2 -o (P3 $\otimes$ P6)	t2	P2 -o (P3a $\otimes$ P6)
t6	P6 -o P4b	t4	(P3a $\otimes$ P3b) -o (P5a $\otimes$ P5b)
t3	P3 -o P4a	t5	(P5a $\otimes$ P5b) -o (P4a $\otimes$ P4b)
		t7	P6 -o P3b
Scenario 3: CR; MR		Scenario 4: CR; M~R	
t8	P2 -o (P9a $\otimes$ P6)	t8	P2 -o (P9a $\otimes$ P6)
t10	(P9a $\otimes$ P8b) -o (P10a $\otimes$ P10b)	t9	P9a -o P11a
t11	(P10a $\otimes$ P10b) -o (P11a $\otimes$ P11b)	t6	P6 -o P11b
t7	P6 -o P8b		





# Solution A, B, C on a single graph





## Concluding remarks:

1. Act of promising is interpreted as a form of a **speech act**
2. All solutions presented corresponds to **unilateral conditional contract / promise**
3. All solutions are based on available **historical sources**
4. There is no paradoxical outcomes and the source of conflicted situations are explained



# Concluding remarks:

Appropriate solutions asks for fidelity to the sources!

## Some suggested steps in the argument reconstructions

1. Identification of an argument and its sources
2. Classification of given argument
3. Elucidation of background logical theory (ancient as well as modern) behind the argument or corresponding with it.
4. Searching for an interpretation of:
  - the semantics of argument's logical expressions
  - the semantics of argument's extra-logical expressions
  - argument's theme and topic identification
5. Synthesis formulation resulting from point 1. to point 4.
6. Searching for philosophical interpretations of the argument
7. Selecting the proper interpretation and its testing



Thank You!