

Stylistic differences between typed and handwritten essay examinations

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How do students decide?

Unseen mock exam

2 questions : Handwrite one, Type the other

Before – what do you think

After – what do you think

Any measurable differences?

This paper looks at stylistic differences only

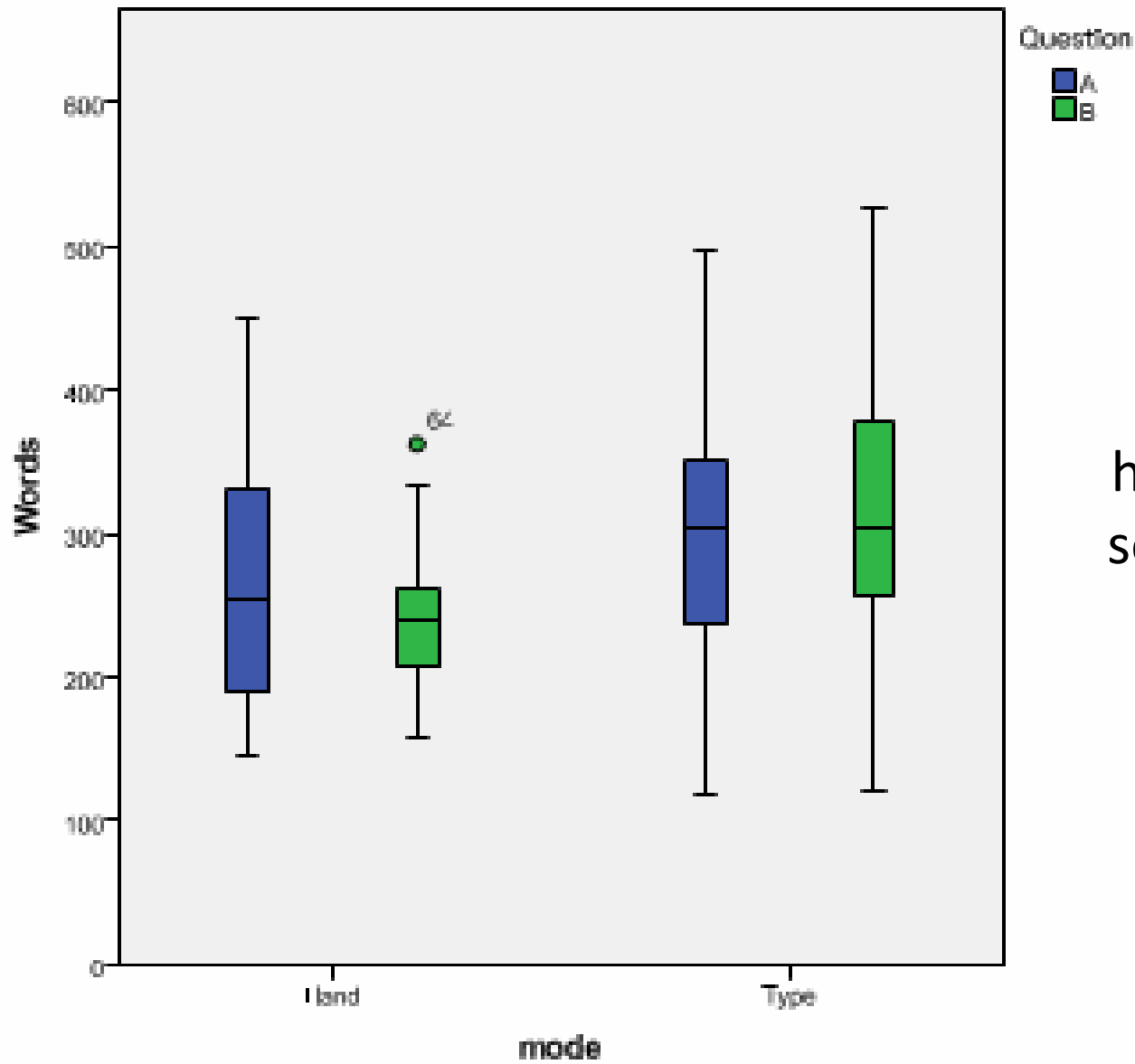
Number of Words

Students typically typed more words than they handwrote

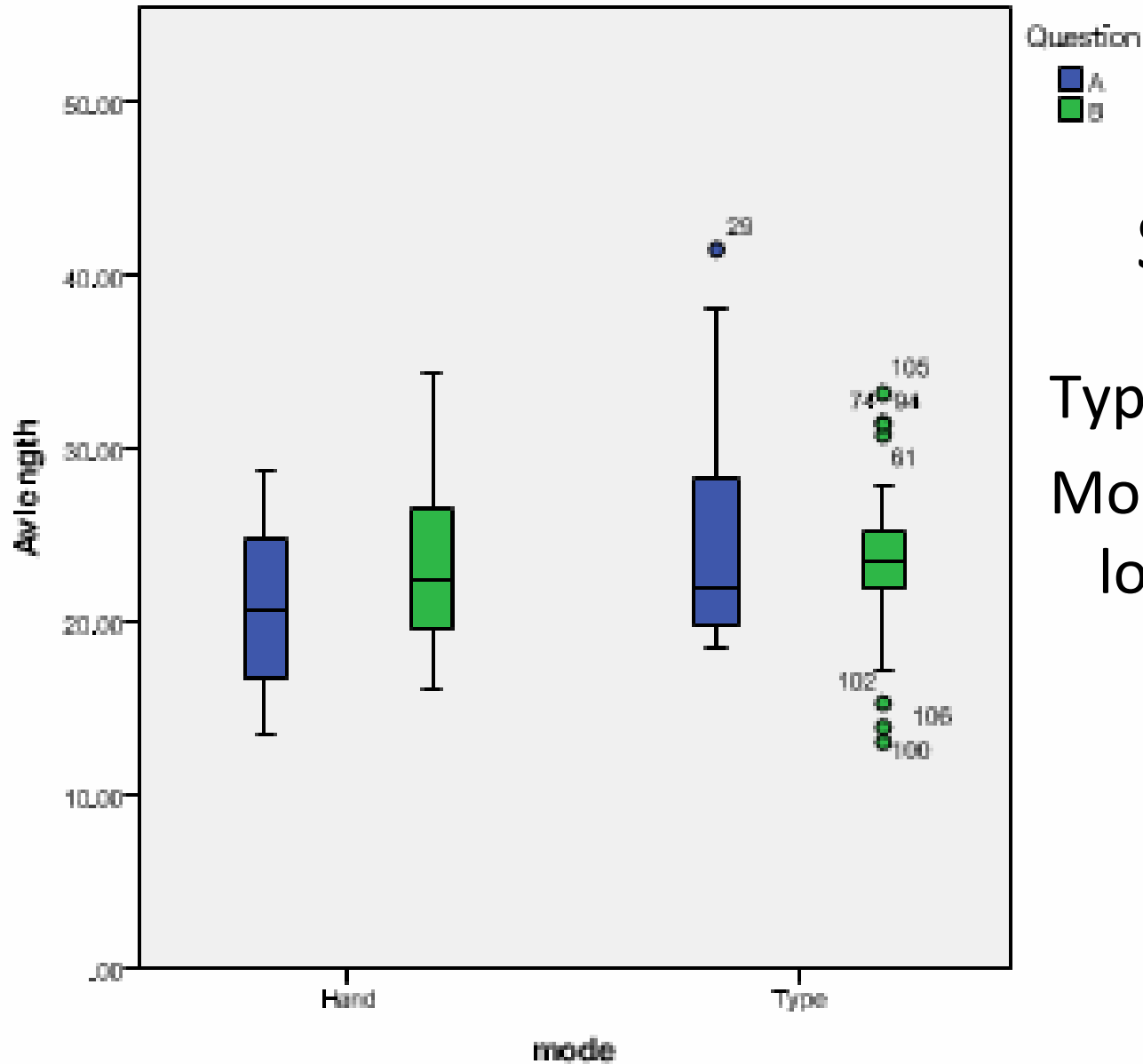
	N	Min	Max	Mean	St Dev
Typed	55	119	526	306.42	95.19
Handwritten	55	451	451	257.33	68.72

t test $P < 0.00$

95% CI for difference in no. of words written [26.77, 71.41]



Question B,
handwritten, looks
somehow different



Sentences

Typed :

More sentences &
longer sentences

Readability Measures

1. Gunning Fog Index

High values => complex text

Times/Guardian fog index ~ 11 or 12

Technical documents ~ 10 – 15

	N	Min	Max	Mean	St Dev
Fog Hand	55	7.5	17.2	12.5	2.36
Fog Typed	55	8.3	20.0	13.3	2.45

Students are writing using fairly complex language,
Typed scripts more complex ($p=0.043$)

Readability Measures

2. Lexical Density

Proportion of different words in whole text

Reading gets challenging for scores 60% – 70%

	N	Min	Max	Mean	St Dev
Lexical Hand	55	38.2	61.6	48.2	5.10
Lexical Typed	55	38.3	57.5	47.6	4.48

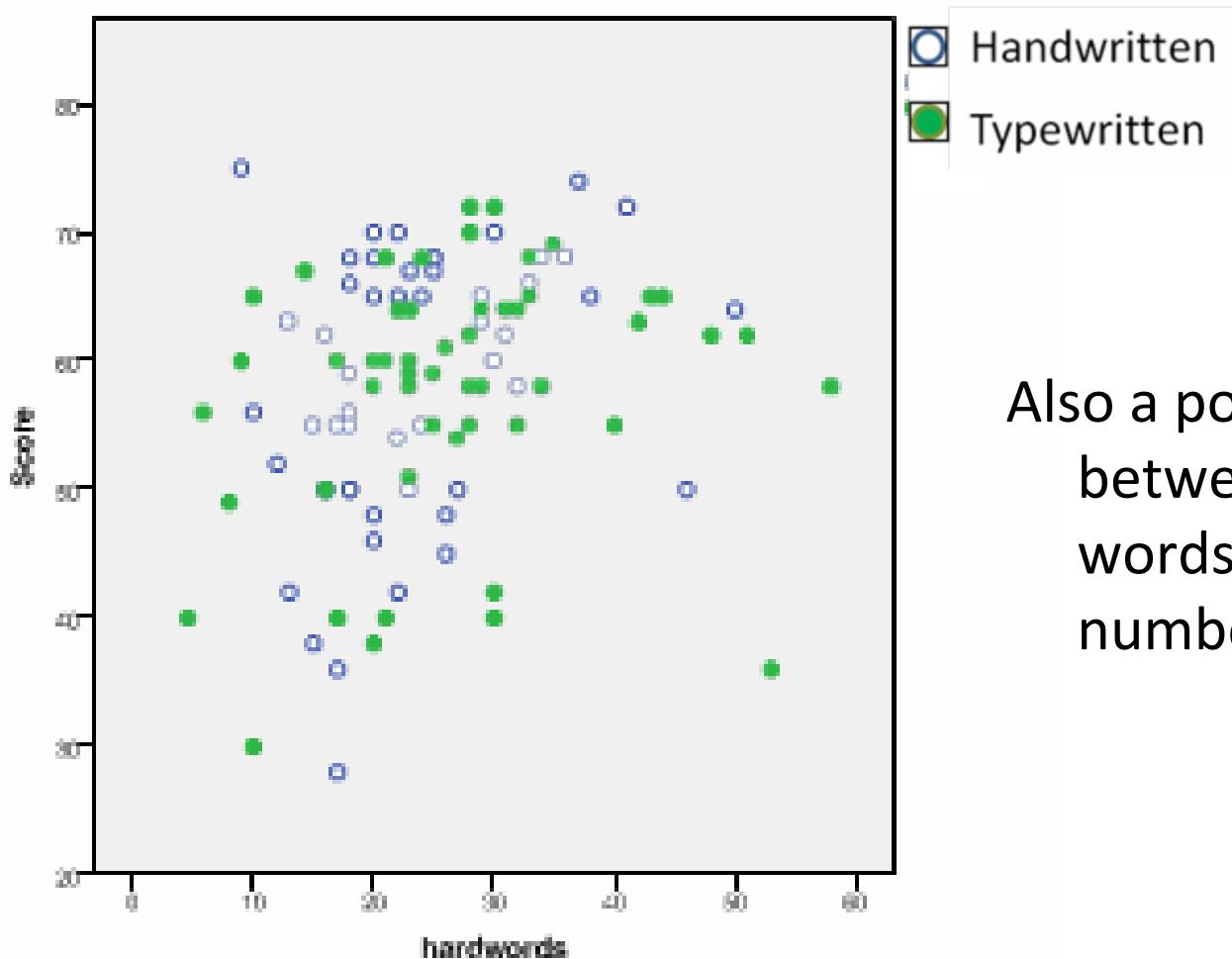
Students are writing using reasonably varied vocabulary,
Regardless of composition mode ($p=0.326$)

Overall

Typed responses are longer(*)	95% CI [27,71] No of words
Typed responses use more hardwords (*)	95% CI [0.7,5.6] No of words > 2 syllables
Typed responses use longer sentences	95% CI [0.1,3.8] Words per sentence
Typed texts use more complex language (*)	95%CI[0.03,1.58] Fog index

(*) => significant at 5%

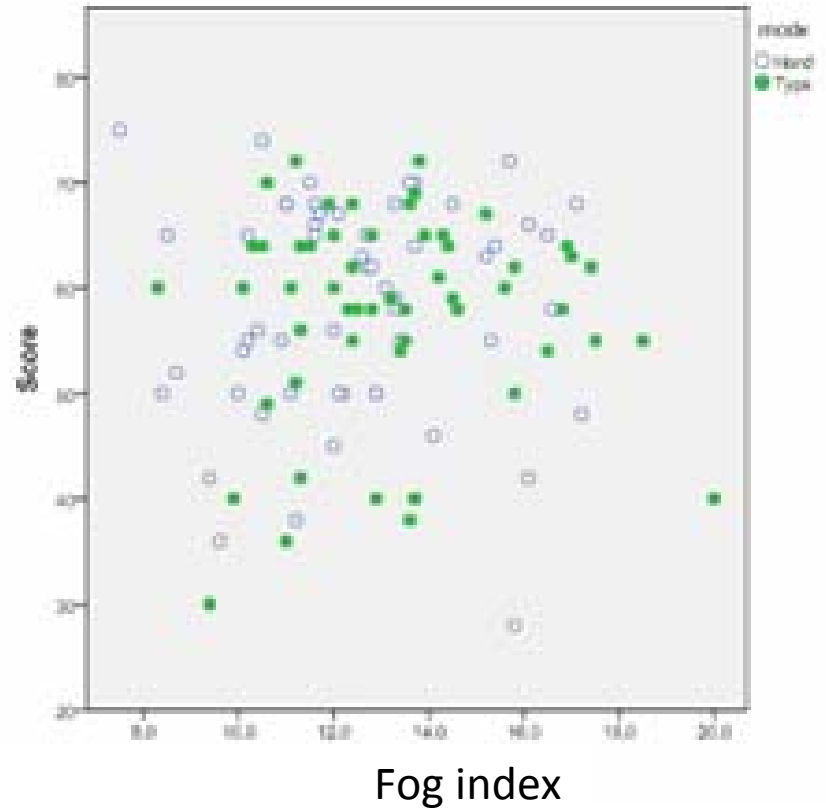
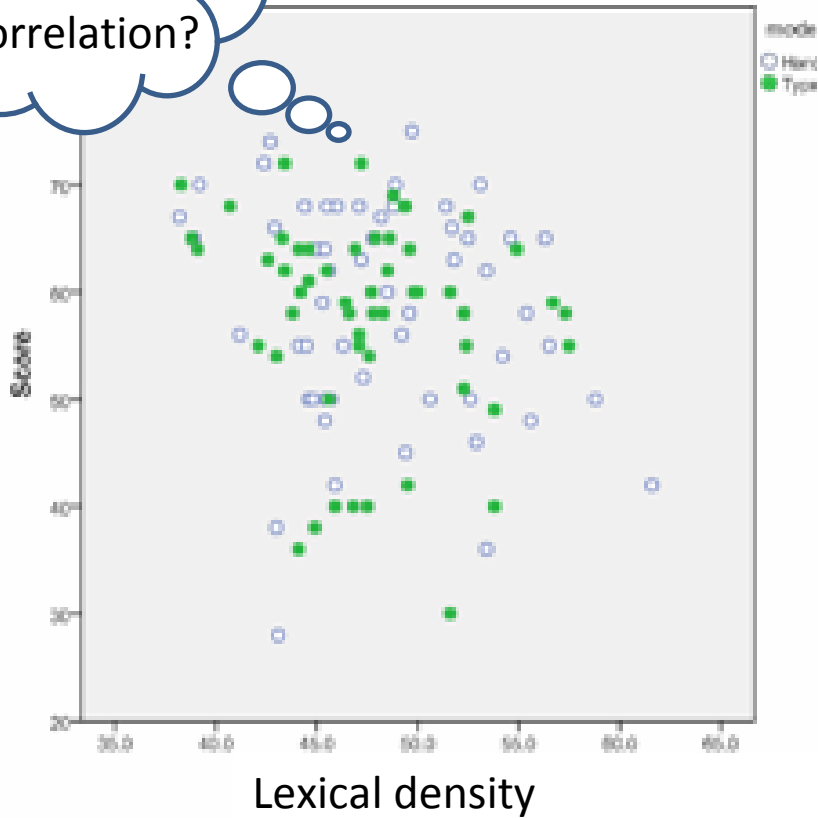
Hardwords (words > 2 syllables)



Also a positive correlation between the number of words written and the number of “hardwords”

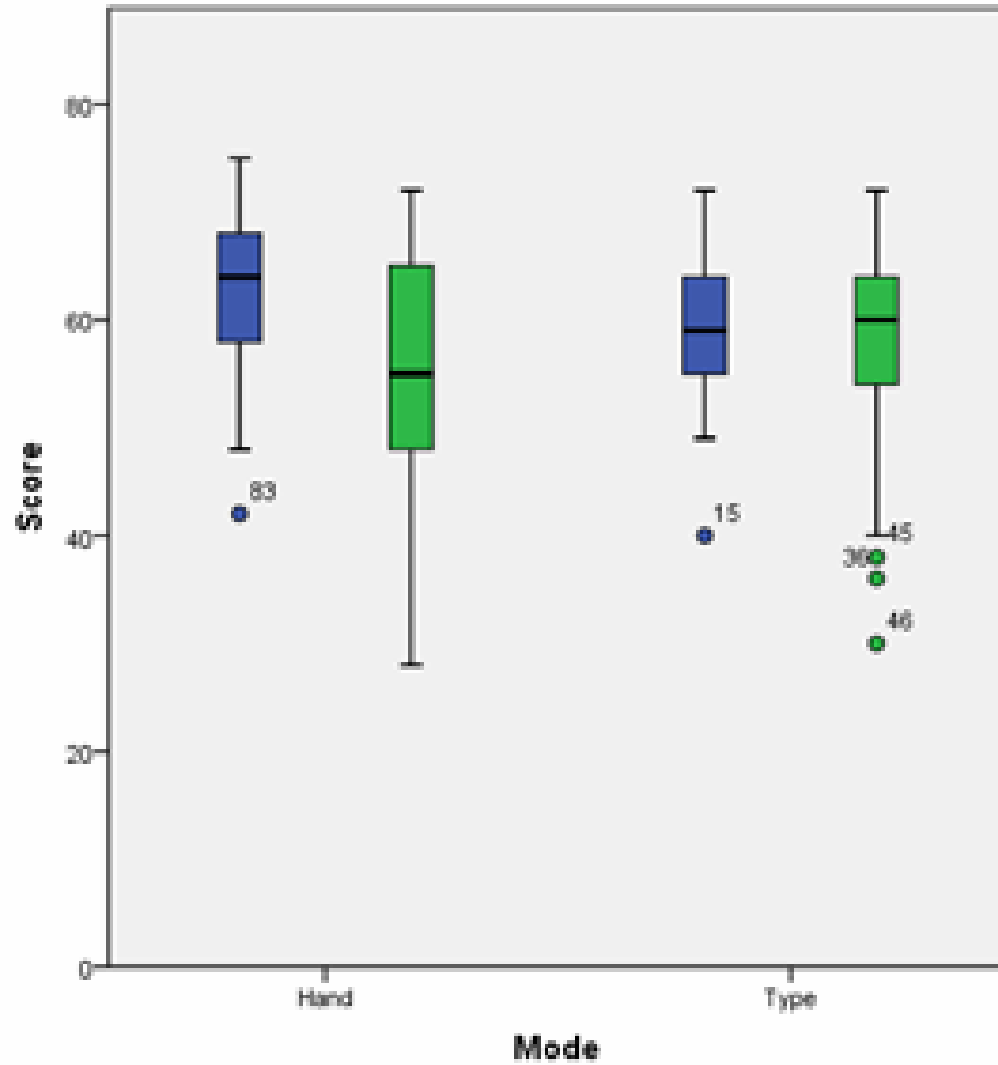
No evidence of correlation between complex language and score

Suggestion of negative correlation?



○ Hand written Type written ●

But beware a question effect : Students found Question B harder



Conclusions

- Some evidence that there are linguistic or stylistic differences between handwritten and typewritten examination essays.
- Supports previous research which suggests that typically students can and will type more words than they will handwrite.
- Contradicts previous research which found that typed scripts were overall more readable. (Shorter sentences, fewer hardwords & lower fog indices).
- This study found typed scripts tend to be more complex. (Significantly more hardwords, higher fog index, but a somewhat less diverse vocabulary.)

Typing vs Handwriting essay exams

- Students mostly type faster than they write
- Students in a timed situation will mostly type more words than they will handwrite
- Students typing in an exam will make use of basic editing facilities

****PLANNING BEHAVIOUR DIFFERS MARKEDLY****

between students and between modes

Cautions

- Can never replicate real exams!
- Divinity may have discipline specific vocabulary and style of discourse
- First year students, first university exams
- Order/Question effect : Both questions were exploring the same topic
- One marker, no moderation

Questions

Correlation no. of words to score : but typed texts tend to look shorter.

- Does this influence the marker?
- Does this influence the student?

Possible Negative correlation lexical density and score.

- Lexical density is about overall variety of vocabulary.
- So higher scoring papers are not about elegant varied English – its about getting the content down??
- What are the markers actually awarding credit for?

Exam essays are essentially first draft writing

- How do planning & revising/editing strategies differ when handwriting compared to word processing?
- How much impact does the time limit have?

Thank you

[Follow up?](#)

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Also

- HEA PRS subject centre for a project grant
- CT1 students for putting up with so many questions
- Mike Purcell for volunteering your class
- John Cowan, Jim Hartley for sage advice and interesting conversations!

~~As previously mentioned, this is one~~

As this model demonstrates, the relationship between both creation and incarnation is on historical ~~and~~ ^{and} ~~is~~ ^{is} God's story of salvation. Irenaeus argues ~~that~~ that it is also a pedagogical ^{history and therefore} relationship ~~is~~: following creation, ~~God creates~~ and then the fall, God establishes the 'Law', a measure (as Irenaeus adds) that is necessary to re-orientate Man to God, a ~~means~~ ^{means} of ~~improve~~ correction and improvement towards greater maturity. ~~God then has to~~ Following this argument, God sends his prophets for the same purpose.