

IPR2023-00033
Apple Inc.
v.
Zentian Limited
Patent 7,587,319

Patent Owner's Demonstratives

Presented March 11, 2024

Argument Roadmap

- ❖ The evidence proves a POSA would *not* have had a reasonable expectation of success
- ❖ Petitioner's counter-arguments rest on false logic
- ❖ The evidence proves *no* motivation to combine

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An *ordinary* artisan would ***not*** have had a reasonable expectation of success

The Petition's combination of Thelen, Bailey, and Chen has key requirements

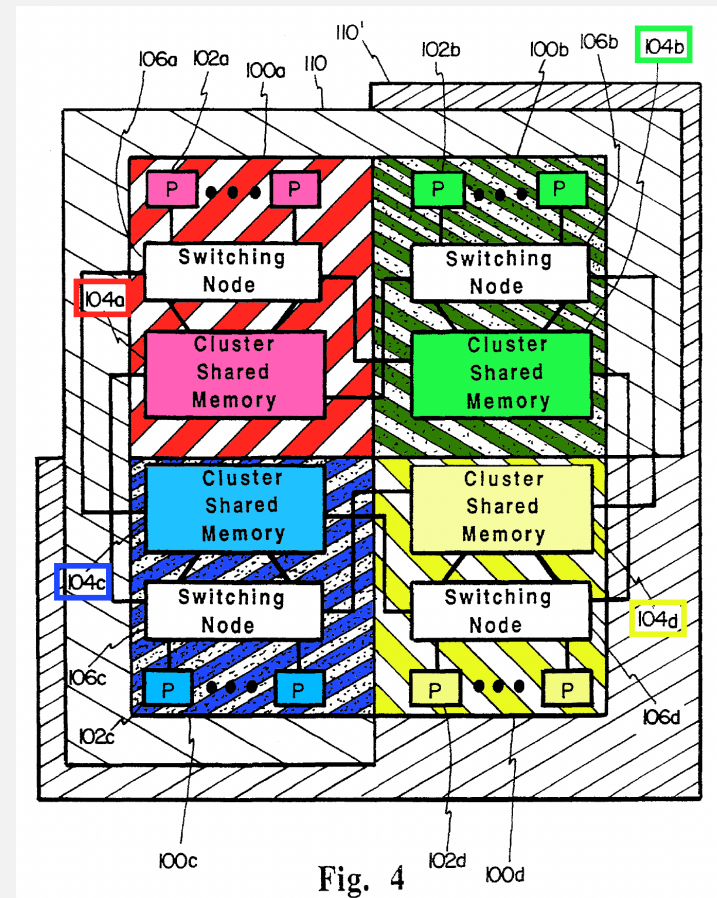
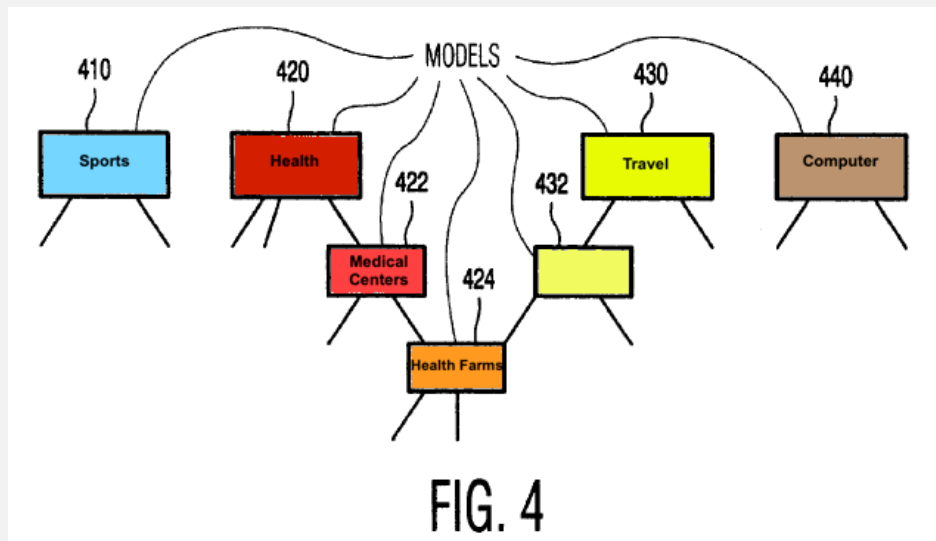
Architecture

1. Group Thelen's recognizers into groups of recognizers *all* associated with the *same* context (e.g., sports)
2. Port each recognizer group into a cluster of processors, each processor cluster connected to a dedicated cluster memory
3. Store *all* recognition models for *one* context (e.g., sports) in *one* cluster memory (partial lexical data)
4. Data stored across all cluster memories constitutes *all* recognition models for *all* contexts (complete lexical data)

An *ordinary* artisan would ***not*** have had a reasonable expectation of success

The Petition's combination of Thelen, Bailey, and Chen has key requirements

Architecture



An *ordinary* artisan would ***not*** have had a reasonable expectation of success

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Operational requirements

1. **Every** processor in a cluster must **simultaneously** request “the particular subset of vocabulary . . . that’s germane to its context” from the **single** shared cluster memory (e.g., golf, tennis, football, basketball). Ex. 2017, 125:8-126:5, Ex. 2020 ¶¶ 43-44;
2. Combination’s speech recognition must operate in **real time**, as Thelen did. Ex. 1003 ¶ 84, Ex. 2017, 154:8-155:17, Ex. 2020 ¶ 42.

An *ordinary* artisan would ***not*** have had a reasonable expectation of success

Neither Thelen, Bailey, nor Chen enables *Petitioner's combination*

Thelen and Bailey do not teach ***groups*** of processors each connected to one lexical memory

8 In your declaration at
9 paragraph 82, you rely on Chen for the
10 requirement of groups of processors, each
11 group being connected to a lexical memory;
12 right?

13 A. Yes, that is correct.

14 Q. You don't contend that either
15 Bailey or Thelen already teach groups of
16 processors with each group being connected
17 to a lexical memory; fair?

18 A. Correct.

Thelen does not teach how to run its techniques (including its recognizers) on ***groups of clustered processors***

7 Q. Thelen doesn't explain how to
8 run its approach on groups of processors in
9 a clustered architecture like the one in
10 Jiang and Chen; right?

11 A. Right. Thelen is devoted to
12 discussing mostly a software architecture.
13 The processors are logically separate. Each
14 of them has its own model, but it's not
15 discussed -- it is not discussed in terms of
16 an architecture of clustered processors.

An *ordinary* artisan would ***not*** have had a reasonable expectation of success

Neither Thelen, Bailey, nor Chen enables *Petitioner's combination*

Chen does not teach how to implement ***any*** speech recognition on its hardware, much less Petitioner's combination with Thelen

19 Q. Chen doesn't teach anything
20 about speech recognition; fair?
21 A. Yes. Speech is about parallel
22 processing architecture, not speech
23 recognition per se. Though, of course,
24 parallel processing was known as a way of
2 specifically talk about it; no.

An *ordinary* artisan would ***not*** have had a reasonable expectation of success

Mr. Schmandt's admissions refute a reasonable expectation of success

Mr. Schmandt admitted he did ***not***:

- ❖ Explain ***how*** a POSA could implement parallel operation of Thelen's multiple recognition models simultaneously within Chen's clusters, Ex. 2017, 137:21-138:24;
- ❖ Identify any challenges the POSA would face in making the combination, Ex. 2017, 141:23-142:2;

Mr. Schmandt admitted he did ***not***:

- ❖ Identify the tasks the POSA would need to undertake to make the combination, Ex. 2017, 144:3-20;
- ❖ Analyze "the tasks that would be required" of the POSA ***before*** he reached his conclusion of a reasonable expectation of success, Ex. 2017, 144:22-145:3;

An *ordinary* artisan would ***not*** have had a reasonable expectation of success

Mr. Schmandt's admissions refute a reasonable expectation of success

Mr. Schmandt admitted he has ***not***:

- ❖ Supervised anyone involved in mapping a speech recognition model to a clustered processor and memory architecture like Chen's, Ex. 2017, 145:20-24;

Mr. Schmandt admitted he has ***not***:

- ❖ Built the processor to memory architecture of ***any*** speech recognition system identified in his background experience, Ex. 2017, 34:24-35:5, 32:3-9, 106:10-23;

An *ordinary* artisan would **not** have had a reasonable expectation of success

Dr. Anderson's testimony disproves a reasonable expectation of success

- ❖ Petitioner's combination would cause extensive memory collisions
 - ❖ every processor in a cluster would be required to simultaneously request "the particular subset of vocabulary . . . that's germane to its context" from a **single memory**, Ex. 2017, 125:8-126:5, Ex. 2020 ¶¶ 43-44
 - ❖ Petitioner's combination would not operate in real time, Ex. 2020 ¶ 45
- ❖ POSA would have known that the combination could **slow down** speech recognition compared to Thelen alone
 - ❖ Mathew I taught that **adding** processors to a parallel processing speech recognition system **slowed down** the system, Ex. 2011 at 11, Ex. 2020 ¶ 46
 - ❖ Even Dr. Anderson, a person of **extraordinary skill**, and a team of engineers including a DSP expert, could not successfully port a far simpler signal processing software to a parallel processing architecture after six months, Ex. 2020 ¶¶ 40-41

An *ordinary* artisan would **not** have had a reasonable expectation of success

Dr. Anderson's testimony disproves a reasonable expectation of success

- ❖ POSA could not have reasonably addressed the numerous challenges arising from the combination, Ex. 2020 ¶¶ 38-39
 - ❖ Memory conflicts, controlling task sharing, addressing communication bandwidth and latency problems, and developing a messaging strategy across clusters
- ❖ Person of *ordinary* skill specialized in digital signal processing and speech recognition, **not** parallel processing architectures or high performance computing, Ex. 2020 ¶ 39

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Petitioner's arguments rest on false logic

Pet. Arg. 1: POSITA must be *assumed* to have requisite knowledge because '319 Patent did not address Petitioner's problems

The problems with Petitioner's combination arise out of *the combination*, not the invention of the '319 Patent

The '319 Patent does not teach Petitioner's specific combination, and its *silence* cannot support Petitioner

Petitioner's arguments rest on false logic

Pet. Arg. 2: A POSA's *general* knowledge of parallel processing architectures for speech recognition would have sufficed to achieve the *combination*

None of the cited prior art taught how to achieve ***real time*** recognition by porting groups of same-context recognizers into a clustered processor/memory architecture

General knowledge of parallel processing architectures is not adequate knowledge to achieve the combination

Petitioner's arguments rest on false logic

Pet. Arg. 2: A POSA's *general* knowledge of parallel processing architectures for speech recognition would have sufficed to achieve the *combination*

- ❖ Petitioner's combination would cause extensive memory collisions
 - ❖ every processor in a cluster would be required to simultaneously request "the particular subset of vocabulary . . . that's germane to its context" from a *single memory*, Ex. 2017, 125:8-126:5, Ex. 2020 ¶¶ 43-44
- ❖ Petitioner's combination would not operate in real time, Ex. 2020 ¶ 45
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Petitioner's arguments rest on false logic

Pet. Arg. 2: A POSA's *general* knowledge of parallel processing architectures for speech recognition would have sufficed to achieve the *combination*

Mr. Schmandt admitted he has *not*:

- ❖ Supervised anyone involved in mapping a speech recognition model to a clustered processor and memory architecture like Chen's, Ex. 2017, 145:20-24;

Mr. Schmandt admitted he has *not*:

- ❖ Built the processor to memory architecture of *any* speech recognition system identified in his background experience, Ex. 2017, 34:24-35:5, 32:3-9, 106:10-23;

Mr. Schmandt's conclusion of reasonable success is not credible

Petitioner's arguments rest on false logic

Pet. Arg. 3: Skilled persons knew of various speech recognition hardware architectures

Prior art is only presumptively enabled *for what it teaches*

Chen, Thelen, and Bailey do not enable *the combination*

Chen cannot be *assumed* to be enabled for *every speech recognition architecture imaginable*

Petitioner's arguments rest on false logic

Pet. Arg. 4: “Zentian does not argue that the combination is inoperable, [or] could not be done”

Patent Owner need only show Petitioner's failure of proof

Patent Owner need not show impossibility

Petitioner conflates *ordinary* skill with *extraordinary* skill

Petitioner's arguments rest on false logic

Pet. Arg. 5: Zentian's alleged complications would arise with *any* clustered processor architecture

Petitioner has *no evidence* to support its allegation

Petitioner again attempts to improperly shift its burden

The *combination* requires *real time* recognition but the combination's *design* prevents real time recognition

Petitioner's arguments rest on false logic

Pet. Arg. 6: Zentian's argument regarding memory collisions and slower processing does not account for multiple processors

The fact of multiple processors as utilized within the combination **causes** slower processing, as in Mathew I

Petitioner has ***no evidence*** that Chen's multiple processors would "more than account for any memory contention issues" *in the combination*

Petitioner's expert admitted he could not say the combination would have more power than Thelen

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The evidence proves no motivation to combine

Dr. Anderson's testimony disproves a motivation to combine

- ❖ The combination would cause extensive memory collisions that would cause it to be **slower** than Thelen, not faster
- ❖ POSA would have known from Mathew I that more processors would not necessarily make parallel processing speech recognition faster
- ❖ POSA would not have been motivated by a combination that would be slower than Thelen, and that would fail to achieve **real time** recognition
- ❖ Thelen's memory architecture would have been a poor fit for Chen's multiple private memories
- ❖ Petitioner's combination requires a distributed memory model because it gives memory access across adjacent clusters
- ❖ Petitioner's combination would have required significant reprogramming effort that would have defeated a motivation to combine

The evidence proves no motivation to combine

Pet. false motivation 1: increased processing power

Mr. Schmandt admitted he could not say the combination would have more power than Thelen

3 Q. So maybe your theory requires
4 adding processes to Thelen and maybe it
5 doesn't; fair?
6 A. Correct.

The evidence proves no motivation to combine

Pet. false motivation 2: increased processing speed

- ❖ POSA would have known that the combination could **slow down** speech recognition compared to Thelen alone
 - ❖ Mathew I taught that **adding** processors to a parallel processing speech recognition system **slowed down** the system, Ex. 2021 at 11, Ex. 2020 ¶ 46
 - ❖ Schmandt admitted that Thelen in unmodified form had no problems achieving real time recognition
- ❖ The combination would cause extensive memory collisions that would cause it to be **slower** than Thelen, not faster
 - ❖ POSA would not have been motivated by a combination that would be slower than Thelen, and would fail to achieve **real time** recognition

The evidence proves no motivation to combine

Pet. false motivation 3: cost

- ❖ Mr. Schmandt admitted he did not perform a quantitative or qualitative cost-benefit analysis
- ❖ He further admitted he did not compare the cost of Chen's architecture to any other clustered processing architectures
- ❖ Petitioner cannot state what the combination would have been ***cheaper than***, or what costs would have been "reduced"
- ❖ Cost alone would not suffice as a motivation where combination system would be slower than Thelen alone, would fail to meet Thelen's real time recognition requirement, would require significant reprogramming effort, and would not have more power than Thelen alone

The evidence proves no motivation to combine

Pet. false motivation 4: flexibility and scalability

- ❖ Mr. Schmandt admitted that MARS was flexible because its pipeline was programmable, and scalable because more processors could be added to it
- ❖ Mr. Schmandt further admitted that MARS was being compared to SRI-Berkeley, which did not have those features
- ❖ Petitioner has no showing that Thelen was not already flexible (programmable pipeline) or scalable (more processors could be added)

The evidence proves no motivation to combine

Pet. false motivation 5: increased benefits over a single processor

Thelen is already multi-processor, thus not relevant

The evidence proves no motivation to combine

Pet. false motivation 6: reduce duplication of lexical data

Petitioner's Reply states combination would require *duplication of lexical data*. Paper 21 at 21-22.

Other problems with the combination would defeat a motivation to combine regardless