Phase 1

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Phase I (adding & implementation for Existing Pkgs & Standalone Pkgs

* Existing Pkgs.

1. besselj1
2. betainc
3. betaincinv
4. ellipj
5. gammainc
6. gammaincinv
7. heaviside
8. heavisidef
9. kernel-betainc
10. minmax
11. minmaxabs
12. polygamma
13. rising-factorial
14. roundsd

* Standalone Pkgs. (Pkgs with NO dependency)

Topologically Sorted.

i) tribonaccif
ii) minmaxf
iii) lucasf
iv) log1pf
v) kernel-tanf
vi) kernel-sinf
vii) kernel-cosf

} requires "rempio2f" for test files. But has NO dependencies for C & JS implementations.

viii) gamma-lanczos-sumf
ix) gamma-lanczos-sum-exp-scaledf
x) fibonaccif
xi) factorial2f
xii) expm1f
xiii) wrapf
xiv) minmaxabsf

Dependency Tree
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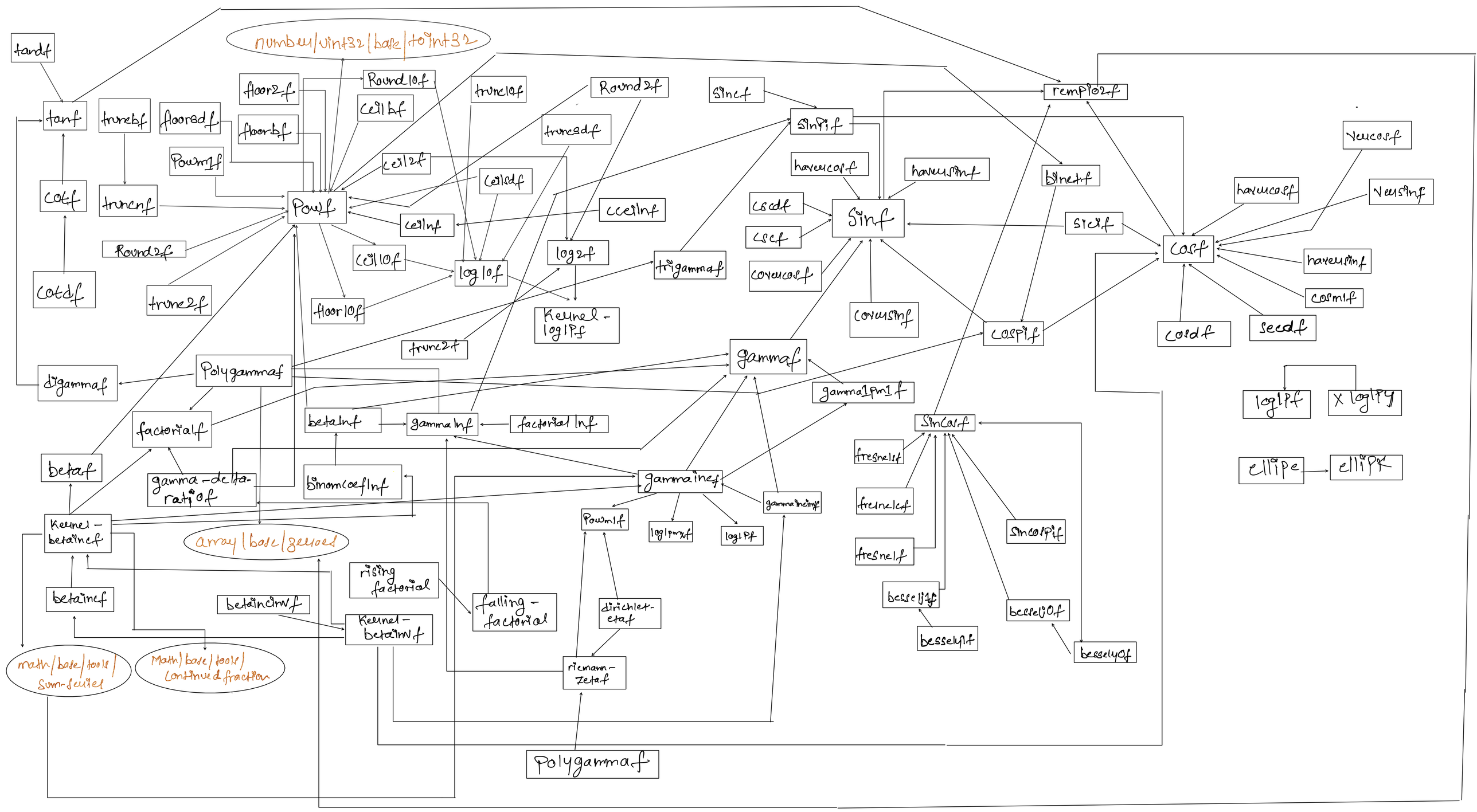
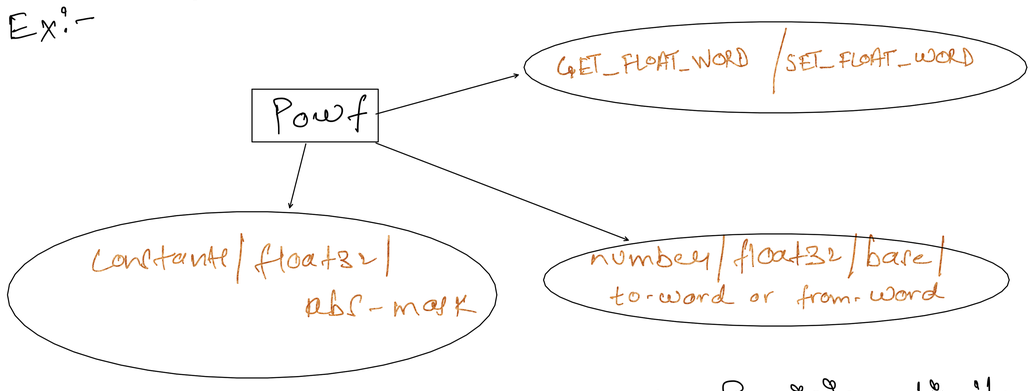
Phase II (Single-Precision Pkgs) Reference Implementation :- Existing float64 Pkgs.



* NOTES

- While working on single-precision pkgs we'll have to check whether the corresponding modules exist for float32 if not will have to implement them first before working on the pkg itself.

  Ex:-



- Ensuring the range of values lie in the precision-limit of 32 bit int.
- Proper variable names being used for precise hexa-decimal values & representing hexadecimals to binary format.
- Having pre-requiste knowledge of binary format of float32 & these values inorder to use them explicitly in a pkg.

  Ex:-

  FLOAT32_ABS_MASK === 0x7fffffff → Hexadecimal

- Ensuring if the corresponding constants for float32 exists. Similarly for numbers namespace & "math|base|assert".
- Taking help from the Repl while running custom examples or finding the precision limit for "float32" packages.

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Phase III :- Adding new Packages to mathematical & statistical libraries.

Reference implementation :- scipy, Julia, amos & cephes

★ Mathematical Pkgs.

* Priority order based on "scipy.special"

i) Airy functions

- airy(z, out) → Airy functions & their derivatives.
- airye(z, out) → Exponentially scaled airy func & their derivatives.

ii) Elliptic Integrals :-

- ellipkinc(phi, m, out) :- Incomplete elliptic integral of 1st kind.
- ellipeinc(phi, m, out) :- Incomplete elliptic integral of 2nd kind.

iii) Bessel functions :-

- jv(v, z, out) :- Bessel function of the 1st kind of real order & complex argument.
- jve(v, z, out) :- Exponentially scaled bessel funcn of the 1st kind order v.

★ Statistical Packages:

* Based on tracking - issue present in stdlib repo. & scipy

i) Rademacher distribution

ii) Zipf distribution

iii) double-gamma distribution

iv) Rice distribution